PTA

William B. Fornia, FSA | President

February 5, 2013

CONFIDENTIAL

Coalition of University of California Unions
Kathryn Lybarger, President, AFSCME Local 3299
Janice Webb, RN, Chair, UC Statewide Bargaining Council, CNA
Jelger Kalmijn, President, UPTE-CWA 9119
c/o Ms. Claudia Preparata via email: CPreparata@afscme3299.org

Re: Supplement to Actuarial Briefing

Dear Kathryn, Janice and Jelger:

Pension Trustee Advisors (PTA) and Dan McM Consulting have analyzed the actuarial reports and policies of the University of California Retirement Plan (UCRP), describing our results and conclusions in an Actuarial Briefing dated November 1, 2012. This additional document is being provided as a Supplement to the initial Actuarial Briefing to document the sources of data, prior actuarial results, and the actuarial assumptions and methods used in our analysis.

Sources of Data and Actuarial Information

In completing our analysis, we used both valuation data provided by the UC as well as valuation reports and other studies completed by Segal and Deloitte. Participant data was received in the form of Excel files, including:

- Complete valuation data files from the July 1, 2010 and July 1, 2011 valuations. The 2010 and 2011 files each include separate sheets for:
  - Active participants
  - Retirees and disabled retirees
  - Beneficiaries
  - Terminated participants with outstanding benefits
  - Participants that received lump sum distributions in the prior year
  - Participants that received a return of contributions or CAP funds
  - Participants that were deceased in the prior year
  - "Titles" and "Codes" sheets which give the key to interpret data fields
- Files titled "Layouts – 2010" and "Layouts – 2011". These files give the specific field layout for each participant sheet in the valuation files.
- Additional files with "Title Codes and Names" and "Faculty Ladder Ranks", which enabled the identification of various sub-groups within the data.

Although we received the complete data files necessary to complete the 2010 and 2011 actuarial valuations of the UCRP, we did not complete parallel valuations. We did use the data to confirm the reasonableness and accuracy of the actuarial data, summary statistics and valuation results included in Segal's valuation reports, but we did not complete an independent valuation.

In addition to the valuation data files, we used numerous valuation reports, experience studies, plan documents and other correspondence and studies. These documents were either provided by the UCUC or found online. Document files which we used in our analysis include:

- UCRP actuarial valuation report as of July 1, 2011, plus prior valuation reports from July 1 of each year from 2003-2010. (Recent reports completed by Segal).
- Actuarial experience studies, including studies completed in 2011, 2007 and 2003.
- Handouts from various UCRS Advisory Board meetings, in particular the February, June and November 2012 meetings. Pertinent documents from the Advisory Board meetings include, in particular:
    - Modeling of Various Maximum Employer Contribution Rates (draft for discussion from Segal, dated June 29, 2012): Item D, Attachment 2
    - UCRP July 1, 2012 Valuation Presentation from November 16, 2012

As noted, we did not complete a parallel actuarial valuation of the UCRP as of July 1, 2011. All of the illustrative charts and projections included in the Actuarial Briefing were based on:

- The actuarial results included in the UCRP actuarial valuation report as of July 1, 2011, plus prior valuation reports where applicable.
- The actuarial methods and assumptions outlined in the Segal actuarial valuation reports.
- Projection assumptions in particular were based on:
    - The projection assumptions outlined on page 4 of the Advisory Board Handout from June 29, 2012 (Item D, Attachment 2)
    - Asset values updated as of July 1, 2012 to include the estimated 2011-12 return of 0.3% on a market value basis and 0.9% on actuarial value, as shown on Slide 2 of the November 16, 2012 UCRSAB Valuation Presentation.

Notes, Analysis and Backup Calculations for Illustrations

The following pages contain notes, references and illustrative numbers to provide the information necessary to review the various charts and graphs in the Actuarial Briefing

of November 1, 2012 ("AB"). Supplemental tables containing numbers underlying certain graphs are included in the appendix.

Chart titled "Funded Ratios of 32 Largest Pension Plans" on page 1 of AB

The funding ratios for the various public included in this chart were pulled from the most recent actuarial reports available for each plan. The funded ratio of 82.5% for the UCRP as of July 1, 2011 can be found on page vi of the 2011 Actuarial Report, based on the Actuarial Accrued Liability ($51.8 billion) and Actuarial Value of Assets ($42.8 billion).

The components of the funding ratio for each plan are shown in the attached Supplemental Table I in the appendices.

Contribution History Chart on page 2 of AB

The Normal Cost for all prior years was pulled from the historical actuarial reports, as were the actual contributions for the 2009 and 2010 plan year. UC + Member Contributions for the 2011 and 2012 plan years were estimated from known information ($935 million contribution in July 2011; planned ER & EE contributions based on expected payroll.) The "New Funding Policy" contribution amounts were pulled from the historical actuarial reports for the 2008-1011 plan years; prior years were estimated by applying the new funding method to the actuarial results from the 2005-2007 reports.

Additional "Policy " Contributions due to "Projected" Shortfall; page 3 of AB

The chart on the top of page 3 and the quote from the bottom of page 2 were pulled directly from page 201 of Appendix R of the July 2010 Task Force Final Report.

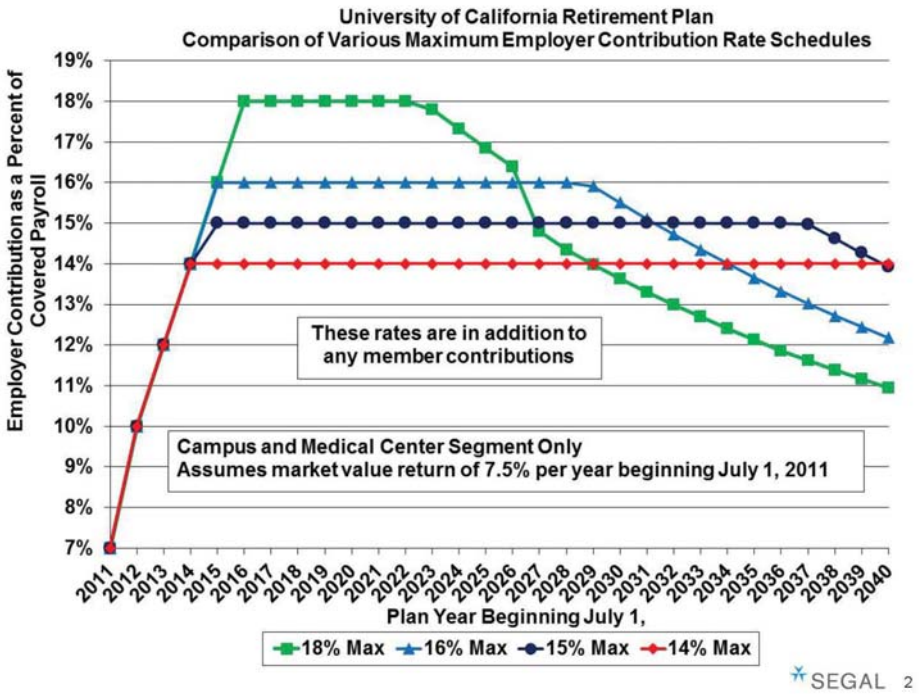
Projections of Contributions as % of Pay under various scenarios; pages 5, 6, 9, 10

The projections shown on pages 5-10 of the Actuarial Briefing are modeled after the projections completed by Segal for the June 29, 2012 UCRS Advisory Board meeting, specifically the chart shown on page 2 of Item D, Attachment 2 from that meeting. The projections shown on page 2 of the Segal exhibit illustrate the variation in contribution levels if total employer contributions as a percentage of payroll are capped at the 14%, 15%, 16% and 18% level going forward. (See chart on next page.)

Projection Assumptions

The following basic assumptions are used in the Segal projections as well as ours, with exceptions and variations as noted:

- All projections include participants, liabilities and assets for campus and medical centers only.
- 7.50% market value return in all future years. 7/1/2012 values were updated in our projections based on actual returns noted in 11/16/12 UCRSAB meeting handouts.
- New pension tier commences July 1, 2013.
- Contribution rates for current members increase to 6.5% for 2013/14 and 8% for 2014/15 and stays level for remainder of projection. Contribution rates for new tier members cap at 7%.
- Active member population is assumed to remain constant in all future years.
- Demographics for future new entrants are assumed to be the same as for members hired during two years prior to July 1, 2011
- Employer contribution rates shown on the Segal projection (below) do not include the employee contributions. If the total funding policy contribution level exceeded the planned contribution, the total contributions were assumed to be capped (i.e., the Segal projections assume that the UC will continue to contribute less than the full funding policy requires.)



The various options on the above graph assume that the calculation of the Funding Policy contribution is completed using level dollar amortization for each amortization base, with amortization periods determined as noted on page 57 of the 2011 actuarial report. Amortization bases and periods are as follows:

- Any initial unfunded liability after a period of surplus as well as any actuarial gain or loss is amortized over 30 years.
- Any change in unfunded liability due to assumption or method changed is amortized over 15 years.
- Any change in unfunded liability due to plan amendment is amortized over 15 years, unless the Regents adopt a shorter period.
- All amortization bases as of July 1, 2010 were combined and re-amortized over 30 years. This method of combining and re-amortizing is typically referred to as a "fresh start" amortization.

For our projections on pages 5-10 of the Actuarial Briefing, we included a base projection using the same underlying assumptions as the Segal projections, with the exception that we show the effect if the UC would put in the full funding policy contribution, rather than capping contributions. This baseline projection is referred to as "Level $, 7.50%" on the various charts in the Actuarial Briefing, and reflects the combined total of employer and employee contributions.

The Segal projections from the UCRS Advisory Board meeting presentation on 6/29/12 do not show any of the underlying numerical results. We assume that Segal ran the 2011 valuation data through their actuarial valuation software to get projected liability and asset values. However, since we did not complete a full valuation of the UCRP, we could not run a similar projection using valuation software. In order to mimic the Segal projections, we used their projection assumptions with the following additional assumptions:

- Total annualized payroll growth of 4% per year, which is based on the 3.5% inflation assumption plus the 0.5% "across the board" salary increases as shown on page 36 of the 2011 actuarial report.
- Demographic characteristics of future new entrants were based on the prior two years, as Segal noted in their assumptions. Average annualized pay of $64,835 calculated for new hires in the two-year period.
- Using count of new hires in 2009-10 and 2010-11 plan years, estimated 6.5% total turnover from active participation per year.
- Estimated current tier portion of projected payroll by assuming salary scale increases applied to annualized pay for active participants as of 7/1/2011, with reductions for 6.5% turnover. Payroll for additional participants under current tier (e.g., hired before 7/1/2013) estimated using aforementioned statistics for new hires in prior two years. After five years, decrease in projected payroll for

current tier assumed to remain constant based on fifth year of projection (approximately 2.91% reduction per year.)

- The 2011 valuation report does not give any information on current or future expected benefit payments. We estimated 2011-12 expected benefits to be approximately $2.4 billion based on valuation data and a rough estimate of expected lump sum payouts. We assumed a 5% increase in expected benefits per year initially. We also assumed that Tier 2013 would have an impact on expected benefit payments beginning in 2022, reducing the 5% annual increase to 3.17% (1.05 *1.13/1.15 = 1.0317).
- Normal Cost assumed to remain level as a percentage of payroll for current tier (18%) and Tier 2013 (15%). Normal Cost adjusted for timing using same ratio as 2011 actuarial report:
    - The Total Funding Policy Contribution shown on page 10 of the 2011 actuarial report was $2.007 billion ($1,357,825 normal cost plus $649,000 amortization), which was then increased by 7.87% to $2.165 billion for timing, due to expected payment in following year.
    - Using same adjustment factor of 7.689% to bring the Normal Cost back to the current year results in Normal Cost rates of 16.7% for the current tier and 13.9% for Tier 2013. The total contribution (Normal Cost plus amortization) is then increased by the same factor to adjust for timing.

Using the above assumptions, we were able to generate a projection graph that looks similar in shape and magnitude to the Segal projections from the 6/29/12 handout when we applied the same limitations on employer contributions that Segal applied. Although we have no way to check our results versus Segal's (since they did not include any corresponding numbers with their projection illustrations), we believe that our projection spreadsheet is producing results that are reasonably close to Segal's, and that the results are suitable for discussion purposes.

Funding Methodology/Amortization of Unfunded Liability

As previously noted, the current Funding Policy for the UCRP amortizes the unfunded liability for various amortization bases using level dollar amortization for each amortization base, with amortization periods of 15 or 30 years. However, as noted on page 1 of the Segal Attachment D projection handout from 6/29/12:

"In years where the combined actual employer and member rates do not reach the total funding policy contribution rates, the Unfunded Actuarial Accrued Liability is amortized over a period greater than 30 years, which is generally considered longer than current or emergent actuarial practice in this area."

In other words, by contributing less than the stated Funding Policy requires, the UC is effectively amortizing the unfunded liability over a period greater than 30 years. What we are suggesting is that, if the funding method is adjusted to amortize unfunded liabilities as a level percentage of pay rather than as a level dollar amount, this will reduce the required contribution to a level that is closer to what the University actually intends to pay while simultaneously using a method that is much more commonly used by large public employers.

Using a level percentage of pay methodology would decrease amortization payments initially, with payments increasing on individual bases at the assumed payroll growth rate of 4% per year. The following table shows the immediate impact this change would have if the change were implemented on all amortization bases effective with the July 1, 2012 valuation using actual bases shown in the 2011 actuarial report, plus an estimated loss base for 7/1/2012:

Date Base Established	Type of Base	Amort. Period	Initial Base Liability	Level $ Initial Payment	Level % Initial Payment	Level % 2012 Payment
7/1/2010	Loss	30	$ 5,389,886	$ 424,529	$ 278,752	$ 301,499
7/1/2011	Loss	30	$ 905,208	$ 71,298	$ 46,815	$ 48,688
7/1/2011	Assumption	15	$ 1,513,127	$ 159,459	$ 125,886	$ 130,922
7/1/2011	Amendment	15	$ (59,179)	$ (6,236)	$ (4,923)	$ (5,120)
(Loss base at 7/1/12 would vary if Level % used in prior year: remaining balance changes)						
7/1/2012	Loss (Level $)	30	$ 2,290,924	$ 180,442		
7/1/2012	Loss (Level %)	30	$ 1,916,739		$ 99,129	$ 99,129
Total Amortization at 7/1/2012				**$ 829,492**		**$ 475,989**
Amortization % of Annualized Pay				**8.82%**		**5.06%**
Amortization % of Covered Comp				**9.91%**		**5.69%**

As illustrated here, the reduction in the 2012 amortization payment if the methodology is changed to use level percentages of pay rather than a level dollar amount for each amortization base is over 4% of Covered Compensation. Note that this is based on our estimated funded status as of 7/1/2012 for the Campus/Medical Center portion of the plan. {*Our estimate is that the plan is 78.2% funded on an actuarial value basis, with assets of approximately $35.4 billion and liabilities of $45.25 million. The preliminary results presented by Segal on 11/16/12 do not provide enough information to verify these results: the funded status graph on slide 5 of the presentation shows a funded status of 78% based on Campus/Medical Centers only, while the numerical results on page 6 show the assets and liabilities for the entire plan including Labs.*}

Also note, if the UC were to adopt the method change to Level % of Pay and do a "fresh start" of the amortization bases (i.e., re-amortize the sum of all outstanding bases over 30 years beginning with the current valuation), the total amortization base for 2012 would be approximately $550 million on the estimated unfunded liability of $9.87 billion.

Appendices/Supplemental Tables

We have included the following appendices/supplemental tables:

- Supplemental Table I contains the underlying values from the chart on page 1 of the Actuarial Briefing which compares the funded status of the 32 largest public plans. This was obtained from the Public Funds Survey on July 25, 2012
- Supplement Table II contains the projected payroll with splits between participants in current tier and Tier 2013. These projected payroll numbers are the basis for all of our projections on pages 5-10 of the Actuarial Briefing.

Final Comments/Conclusion

As requested, we have provided the supplemental information in this report in order to enable the UC, the UCRSAB and Segal to review and analyze our Actuarial Briefing that was dated November 1, 2012. We have provided sufficient information on the data, assumptions and methods used that another actuary should be able to reproduce our projections (as we have reproduced Segal's.) However, our suggestion would be that, rather than reproduce our projections, the UC might want Segal to update their projections using actual valuation results together with our suggested methods.

Please review this report, the supplemental tables, and the original Actuarial Briefing and let us know if you have any questions or would like additional information.

We are happy to discuss this further at your convenience.

Sincerely,

William B. Fornia, FSA
Pension Trustee Advisors

Dan McMonagle, ASA
Dan McM Consulting

SUPPLEMENTAL TABLE I

FROM PUBLIC FUNDS SURVEY

AS OF JULY 25, 2012

Actuarial Funding Levels:

- Click here to switch to Ascending, click here to switch to Descending
- Then click column headings to sort
- Click single 'Plan Name' to view report for selected record
- View graph showing funding levels and liabilities
- Click here to Scroll through Plans alpha by State

	Actuarial Funding Ratio	Actuarial Assets (000's)	Actuarial Liabilities (000's)	Unfunded Liability (Surplus) (000's)
Aggregate for the 126 Plans shown here	76.4%	$2,642,646,335	$3,459,512,907	$816,866,572

No.	State	Plan Name	Actuarial Funding Ratio	Actuarial Assets	Actuarial Liabilities	Unfunded Liability (Surplus)	Actuarial Valuation Date	for FY ending
1	AK	Alaska Teachers	54.3	$3,259,868	$6,006,981	$2,747,113	6/30/2010	6/30/2011
2	AK	Alaska PERS	62.4	$6,469,832	$10,371,672	$3,901,840	6/30/2010	6/30/2011
3	AL	Alabama ERS	68.2	$9,739,331	$14,284,119	$4,544,788	9/30/2010	9/30/2010
4	AL	Alabama Teachers	71.1	$20,132,779	$28,299,523	$8,166,744	9/30/2010	9/30/2010
5	AR	Arkansas PERS	70.7	$5,467,000	$7,734,000	$2,267,000	6/30/2010	6/30/2011
6	AR	Arkansas Teachers	73.8	$10,845,000	$14,697,000	$3,852,000	6/30/2009	6/30/2010
7	AZ	Arizona Public Safety Personnel	67.7	$5,591,304	$8,255,185	$2,663,881	6/30/2010	6/30/2010
8	AZ	Arizona SRS	76.4	$27,572,000	$36,073,000	$8,501,000	6/30/2010	6/30/2011
9	AZ	Phoenix ERS	69.3	$1,868,093	$2,697,288	$829,195	6/30/2010	6/30/2010

10	CA	LA County ERS	83.3	$38,839,392	$46,646,838	$7,807,446	6/30/2010	6/30/2011
11	CA	San Francisco City & County	87.7	$16,313,100	$18,598,700	$1,574,300	7/1/2011	6/30/2011
12	CA	California PERF	83.4	$257,070,000	$308,343,000	$51,273,000	6/30/2010	6/30/2011
13	CA	California Teachers	69.1	$143,930,000	$208,405,000	$64,475,000	6/30/2010	6/30/2011
14	CA	San Diego County	84.3	$8,433,310	$9,999,161	$1,565,851	6/30/2010	6/30/2010
15	CA	Contra Costa County	83.8	$5,290,114	$6,314,787	$1,024,673	12/31/2009	12/31/2010
16	CO	Colorado School	60.2	$19,266,110	$31,986,199	$12,720,089	12/31/2011	12/31/2011
17	CO	Colorado State	57.7	$12,010,045	$20,826,543	$8,816,498	12/31/2011	12/31/2011
18	CO	Denver Employees	91.8	$1,923,561	$2,176,243	$252,682	1/1/2010	12/31/2010
19	CO	Colorado Affiliated Local	79.5	$1,618,456	$2,036,108	$417,652	1/1/2010	12/31/2010
20	CO	Colorado Fire & Police Statewide	102.9	$1,080,284	$1,049,622	($30,662)	1/1/2011	12/31/2010
21	CO	Denver Public Schools	81.5	$2,804,706	$3,442,527	$637,821	12/31/2011	12/31/2011
22	CO	Colorado Municipal	69.3	$2,882,691	$4,160,015	$1,277,324	12/31/2011	12/31/2011
23	CT	Connecticut Teachers	61.4	$14,430,187	$23,495,916	$6,530,000	6/30/2010	6/30/2010
24	CT	Connecticut SERS	44.4	$9,349,605	$21,054,197	$11,704,592	6/30/2010	6/30/2010
25	DC	DC Police & Fire	108.0	$3,418,796	$3,166,830	($251,966)	10/1/2009	9/30/2010
26	DC	DC Teachers	118.3	$1,570,968	$1,328,299	($242,669)	10/1/2009	9/30/2010
27	DE	Delaware State Employees	96.0	$6,808,957	$7,096,326	$287,369	6/30/2010	6/30/2010
28	FL	Florida RS	86.9	$126,078,053	$145,034,475	$18,956,422	7/1/2011	6/30/2011
29	GA	Georgia ERS	76.0	$12,667,557	$16,656,905	$3,989,348	6/30/2011	6/30/2011

30	GA	Georgia Teachers	85.7	$54,529,416	$63,592,037	$9,062,621	6/30/2010	6/30/2011
31	HI	Hawaii ERS	64.6	$11,400,117	$17,636,432	$6,236,315	6/30/2009	6/30/2009
32	IA	Iowa PERS	79.9	$22,575,309	$28,257,080	$5,681,771	6/30/2011	6/30/2011
33	ID	Idaho PERS	89.9	$11,360,100	$12,641,200	$1,281,100	7/1/2011	6/30/2011
34	IL	Chicago Teachers	66.9	$10,917,417	$16,319,744	$5,402,327	6/30/2010	6/30/2010
35	IL	Illinois Municipal	83.0	$25,711,288	$30,962,815	$5,251,527	12/31/2011	12/31/2011
36	IL	Illinois Teachers	46.5	$37,769,753	$81,299,745	$43,529,992	6/30/2011	6/30/2011
37	IL	Illinois SERS	37.4	$10,961,540	$29,309,464	$18,347,924	6/30/2010	6/30/2010
38	IL	Illinois Universities	44.3	$13,945,700	$31,514,300	$17,568,600	6/30/2011	6/30/2011
39	IN	Indiana Teachers	44.3	$8,804,964	$19,896,625	$11,091,661	6/30/2010	6/30/2011
40	IN	Indiana PERF	85.2	$12,357,199	$14,506,052	$2,148,853	7/1/2010	6/30/2011
41	KS	Kansas PERS	62.2	$13,589,658	$21,853,783	$8,264,125	12/31/2010	6/30/2011
42	KY	Kentucky ERS	40.3	$4,712,495	$11,692,944	$6,980,449	6/30/2010	6/30/2010
43	KY	Kentucky County	65.5	$7,296,321	$11,131,174	$3,834,853	6/30/2010	6/30/2010
44	KY	Kentucky Teachers	57.4	$14,908,138	$25,968,692	$11,060,554	6/30/2011	6/30/2011
45	LA	Louisiana SERS	57.6	$8,763,101	$15,221,055	$6,457,954	6/30/2011	6/30/2011
46	LA	Louisiana Teachers	55.1	$13,286,295	$24,096,754	$10,810,459	6/30/2011	6/30/2011
47	MA	Massachusetts SERS	81.0	$21,244,900	$26,242,776	$4,997,876	1/1/2011	12/31/2010
48	MA	Massachusetts Teachers	66.3	$23,117,952	$34,890,991	$11,773,039	1/1/2011	12/31/2010
49	MD	Maryland Teachers	66.3	$21,868,875	$32,985,145	$11,116,270	6/30/2011	6/30/2011
50	MD	Maryland PERS	62.8	$12,387,810	$19,722,264	$7,334,454	6/30/2011	6/30/2011
51	ME	Maine State and Teacher	77.4	$8,736,885	$11,281,665	$2,544,780	6/30/2011	6/30/2011
52	ME	Maine Local	93.5	$2,119,465	$2,267,574	$148,109	6/30/2011	6/30/2011

52	ME	Maine Local	93.5	$2,119,465	$2,267,574	$148,109	6/30/2011	6/30/2011
53	MI	Michigan SERS	78.0	$11,107,000	$14,234,000	$3,127,000	9/30/2009	9/30/2010
54	MI	Michigan Public Schools	78.9	$44,703,000	$56,685,000	$11,982,000	9/30/2009	9/30/2010
55	MI	Michigan Municipal	75.5	$6,443,100	$8,534,700	$2,091,600	12/31/2009	12/31/2010
56	MN	Minnesota PERF	75.2	$13,455,753	$17,898,849	$4,443,096	6/30/2011	6/30/2011
57	MN	Minnesota State Employees	86.3	$9,130,011	$10,576,481	$1,446,470	7/1/2011	6/30/2011
58	MN	Minnesota Teachers	77.3	$17,132,383	$22,171,493	$5,039,110	7/1/2011	6/30/2011
59	MN	Duluth Teachers	81.7	$255,302	$312,650	$85,555	7/1/2010	6/30/2010
60	MN	St. Paul Teachers	68.0	$1,001,444	$1,471,630	$470,186	6/30/2010	6/30/2010
61	MO	Missouri DOT and Highway Patrol	42.2	$1,375,845	$3,258,867	$1,883,022	6/30/2010	6/30/2010
62	MO	St. Louis School Employees	88.4	$950,700	$1,076,000	$125,300	1/1/2010	12/31/2010
63	MO	Missouri State Employees	79.2	$8,022,481	$10,123,544	$2,101,063	6/30/2011	6/30/2011
64	MO	Missouri Teachers	85.5	$29,387,486	$34,383,430	$4,995,944	6/30/2011	6/30/2011
65	MO	Missouri PEERS	85.3	$3,028,757	$3,549,348	$520,591	6/30/2011	6/30/2011
66	MO	Missouri Local	81.6	$3,945,086	$4,837,423	$892,337	2/28/2011	6/30/2011
67	MS	Mississippi PERS	62.2	$20,315,165	$32,654,465	$12,339,300	6/30/2011	6/30/2011
68	MT	Montana PERS	74.2	$3,889,890	$5,241,819	$1,351,929	6/30/2010	6/30/2010
69	MT	Montana Teachers	65.4	$2,956,600	$4,518,200	$1,561,600	7/1/2010	6/30/2010
70	NC	North Carolina Local Government	99.6	$17,100,739	$17,173,975	$73,236	12/31/2008	6/30/2010
71	NC	North Carolina Teachers and State	99.3	$55,127,658	$55,518,745	$391,087	12/31/2008	6/30/2010

		State Employees						
72	ND	North Dakota PERS	73.4	$1,621,700	$2,208,400	$586,700	6/30/2010	6/30/2010
73	ND	North Dakota Teachers	69.8	$1,842,000	$2,637,200	$795,200	7/1/2010	6/30/2010
74	NE	Nebraska Schools	80.4	$7,267,497	$9,039,744	$1,772,247	6/30/2011	6/30/2011
75	NH	New Hampshire Retirement System	58.5	$5,233,838	$8,953,932	$3,720,094	6/30/2010	6/30/2010
76	NJ	New Jersey Teachers	67.1	$33,265,327	$49,543,348	$16,278,021	6/30/2010	6/30/2011
77	NJ	New Jersey Police & Fire	77.1	$22,558,521	$29,274,359	$6,715,838	6/30/2010	6/30/2011
78	NJ	New Jersey PERS	69.5	$28,734,592	$41,347,836	$12,613,244	6/30/2010	6/30/2011
79	NM	New Mexico PERF	70.5	$11,855,217	$16,826,392	$4,971,175	6/30/2011	6/30/2011
80	NM	New Mexico Teachers	65.7	$9,431,300	$14,353,500	$4,922,200	6/30/2010	6/30/2010
81	NV	Nevada Regular Employees	70.6	$20,474,689	$28,988,787	$8,514,098	6/30/2011	6/30/2011
82	NV	Nevada Police Officer and Firefighter	68.4	$5,396,451	$7,887,405	$2,490,954	6/30/2011	6/30/2011
83	NY	NY State & Local Police & Fire	96.7	$22,230,000	$22,998,000	$768,000	4/1/2010	3/31/2011
84	NY	New York City Teachers	64.1	$30,775,000	$48,000,700	$17,225,700	6/30/2008	6/30/2010
85	NY	New York State Teachers	100.3	$88,544,400	$88,318,800	($225,600)	6/30/2010	6/30/2011
86	NY	NY State & Local ERS	93.9	$125,482,000	$133,574,000	$8,092,000	4/1/2010	3/31/2011
87	NY	New York City ERS	77.2	$42,556,400	$55,107,000	$12,550,600	6/30/2010	6/30/2011
88	OH	Ohio Police & Fire	72.8	$10,794,000	$14,831,000	$4,037,000	1/1/2010	12/31/2010

89	OH	Ohio School Employees	65.2	$10,397,000	$15,943,000	$5,546,000	6/30/2011	6/30/2011
90	OH	Ohio PERS	79.1	$63,649,000	$80,485,000	$16,836,000	12/31/2010	12/31/2011
91	OH	Ohio Teachers	58.8	$58,110,495	$98,766,204	$40,655,709	6/30/2011	6/30/2011
92	OK	Oklahoma PERS	80.7	$6,598,628	$8,179,767	$1,581,139	7/1/2011	6/30/2011
93	OK	Oklahoma Teachers	56.7	$9,960,600	$17,560,800	$7,600,200	6/30/2011	6/30/2011
94	OR	Oregon PERS	86.9	$51,583,600	$59,329,500	$7,745,900	12/31/2010	6/30/2011
95	PA	Pennsylvania School Employees	75.1	$59,306,800	$79,005,400	$19,698,600	6/30/2010	6/30/2011
96	PA	Pennsylvania State ERS	65.3	$27,618,000	$42,282,000	$14,664,000	12/31/2011	12/31/2011
97	RI	Rhode Island ERS	48.4	$6,405,209	$13,238,855	$6,833,646	6/30/2010	6/30/2010
98	RI	Rhode Island Municipal	73.6	$1,196,385	$1,626,261	$429,876	6/30/2010	6/30/2010
99	SC	South Carolina Police	74.5	$3,612,700	$4,850,457	$1,237,757	7/1/2010	6/30/2011
100	SC	South Carolina RS	65.5	$25,400,331	$38,774,029	$13,373,698	7/1/2010	6/30/2011
101	SD	South Dakota PERS	96.4	$7,433,800	$7,712,600	$278,800	6/30/2011	6/30/2011
102	TN	TN State and Teachers	92.1	$30,118,178	$32,707,625	$2,589,447	7/1/2011	6/30/2011
103	TN	TN Political Subdivisions	89.1	$6,562,604	$7,361,707	$799,103	7/1/2011	6/30/2011
104	TX	Texas Teachers	82.7	$115,253,000	$139,315,000	$24,062,000	8/31/2011	8/31/2011
105	TX	Texas County & District	88.8	$19,016,400	$21,409,500	$2,122,600	12/31/2011	12/31/2011
106	TX	Houston Firefighters	95.4	$3,062,200	$3,209,700	$147,500	7/1/2009	6/30/2010
107	TX	Texas ERS	84.5	$23,997,440	$28,398,210	$4,400,770	8/31/2011	8/31/2011
108	TX	Texas Municipal	85.1	$18,347,000	$21,563,300	$3,216,300	12/31/2011	12/31/2011
		City of Austin						

109	TX	City of Austin ERS	69.6	$1,711,600	$2,460,700	$749,100	12/31/2010	12/31/2010
110	TX	Texas LECOS	86.4	$830,520	$960,950	$130,430	8/31/2010	8/31/2011
111	UT	Utah Noncontributory	78.4	$16,861,064	$21,516,510	$4,655,446	12/31/2011	12/31/2011
112	VA	Virginia Retirement System	72.4	$52,729,000	$72,801,000	$20,072,000	6/30/2010	6/30/2011
113	VA	Fairfax County Schools	76.5	$1,769,540	$2,314,282	$544,742	12/31/2009	6/30/2010
114	VT	Vermont Teachers	66.5	$1,410,368	$2,122,191	$711,823	6/30/2010	6/30/2010
115	VT	Vermont State Employees	81.2	$1,265,404	$1,559,324	$293,920	6/30/2010	6/30/2010
116	WA	Washington PERS 1	74.1	$9,293,000	$12,538,100	$3,245,100	6/30/2010	6/30/2011
117	WA	Washington LEOFF Plan 1	126.6	$5,560,900	$4,393,300	($1,167,600)	6/30/2010	6/30/2011
118	WA	Washington PERS 2/3	97.2	$19,474,199	$20,028,800	$554,601	6/30/2010	6/30/2011
119	WA	Washington Teachers Plan 1	84.7	$7,791,300	$9,201,300	$1,410,000	6/30/2010	6/30/2011
120	WA	Washington Teachers Plan 2/3	100.5	$6,593,300	$6,557,800	($35,500)	6/30/2010	6/30/2011
121	WA	Washington School Employees Plan 2/3	98.5	$2,664,100	$2,705,500	$41,400	6/30/2010	6/30/2011
122	WA	Washington LEOFF Plan 2	117.0	$6,042,700	$5,163,600	($879,100)	6/30/2010	6/30/2011
123	WI	Wisconsin Retirement System	99.8	$80,626,900	$80,758,800	$131,900	12/31/2010	12/31/2010
124	WV	West Virginia Teachers	46.5	$4,137,866	$8,898,636	$4,760,770	6/30/2010	6/30/2010
125	WV	West Virginia PERS	74.6	$3,968,544	$5,319,764	$1,351,220	7/1/2010	6/30/2010
126	WY	Wyoming Public Employees	84.6	$5,799,531	$6,855,643	$1,056,112	1/1/2011	12/31/2010

*Funds with an unfunded liability of zero use the aggregate cost actuarial valuation method. Under this method, the actuarial value of liabilities is equal to the actuarial value of assets and no unfunded liability is identified.

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SUPPLEMENTAL TABLE II
UCRP Projected Payroll - Current Tier and Tier 2013

Plan Year	Total Current Tier Population Annualized	Total Current Tier Population Non-Annualized	Total Tier 2013 Annualized	Total Tier 2013 Non-Annualized	Total Payroll both Tiers Annualized	Total Payroll both Tiers Non-Annualized
2011	9,044,813,952	8,195,025,580	-	-	9,044,813,952	8,195,025,580
2012	9,406,606,510	8,369,355,100	-	-	9,406,606,510	8,522,826,603
2013	9,218,940,054	8,388,759,817	563,930,717	474,979,850	9,782,870,770	8,863,739,667
2014	8,999,568,956	8,181,072,290	1,174,616,645	1,037,216,964	10,174,185,601	9,218,289,254
2015	8,760,049,651	7,954,123,655	1,821,103,375	1,632,897,169	10,581,153,025	9,587,020,824
2016	8,513,171,480	7,720,622,154	2,491,227,666	2,249,879,503	11,004,399,146	9,970,501,657
2017	8,273,250,899	7,493,975,330	3,171,324,213	2,875,346,393	11,444,575,112	10,369,321,723
2018	8,040,091,827	7,273,981,957	3,862,266,290	3,510,112,635	11,902,358,117	10,784,094,592
2019	7,813,503,709	7,060,446,716	4,564,948,733	4,155,011,660	12,378,452,441	11,215,458,376
2020	7,593,301,361	6,853,180,022	5,280,289,178	4,810,896,688	12,873,590,539	11,664,076,711
2021	7,379,304,817	6,651,997,856	6,009,229,344	5,478,641,923	13,388,534,161	12,130,639,779
2022	7,171,339,183	6,456,721,600	6,752,736,344	6,159,143,770	13,924,075,527	12,615,865,370
2023	6,969,234,495	6,267,177,880	7,511,804,053	6,853,322,105	14,481,038,548	13,120,499,985
2024	6,772,825,579	6,083,198,411	8,287,454,511	7,562,121,573	15,060,280,090	13,645,319,984
2025	6,581,951,913	5,904,619,849	9,080,739,381	8,286,512,934	15,662,691,294	14,191,132,784
2026	6,396,457,502	5,731,283,645	9,892,741,443	9,027,494,450	16,289,198,945	14,758,778,095
2027	6,216,190,747	5,563,035,904	10,724,576,157	9,786,093,315	16,940,766,903	15,349,129,219
2028	6,041,004,319	5,399,727,249	11,577,393,260	10,563,367,138	17,618,397,579	15,963,094,388
2029	5,870,755,045	5,241,212,688	12,452,378,438	11,360,405,475	18,323,133,482	16,601,618,163
2030	5,705,303,783	5,087,351,485	13,350,755,038	12,178,331,404	19,056,058,822	17,265,682,890
2031	5,544,515,315	4,938,007,037	14,273,785,859	13,018,303,168	19,818,301,175	17,956,310,205
2032	5,388,258,233	4,793,046,749	15,222,774,988	13,881,515,865	20,611,033,222	18,674,562,613
2033	5,236,404,832	4,652,341,919	16,199,069,719	14,769,203,199	21,435,474,551	19,421,545,118
2034	5,088,831,005	4,515,767,625	17,204,062,527	15,682,639,298	22,292,893,533	20,198,406,923
2035	4,945,416,146	4,383,202,610	18,239,193,128	16,623,140,590	23,184,609,274	21,006,343,200
2036	4,806,043,044	4,254,529,178	19,305,950,601	17,592,067,750	24,111,993,645	21,846,596,928
2037	4,670,597,794	4,129,633,087	20,405,875,597	18,590,827,718	25,076,473,391	22,720,460,805
2038	4,538,969,700	4,008,403,450	21,540,562,626	19,620,875,787	26,079,532,326	23,629,279,237
2039	4,411,051,185	3,890,732,633	22,711,662,434	20,683,717,773	27,122,713,619	24,574,450,406
2040	4,286,737,707	3,776,516,165	23,920,884,458	21,780,912,258	28,207,622,164	25,557,428,423
2041	4,165,927,665	3,665,652,639	25,169,999,386	22,914,072,921	29,335,927,051	26,579,725,560