



CITY OF OCEANSIDE MISCELLANEOUS AND SAFETY PLANS

CalPERS Actuarial Issues – 6/30/09 Valuation

JOHN E. BARTEL

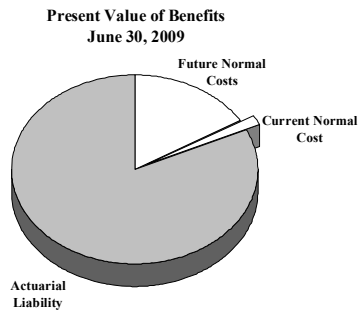
BARTEL
ASSOCIATES, LLC

February 22, 2011

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Definitions



- **PVB - Present Value of all Projected Benefits:**
 - Discounted value (at valuation date - 6/30/09), of all future expected benefit payments based on various (actuarial) assumptions
- **Actuarial Liability:**
 - Discounted value (at valuation date) of benefits earned through valuation date [value of past service benefit]
 - Portion of PVB “earned” at measurement
- **Current Normal Cost:**
 - Portion of PVB allocated to (or “earned” during) current year
 - Value of employee and employer current service benefit

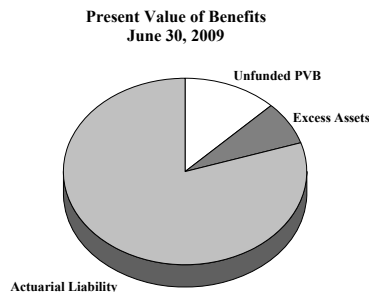


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Definitions



- **Target-** Have money in the bank to cover Actuarial Liability (past service)
- **Unfunded Liability** - Money short of target at valuation date
- **Excess Assets / Surplus:**
 - Money over and above target at that point in time.
 - Doesn't mean you're done contributing.
- **Super Funded:**
 - Assets cover whole pie (PVB)
 - If everything goes exactly like PERS calculated, you'll never have to put another (employer or employee) dime in.

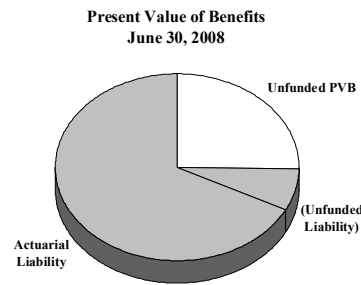
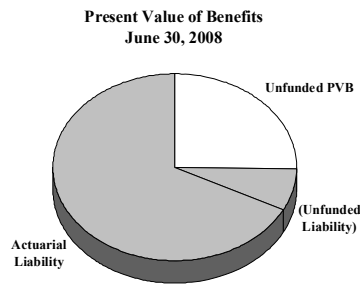


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Plan Funded Status Miscellaneous



<u>June 30, 2008</u>		<u>June 30, 2009</u>	
\$	86,600,000	\$	103,100,000
	(25,200,000)		(44,700,000)
	<u>232,500,000</u>		<u>265,700,000</u>
	294,000,000		324,100,000
	PVB		



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Plan Funded Status Miscellaneous

- What happened between 6/30/08 and 6/30/09?
 - Asset gain/(loss): ≈ (4.2) million
 - Actuarial gain/(loss): ≈ (1.5) million
 - Average Salary \$61,000 → \$64,300
 - Number of Actives 690 → 687
 - Number of Inactives 677 → 679
 - Number of Retirees 727 → 744
 - Contribution gain/(loss): ≈ 1.9 million
 - Expected ≈ (7.4)
 - Actual ≈ 9.3
 - Assumption Change gain/(loss) ≈ (12.7) million
 - Expected UAL Decrease/(Increase): ≈ (2.9) million

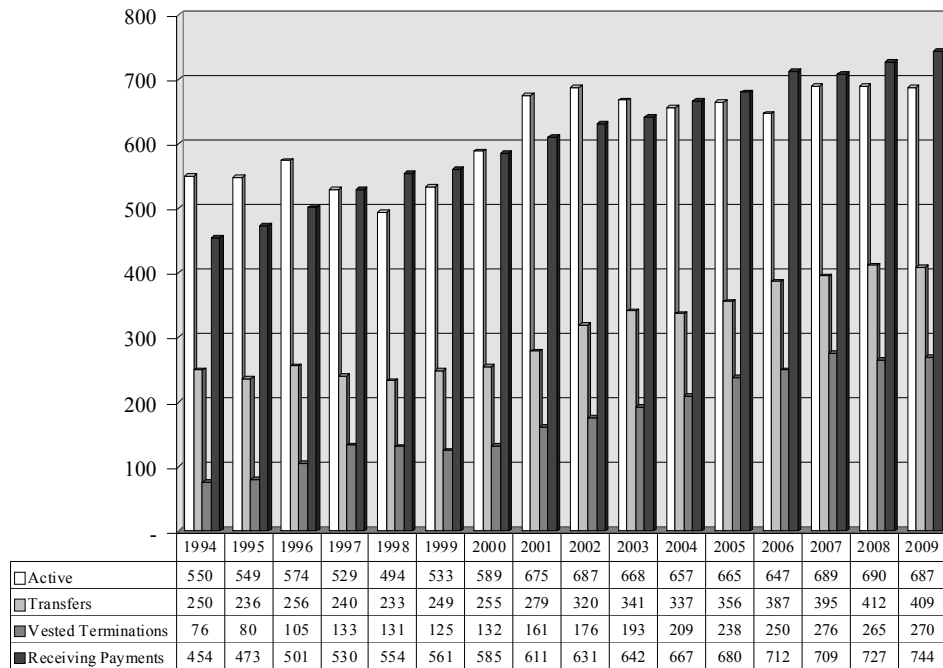


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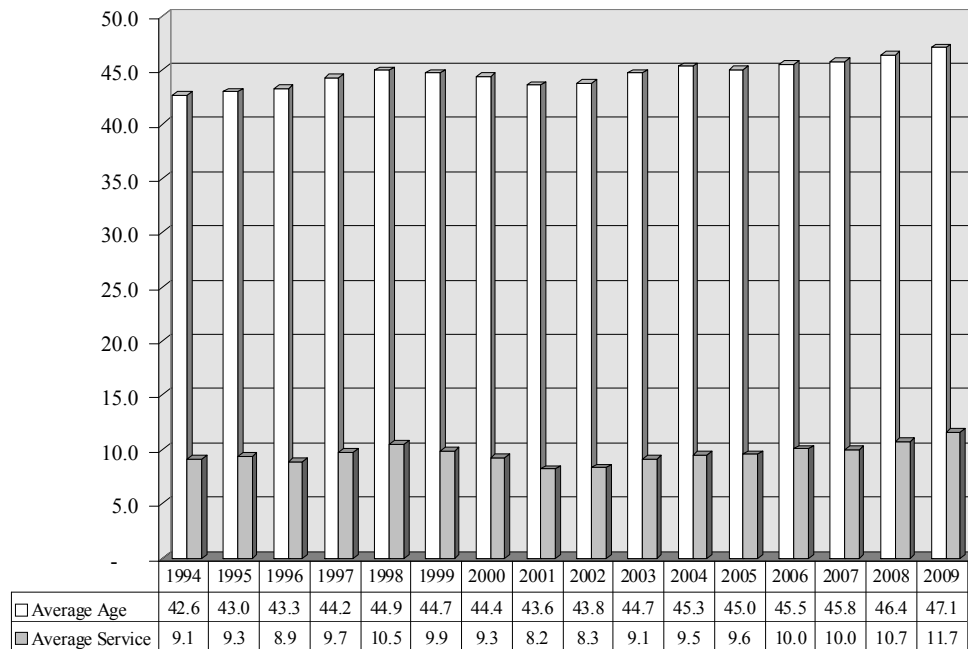
Members Included in Valuation Miscellaneous



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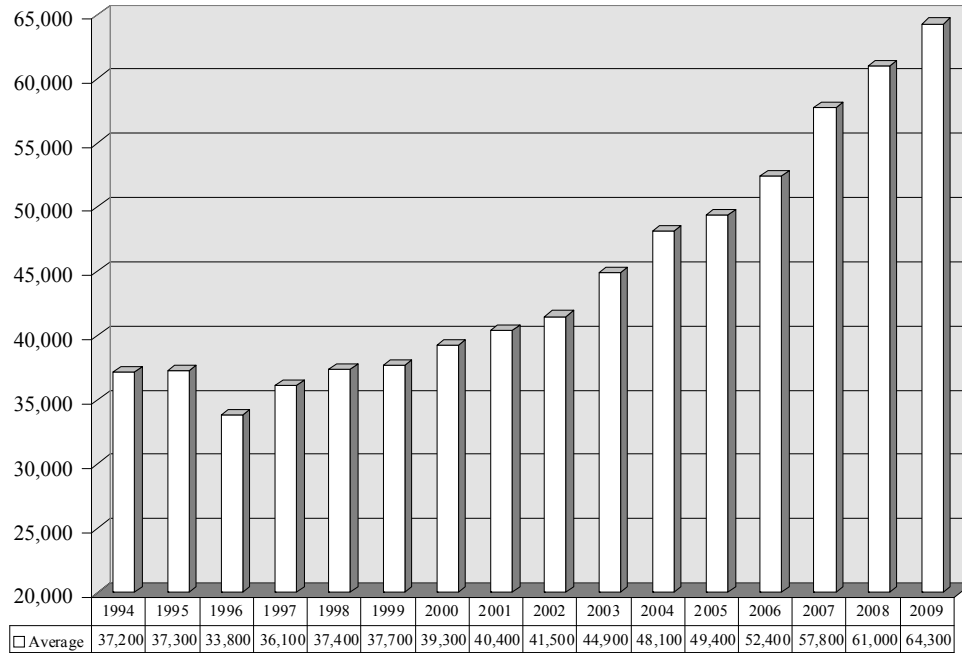
Average Age/Service Miscellaneous



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Average PERSable Wages Miscellaneous

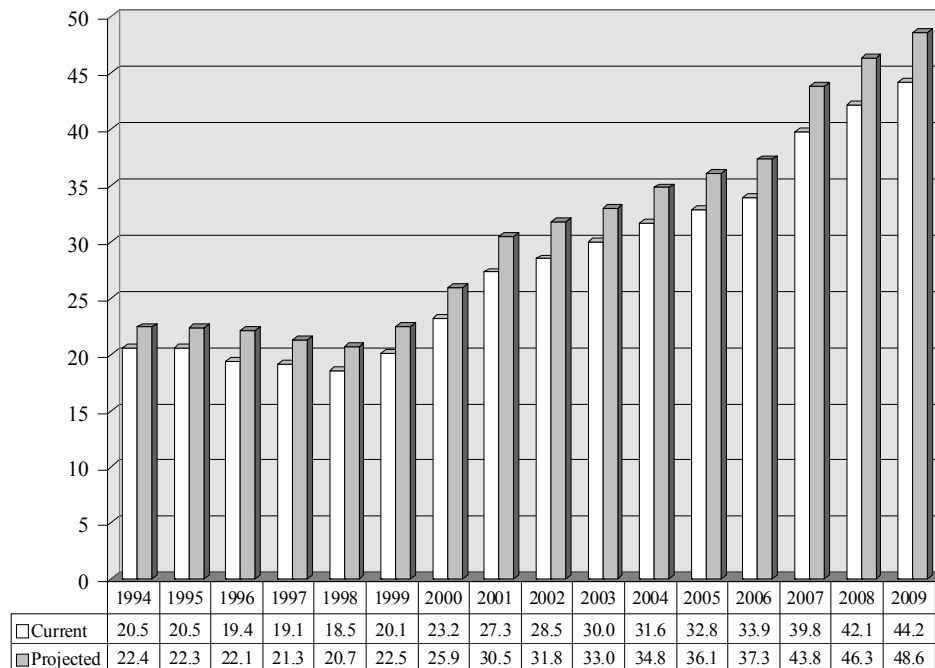


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Total Annual PERSable Wages (Millions) Miscellaneous

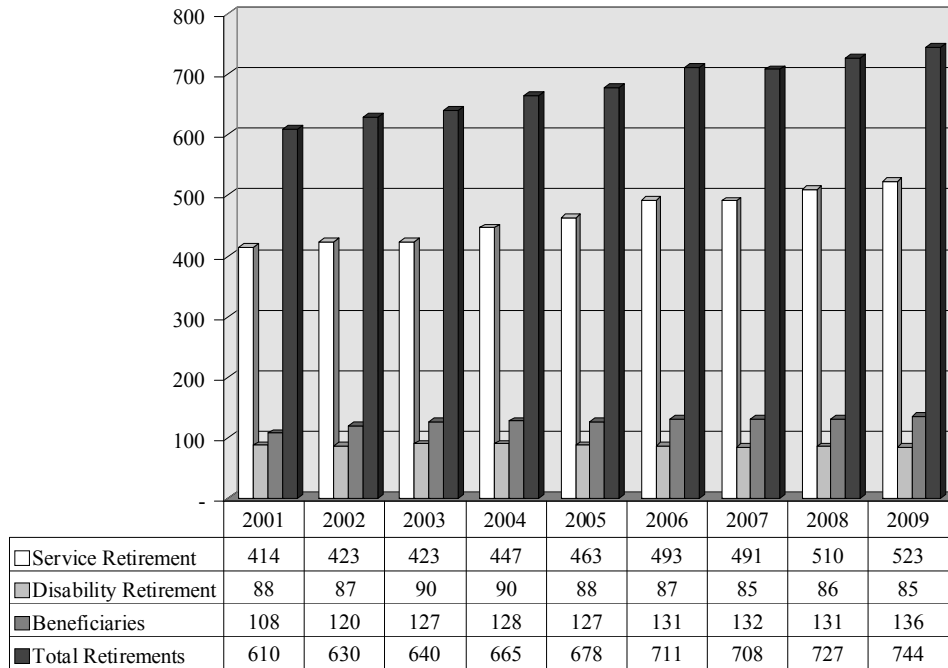


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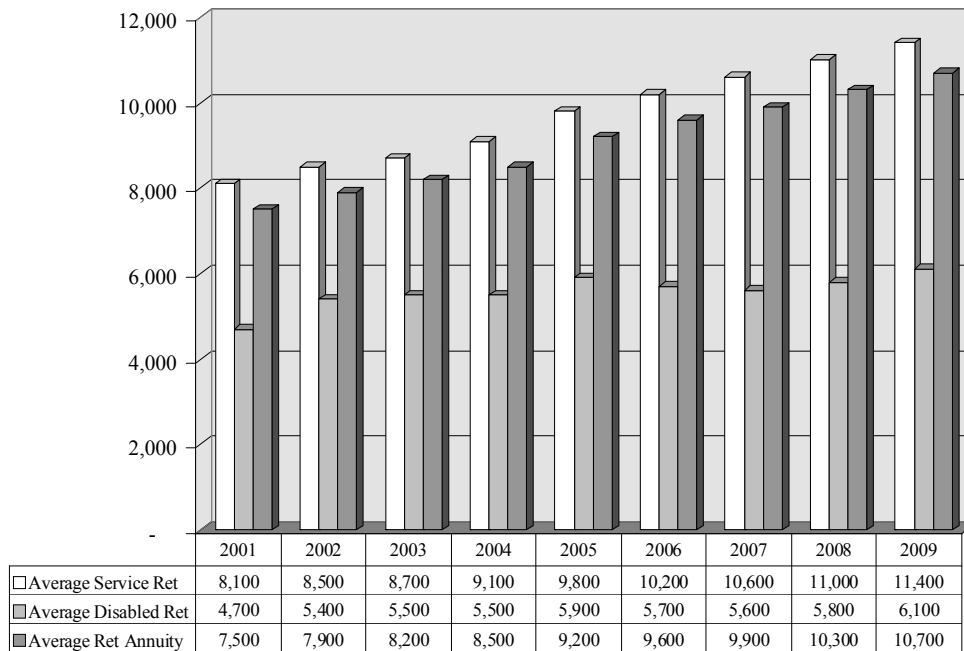
Members Receiving Payments Miscellaneous



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Average Annuity Miscellaneous



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Average Annuity Miscellaneous

	Service Retirement Retirees' Benefit									
Years Retired	2001	2002	2003	2004	2005	2006	2007	2008	2009	
Under 5	\$ 10,271	\$ 10,551	\$ 9,972	\$ 10,682	\$ 11,863	\$ 12,388	\$ 12,747	\$ 13,865	\$ 14,541	
5~9	9,492	10,175	11,056	11,427	12,172	12,328	11,590	11,116	11,651	
10~14	8,004	8,302	9,456	10,060	9,355	9,446	10,624	11,112	11,451	
15-19	4,978	5,052	5,147	5,339	7,278	7,476	9,325	10,410	11,187	
20-24	4,639	4,701	5,428	5,185	5,748	6,020	5,527	5,818	6,478	
25-29	4,263	4,694	3,560	3,758	4,820	4,678	6,233	6,003	5,463	
Over 30	2,616	2,957	5,124	3,884	6,520	-	2,146	3,735	5,432	
All Years	8,133	8,472	8,741	9,140	9,806	10,233	10,582	11,039	11,419	



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Average Annuity Miscellaneous

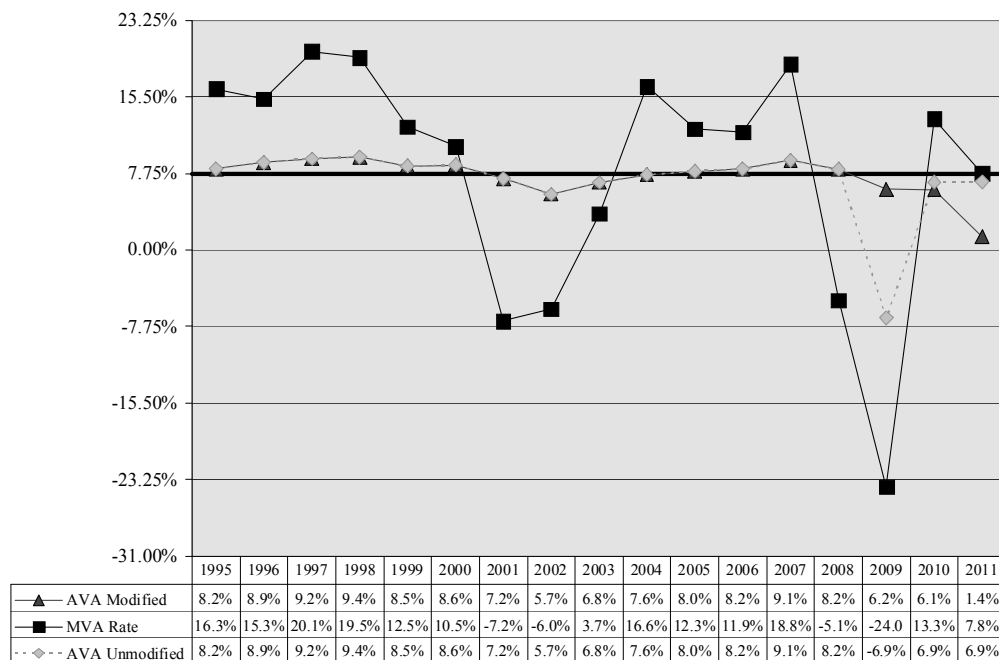
	Service Retirement Retirees' Benefit									
Attained Age	2001	2002	2003	2004	2005	2006	2007	2008	2009	
50-54	\$ 3,551	\$ 4,044	\$ 4,043	\$ 7,216	\$ 10,173	\$ 10,238	\$ 10,173	\$ 7,048	\$ 7,382	
55-59	10,611	7,598	7,818	9,042	9,473	8,614	10,822	11,374	10,796	
60-64	10,204	13,887	12,473	11,487	11,991	13,191	11,387	12,699	13,282	
65-69	8,417	8,429	10,625	11,226	12,446	12,712	14,104	12,916	13,543	
70-74	8,727	9,564	9,297	9,455	9,623	10,801	10,162	12,042	12,851	
75-79	6,291	6,246	7,301	8,044	8,709	8,830	10,266	10,350	11,022	
80-84	6,738	6,245	6,151	5,939	7,126	7,689	6,483	7,127	7,546	
85 & over	4,290	5,194	5,586	5,886	6,578	5,945	7,986	8,136	7,700	
All Ages	8,133	8,472	8,741	9,140	9,806	10,233	10,582	11,039	11,419	



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Actuarial Investment Return Miscellaneous



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Actuarial Investment Return Miscellaneous

- Above assumes contributions, payments, etc. received evenly throughout year.
- 6/30/09:
 - Market Value return $\approx (24.0)\%$
 - Actuarial Value return
 - Modified $\approx 6.2\%$
 - Unmodified $\approx (6.9)\%$
- 6/30/10:
 - Market Value return $\approx 13.3\%$ ¹
 - Actuarial Value return
 - Modified $\approx 6.1\%$
 - Unmodified $\approx 6.9\%$
- 6/30/11:
 - Market Value return through 11/30/10 $\approx 9.4\%$
 - Estimated Annualized MVA Return² $\approx 7.75\%$
 - Est. Annualized Modified AVA Return $\approx 1.4\%$

¹ As reported by CalPERS press release.

² CalPERS assumed investment return 7.75%

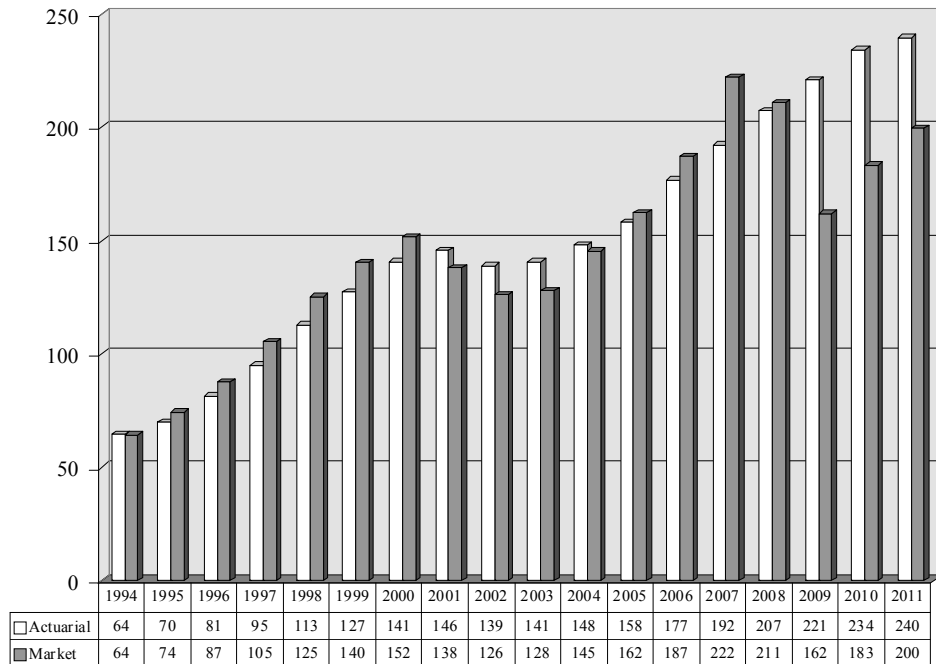


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Asset Values (Millions) Miscellaneous



6/30/10 & 6/30/11 asset values estimated.

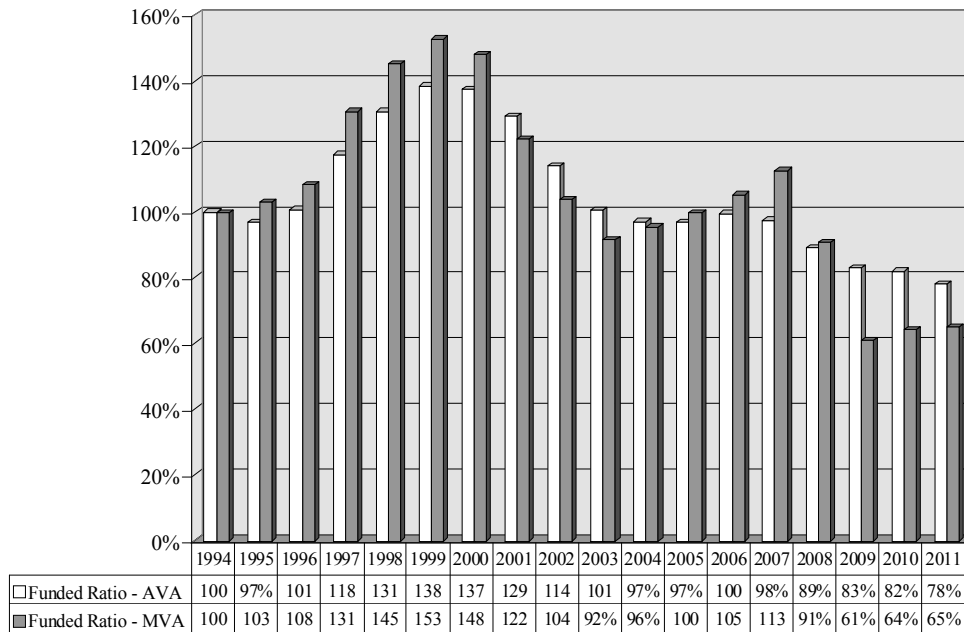


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Funded Status Miscellaneous



6/30/10 & 6/30/11 funded status estimated

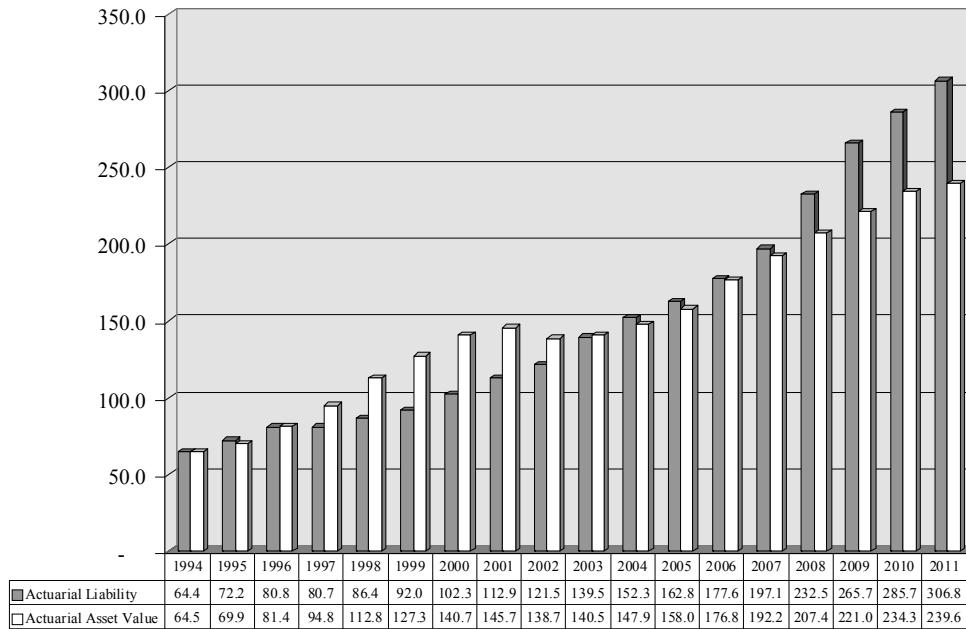


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Funded Status (Millions) Miscellaneous



6/30/10 & 6/30/11 funded status estimated



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Contribution Rates Miscellaneous

- Investment gains/(losses) – Impact on funded status:
 - Actuarial asset “reserve” at 6/30/09 -36.5%
 - 6/30/10 [13.3% compared to 7.75%] 5.6%
 - 6/30/11 [7.75 %compared to 7.75%] 0.0%
 - Total estimated % loss through 6/30/11 -30.9%
 - Total estimated unrecognized gain \$ -50.1 million
[-30.9% x \$ 162]

		<u>6/30/08</u>	<u>6/30/09</u>	<u>Projected</u> <u>6/30/11</u>	<u>6/30/41</u>
■	UAL ³ (millions)	\$ 25.2	\$44.7	\$47.2	\$10.2
■	Investment losses 09/10 ⁴			50.1	65.1
■	Investment gains 10/11 ⁴			<u>0.0</u>	<u>0.0</u>
■	Total			97.3	75.3

³ Does not include asset gains or losses after June 30, 2009.

⁴ Ignores future gains & losses (after 6/30/10) and asset smoothing, and assumes continuance of 30-year rolling amortization method.

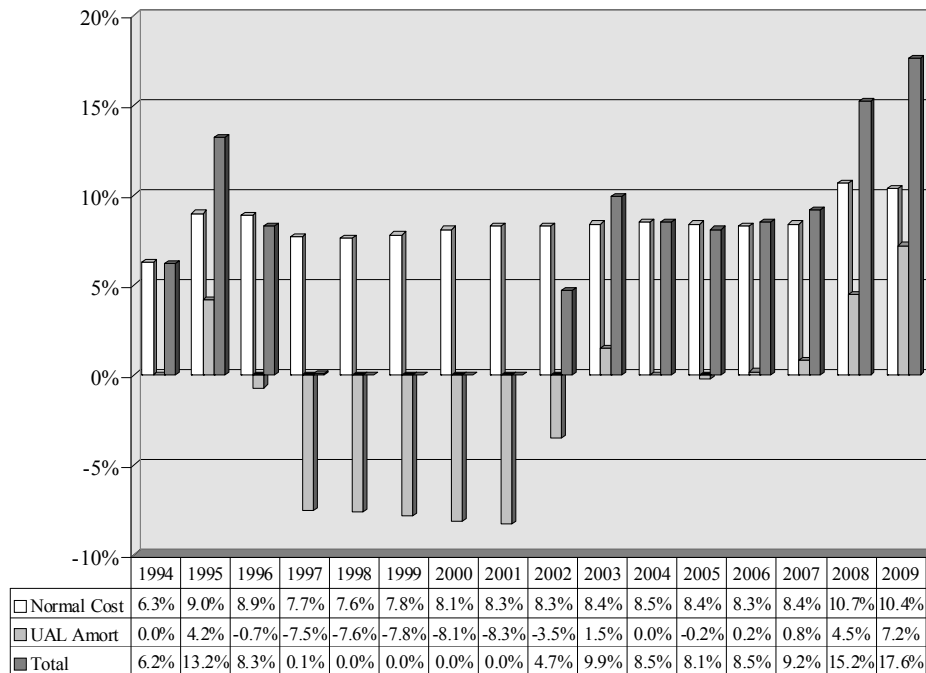


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Contribution Rates Miscellaneous



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Contribution Rates Miscellaneous

	6/30/08	6/30/09
■ Normal cost	<u>2010/2011</u>	<u>2011/2012</u>
■ Amortization bases:	10.7%	10.4%
● (Gain)/Loss	0.9%	0.9%
● Benefit Change	3.7%	3.6%
● Special (Gain)/Loss	-	0.5%
● Assumption Change (6/30/09)	<u>0.0%</u>	<u>2.3%</u>
Sub-total	4.5%	7.2%
● Total:	15.2%	17.6%
● Amortization period	Multiple	Multiple
	≈ 21 years	≈ 21 years
■ What Happened from 6/30/08 to 6/30/09:		
● 2010/11 Rate	15.2%	
● (Gains)/Losses	0.3	
● Assumption Changes	<u>2.1</u>	
● 2011/12 Rate	17.6%	



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Contribution Projections Miscellaneous

■ Market Value Investment Return:

- June 30, 2010 13.3%⁵
- June 30, 2011 - 2015

Poor Investment Return:	≈ 0.4% - 3.6%
Expected Investment Ret:	≈ 7.75%
Good Investment Return:	≈ 11.8% - 15.3%

■ Fresh Starts:

- **No Fresh Starts for 11/12**
- 15 Year 1.7% 20 Year 0.1% 30 Year -1.4%

■ No Other:

- Gains or Losses
- Method or Assumption Changes
- Benefit Improvements

⁵ As reported by CalPERS press release.



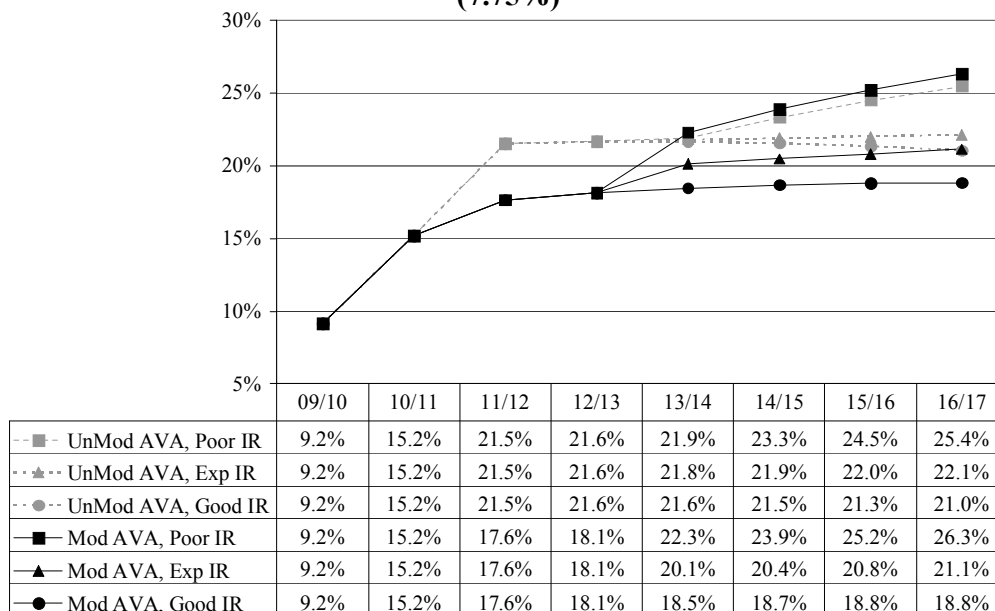
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Contribution Projections Miscellaneous

Investment Return Varies (7.75%)



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Contribution Projections Miscellaneous

- Market Value Investment Return:
 - June 30, 2010 13.3%⁶
 - June 30, 2011 - 2015 Poor Investment Return: $\approx 0.4\% - 3.6\%$
 - Expected Investment Ret: $\approx 7.75\%/7.5\%$ ⁷
 - Good Investment Return: $\approx 11.8\% - 15.3\%$
- Fresh Starts:
 - No Fresh Starts for 11/12
 - 15 Year 1.7% 20 Year 0.1% 30Year -1.4%
- Estimated impact of:
 - June 30, 2010 Anticipated 0.25% decrease in discount rate $\approx 2.3\%$
- No Other:
 - Gains or Losses
 - Method or Assumption Changes
 - Benefit Improvements

⁶ As reported by CalPERS press release.

⁷ Assumes investment return matches assumed return, 7.50% beginning with 2012/13 fiscal year



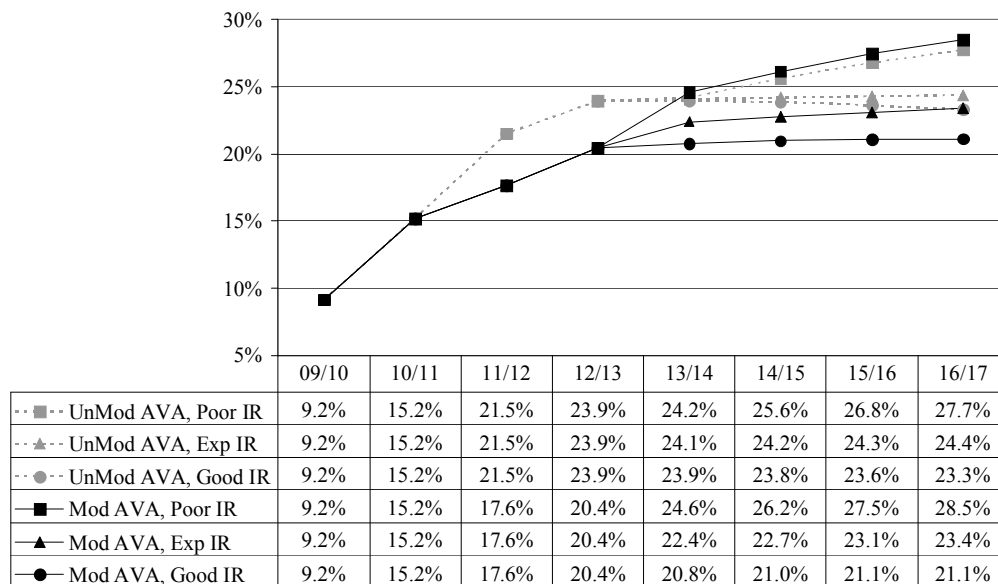
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Contribution Projections Miscellaneous

Investment Return Varies (7.50%)

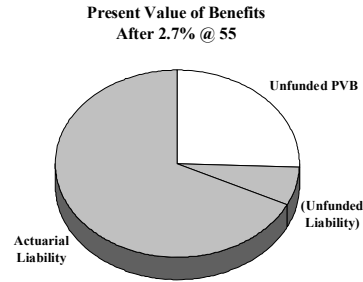
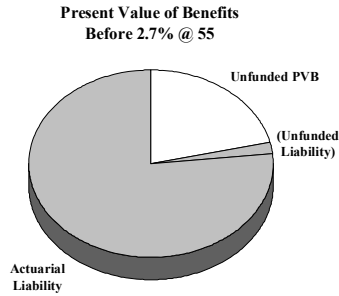


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2.7% @ 55
Amendment 6/30/2007



<u>Before 2.7% @ 55</u>		<u>After 2.7% @ 55</u>	
\$	55,400,000		80,500,000
	(4,900,000)		(21,000,000)
	<u>197,100,000</u>		<u>213,200,000</u>
	247,700,000		272,700,000
	Unfunded PVB		
	(Unfunded Liability)		
	Actuarial Liability		
	PVB		



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2.7% @ 55
Amendment 6/30/2007

- Present Value of Benefits Increase ≈ \$ 25.0 million
- Actuarial Liability Increase ≈ \$ 16.1 million
- Employer contribution rate increase ≈ 6.1%
 - Normal Cost ≈ 2.3%
 - Prior Cost ≈ 3.7%
 - Asset Method ≈ 0.0%
 - Fresh Start ≈ 0.0%
- Employee contribution rate increase 1.0%

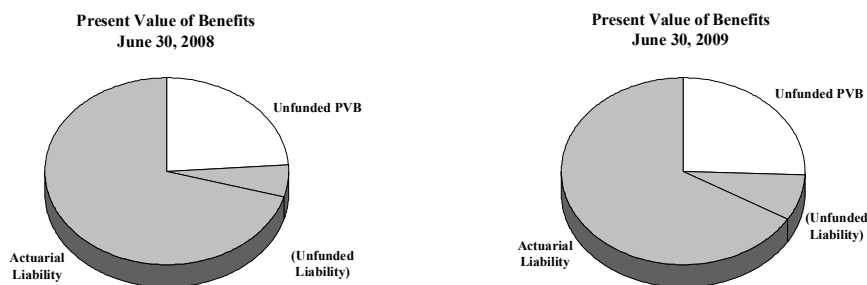


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Plan Funded Status Safety



<u>June 30, 2008</u>		<u>June 30, 2009</u>	
\$	97,800,000	\$	122,200,000
	(22,000,000)		(38,600,000)
	<u>287,400,000</u>		<u>317,400,000</u>
	363,200,000		401,000,000
	PVB		PVB



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Plan Funded Status Safety

- What happened between 6/30/08 and 6/30/09?
 - Asset gain/(loss): ≈ (5.4) million
 - Actuarial gain/(loss): ≈ (6.2) million
 - Average Salary \$91,100 → \$100,000
 - Number of Actives 333 → 329
 - Number of Inactives 143 → 145
 - Number of Retirees 336 → 342
 - Contribution gain/(loss): ≈ 1.1 million
 - Expected ≈ (10.0)
 - Actual ≈ 11.1
 - Assumption Changes: ≈ (5.7) million
 - Expected UAL Decrease/(Increase): ≈ (0.5) million

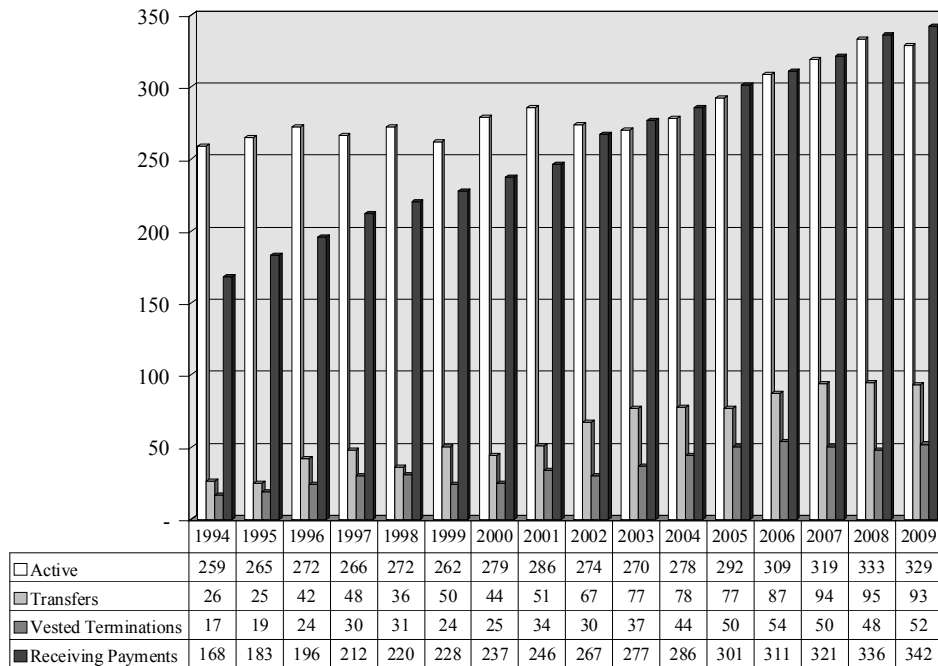


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Members Included in Valuation Safety

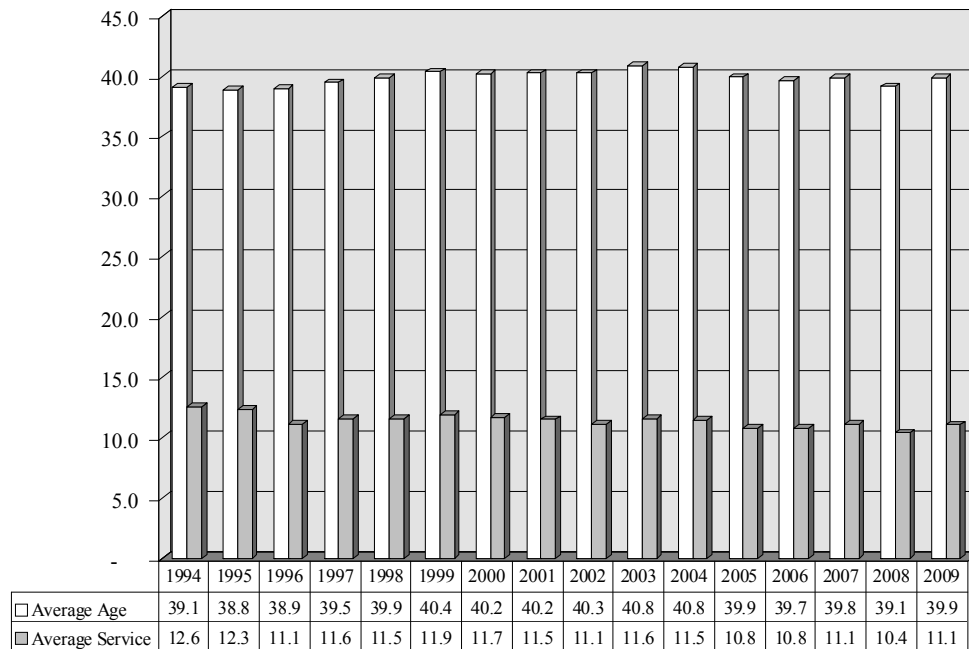


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Average Age/Service Safety

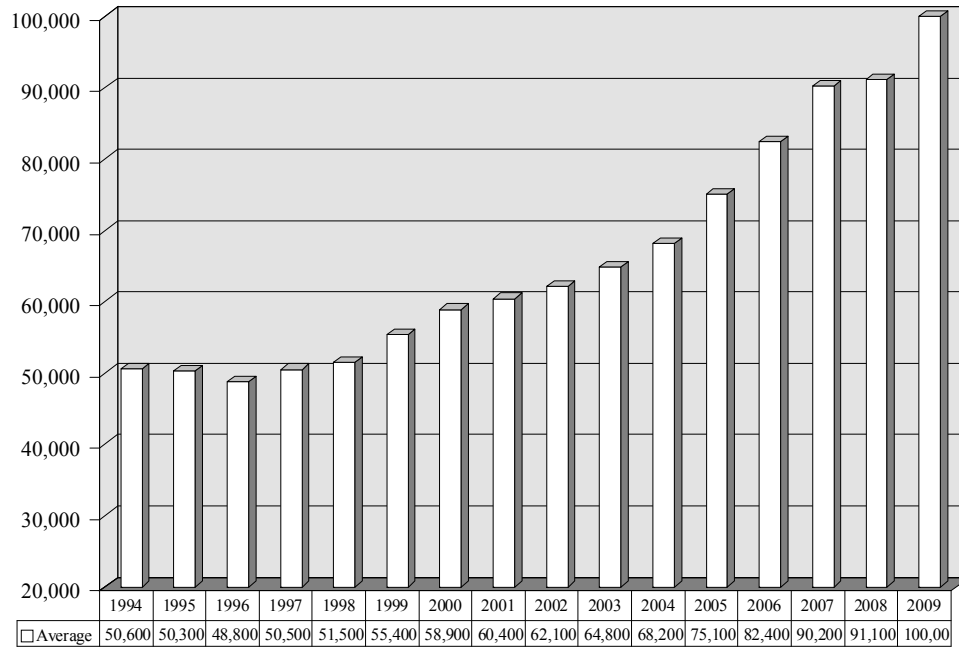


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Average PERSable Wages Safety

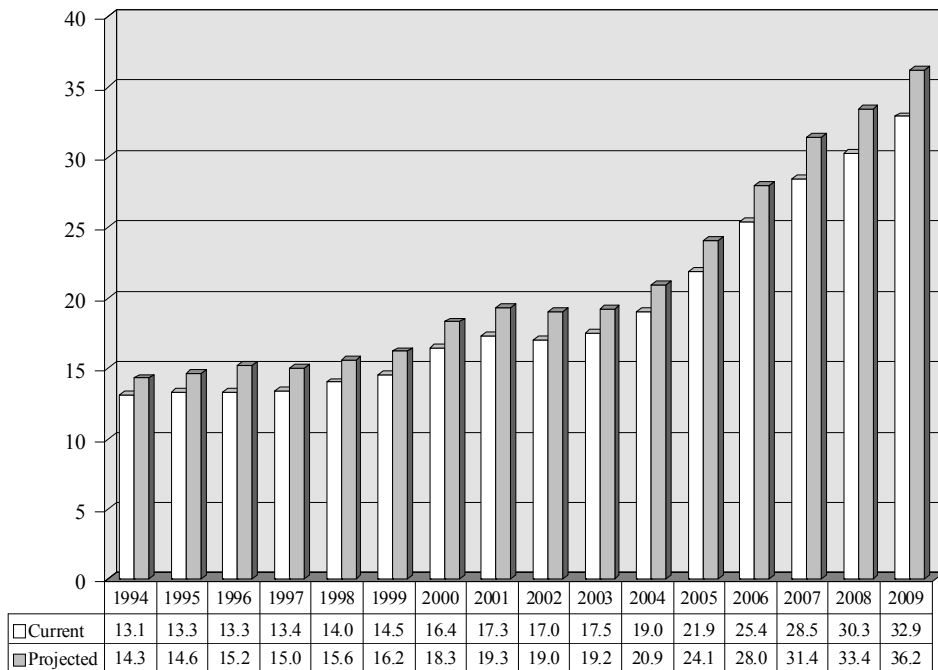


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Total Annual PERSable Wages (Millions) Safety

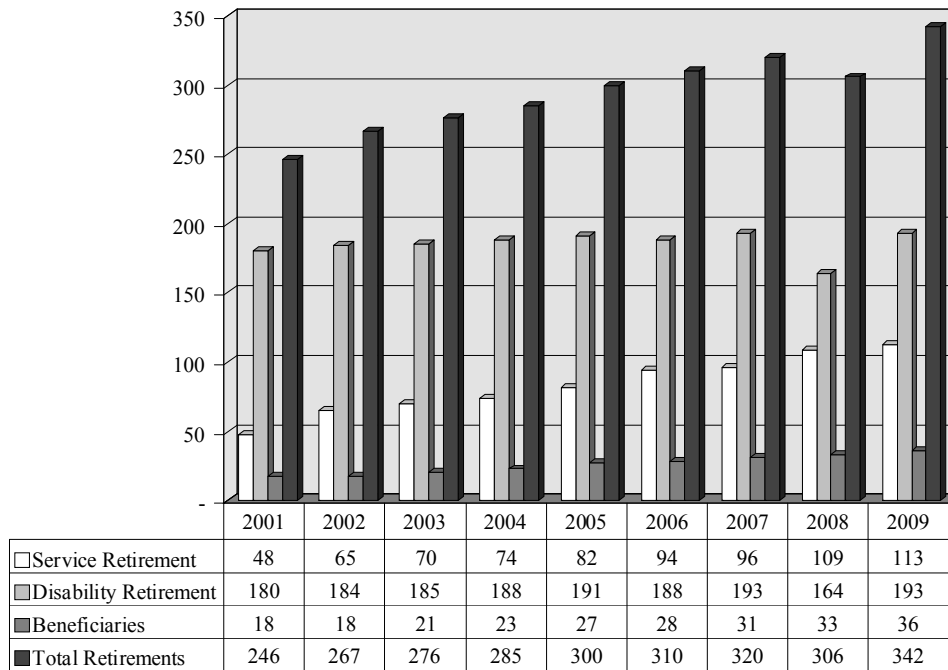


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Members Receiving Payments Safety

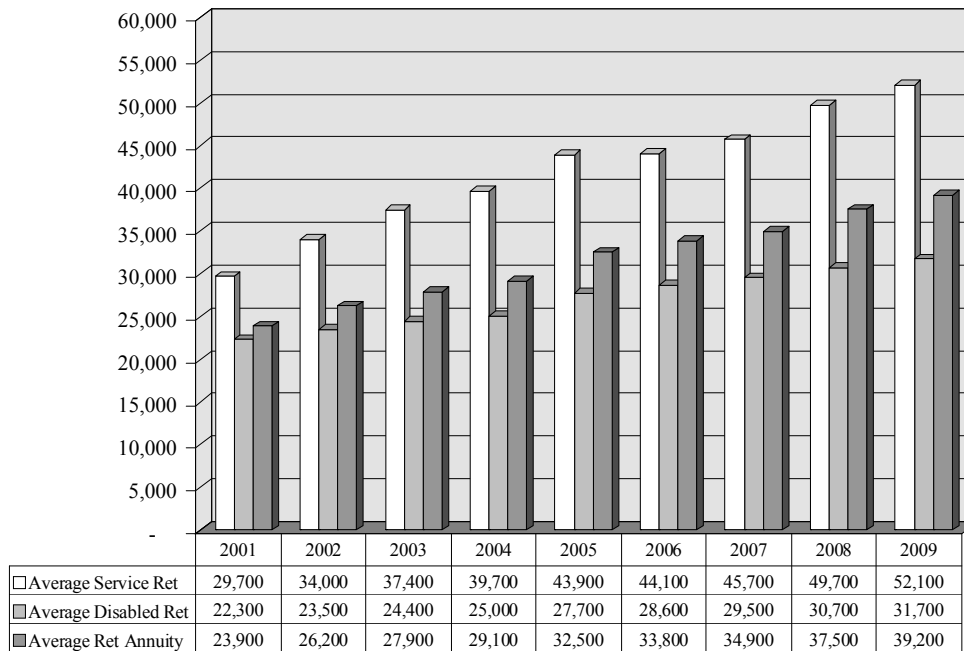


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Average Annuity Safety



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Average Annuity Safety

	Service Retirement Retirees' Benefit									
<u>Years Retired</u>	<u>2001</u>	<u>2002</u>	<u>2003</u>	<u>2004</u>	<u>2005</u>	<u>2006</u>	<u>2007</u>	<u>2008</u>	<u>2009</u>	
Under 5	\$ 44,540	\$ 44,677	\$ 49,526	\$ 52,222	\$ 56,592	\$ 53,897	\$ 56,088	\$ 60,141	\$ 62,698	
5~9	27,910	34,257	38,030	37,090	39,022	41,215	50,934	52,134	56,160	
10~14	22,691	21,601	22,621	32,405	33,308	34,488	30,884	36,068	40,481	
15-19	18,522	21,521	23,847	21,424	28,830	29,406	29,130	31,293	32,485	
20-24	9,822	12,680	16,573	20,007	21,498	22,309	18,680	22,367	27,638	
25-29	16,170	-	2,996	3,056	2,893	3,004	13,392	15,003	16,547	
Over 30	-	16,493	16,823	17,160	-	-	-	-	5,022	
All Years	29,731	34,032	37,377	39,704	43,863	44,142	45,715	49,683	52,139	



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Average Annuity Safety

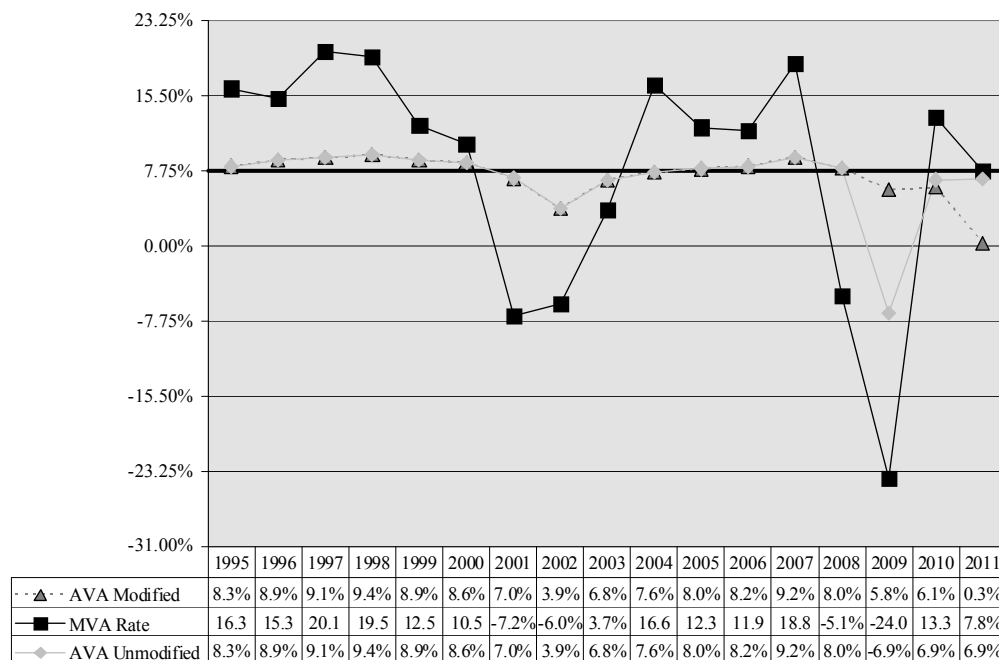
	Service Retirement Retirees' Benefit									
<u>Attained Age</u>	<u>2001</u>	<u>2002</u>	<u>2003</u>	<u>2004</u>	<u>2005</u>	<u>2006</u>	<u>2007</u>	<u>2008</u>	<u>2009</u>	
50-54	\$ 42,003	\$ 39,196	\$ 37,258	\$ 47,107	\$ 56,439	\$ 54,865	\$ 58,562	\$ 67,404	\$ 62,039	
55-59	37,633	48,080	51,522	50,039	54,387	52,074	52,196	51,017	60,230	
60-64	33,306	30,408	35,698	45,969	47,251	47,218	52,478	58,482	60,786	
65-69	18,509	26,357	34,662	28,413	34,097	36,534	32,237	34,564	40,428	
70-74	23,351	19,982	20,454	23,169	20,511	20,564	26,452	28,040	29,286	
75-79	10,842	11,059	11,280	28,634	28,587	26,695	20,470	20,984	18,639	
80-84	1,135	1,158	1,181	3,056	4,365	18,776	19,329	19,843	20,786	
85 & over	16,170	16,493	16,823	9,182	1,420	1,476	1,519	-	-	
All Ages	29,731	34,032	37,377	39,704	43,863	44,142	45,715	49,683	52,139	



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Actuarial Investment Return Safety



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Actuarial Investment Return Safety

- Above assumes contributions, payments, etc. received evenly throughout year.
- 6/30/09:
 - Market Value return $\approx (24.0)\%$
 - Actuarial Value return
 - Modified $\approx 5.8\%$
 - Unmodified $\approx (6.9)\%$
- 6/30/10:
 - Market Value return $\approx 13.3\% ^8$
 - Actuarial Value return
 - Modified $\approx 6.1\%$
 - Unmodified $\approx 6.9\%$
- 6/30/11:
 - Market Value return through 11/30/10 $\approx 9.4\%$
 - Estimated Annualized MVA Return⁹ $\approx 7.8\%$
 - Est. Annualized Modified AVA Return $\approx 0.3\%$

⁸ As reported by CalPERS press release.

⁹ CalPERS assumed investment return 7.75%

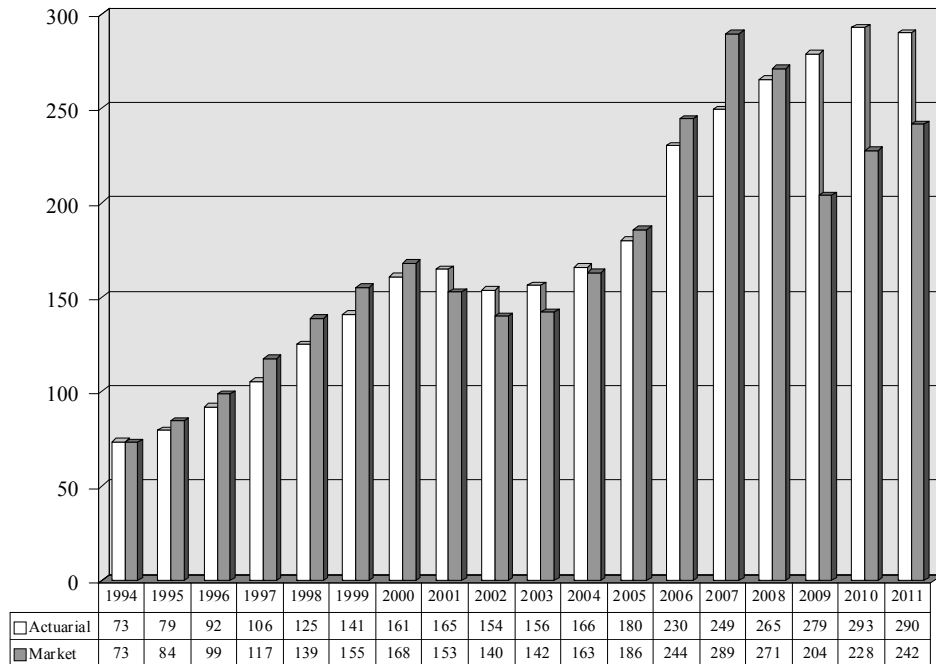


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Asset Values (Millions) Safety



6/30/10 & 6/30/11 asset values estimated

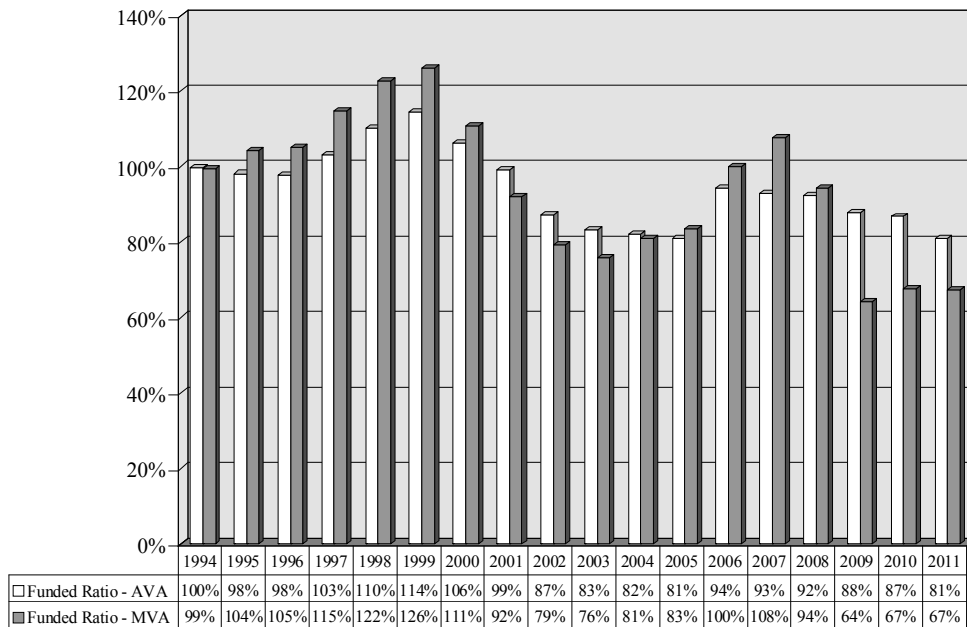


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Funded Status Safety



6/30/10 & 6/30/11 funded status estimated

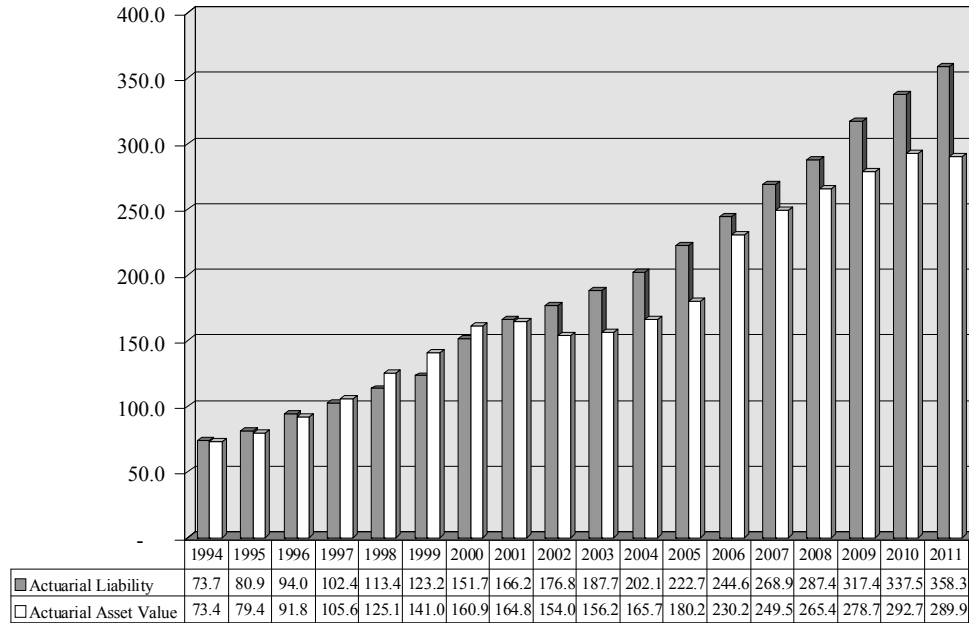


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Funded Status (Millions) Safety



6/30/10 & 6/30/11 asset values estimated



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Funded Status Safety

■ Investment gains/(losses) – Impact on funded status:				
●	Actuarial asset “reserve” at 6/30/09			-36.7%
●	6/30/10 [13.3% compared to 7.75%]			5.6%
●	6/30/11 [7.8% compared to 7.75%]			<u>0.0%</u>
●	Total estimated % loss through 6/30/10			-31.2%
●	Total estimated unrecognized gain			\$ -63.6 million
	[-31.2% x \$ 204]			
			<u>Projected</u>	
		<u>6/30/08</u>	<u>6/30/09</u>	<u>6/30/11</u> <u>6/30/41</u>
■	UAL ¹⁰ (millions)	\$ 22.0	\$ 38.7	\$42.8 \$36.3
■	Investment losses 09/10 ¹¹			63.6 82.7
■	Investment gains 10/11 ⁴			<u>0.0</u> <u>0.0</u>
■	Total			106.4 119.0

¹⁰ Does not include asset gains or losses after June 30, 2009.

¹¹ Ignores future gains & losses (after 6/30/10) and asset smoothing, and assumes continuance of 30-year rolling amortization method.

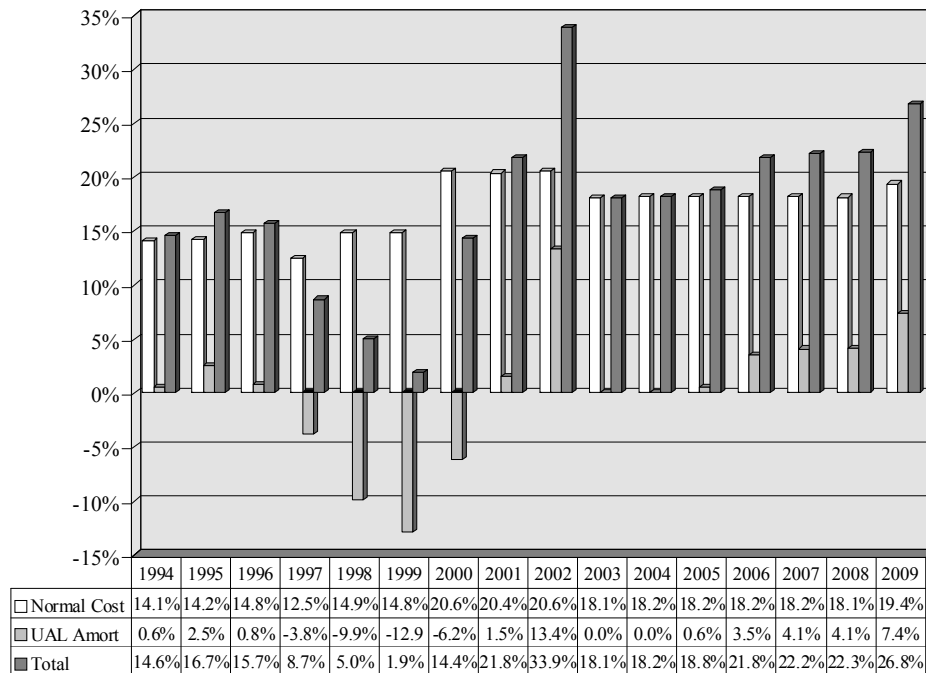


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Contribution Rates Safety



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Contribution Rates Safety

	<u>6/30/08</u> <u>2010/2011</u>	<u>6/30/09</u> <u>2011/2012</u>
■ Normal cost	18.1%	19.4%
■ Amortization bases:		
● (Gain)/Loss	4.1%	3.8%
● Special (Gain)/Loss	-	2.0%
● Assumptions Change	0.0%	1.6%
Sub-total	4.1%	7.4%
● Total:	22.2%	26.8%
● Amortization period	30 years	Multiple ≈ 27 years
■ What Happened from 6/30/08 to 6/30/09:		
● 2010/11 Rate	22.2%	
● (Gains)/Losses	1.7	
● Assumption Change	2.9	
● 2011/12 Rate	26.8%	



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Contribution Projections Safety

■ Market Value Investment Return:

- June 30, 2010 13.3%¹²
- June 30, 2011 - 2015

Poor Investment Return:	≈ 0.4% - 3.6%
Expected Investment Ret:	≈ 7.75%
Good Investment Return:	≈ 11.8% - 15.3%

■ Fresh Starts:

- **No Fresh Starts for 11/12**
- 15 Year 3.4% 20 Year 1.5% 30 Year -0.3%

■ No Other:

- Gains or Losses
- Method or Assumption Changes
- Benefit Improvements

¹² As reported by CalPERS press release.



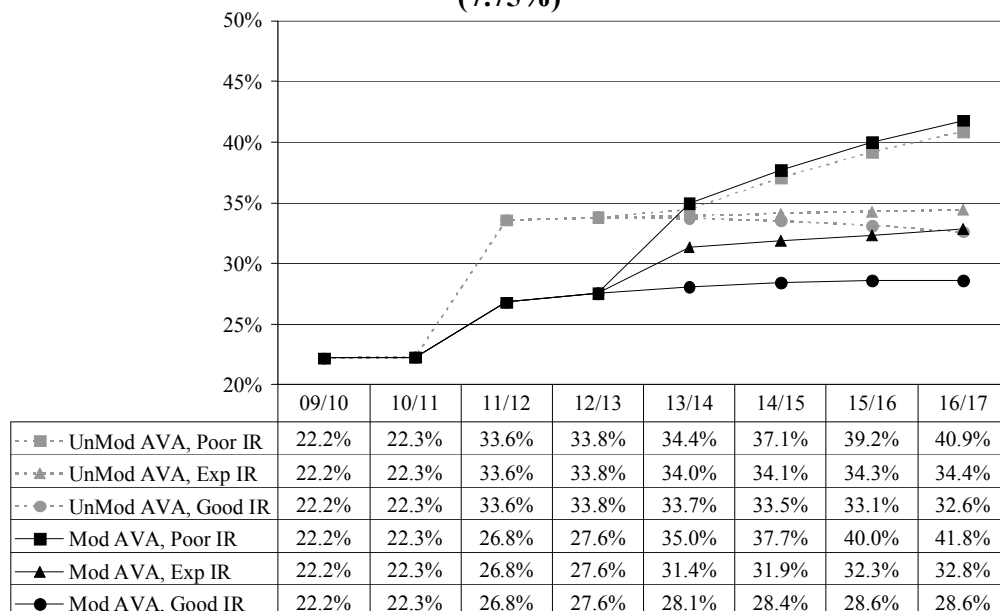
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Contribution Projections Safety

Investment Return Varies (7.75%)



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Contribution Projections Safety

- Market Value Investment Return:
 - June 30, 2010 13.3%¹³
 - June 30, 2011 - 2015
 - Poor Investment Return: $\approx 0.4\% - 3.6\%$
 - Expected Investment Ret: $\approx 7.75\%/7.5\%$ ¹⁴
 - Good Investment Return: $\approx 11.8\% - 15.3\%$
- Fresh Starts:
 - No Fresh Starts for 11/12
 - 15 Year 3.4% 20 Year 1.5% 30 Year -0.3%
- Estimated impact of:
 - June 30, 2010 Anticipated 0.25% decrease in discount rate $\approx 3.6\%$
- No Other:
 - Gains or Losses
 - Method or Assumption Changes
 - Benefit Improvements

¹³ As reported by CalPERS press release.

¹⁴ Assumes investment return matches assumed return, 7.50% beginning with 2012/13 fiscal year



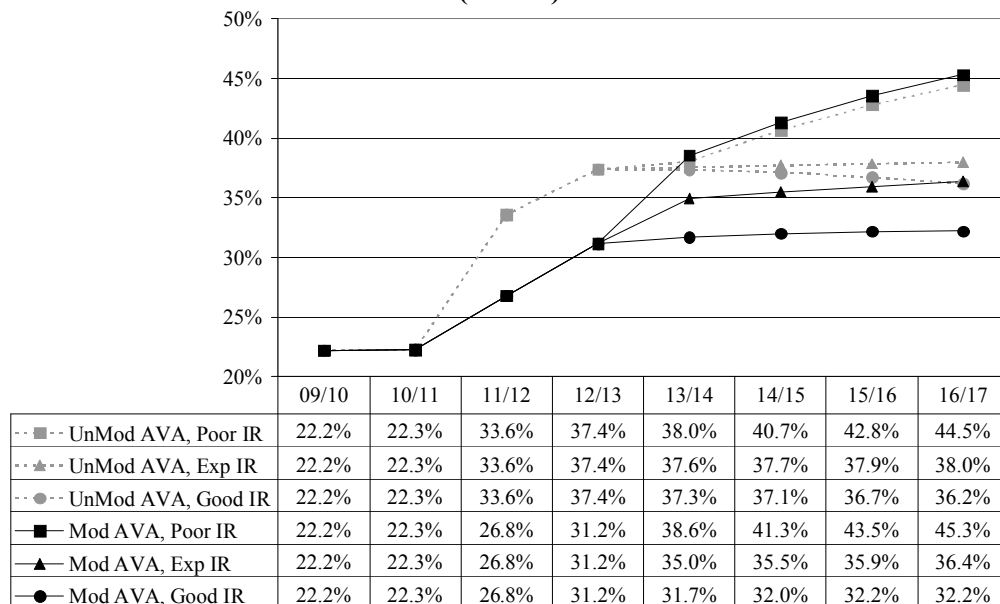
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Contribution Projections Safety

Investment Return Varies (7.50%)

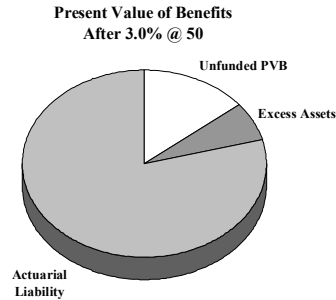
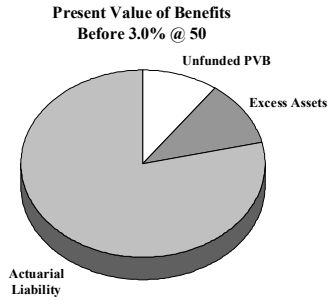


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Safety 3% @ 50 Amendment 6/30/1999



<u>Before</u> <u>3.0% @ 50</u>		<u>After</u> <u>3.0% @ 50</u>	
\$	15,900,000	\$	24,400,000
	17,800,000		11,600,000
	123,200,000		135,900,000
	156,900,000		171,900,000
	Unfunded PVB		
	Excess Assets		
	Actuarial Liability		
	PVB		



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Safety 3% @ 50 Amendment 6/30/1999

- Present Value of Benefits Increase ≈ \$ 14.9 million
- Actuarial Liability Increase ≈ \$ 12.7 million
- Actuarial Asset Increase ≈ \$ 6.5 million
- Employer contribution rate increase ≈ 9.4%
 - Normal Cost ≈ 5.2%
 - Prior Cost ≈ 7.7%
 - Asset Method ≈ -3.5%
 - Fresh Start ≈ 0.0%
- Employee contribution rate increase 0.0%



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Contribution Policy

- Consider policy implications of not increasing CalPERS contributions:
 - UAL not being paid off
 - Generational shift of Unfunded Liability
- Similar to minimum payment on credit card balance



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Contribution Policy

- Consider one of the following:
 - **Adjust contribution to get rate close to rate prior to asset smoothing modification**
 - ☐ Requires changing amortization period each year
 - Asking CalPERS to use “Fresh Start”
 - Higher rates 2011/12 and beyond
 - **Fresh start with declining period**
 - ☐ 2011/12 30 years
 - ☐ 2012/13 29 years
 - ↓ ↓
 - ☐ CalPERS will not automatically do this
 - **Use fixed amortization schedule:**
 - ☐ CalPERS will not keep track of bases
 - ☐ Requires:
 - Asking CalPERS to use “Fresh Start”
 - Shorter amortization period



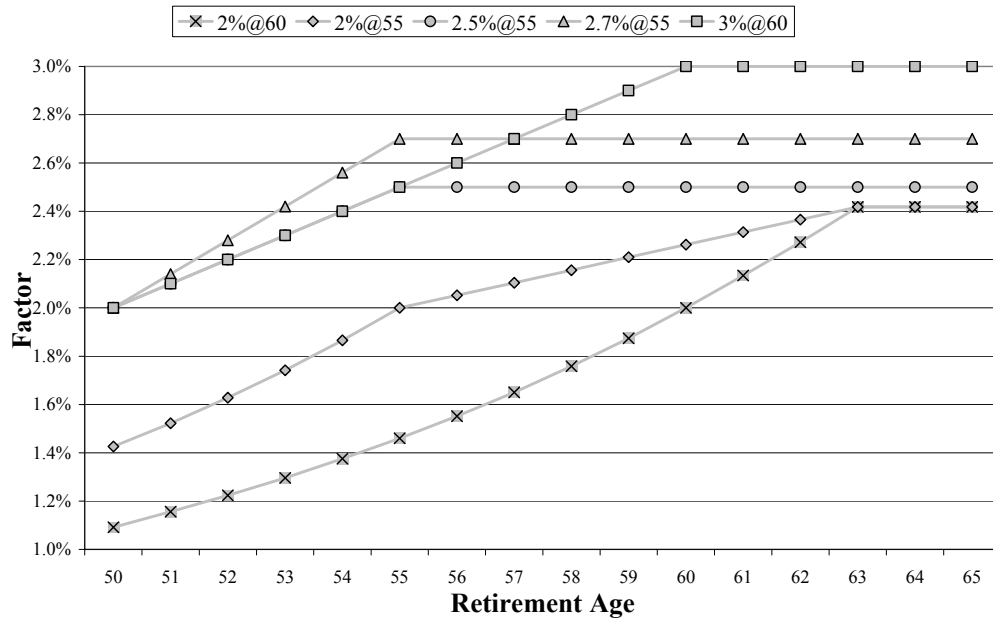
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Benefit Factors Miscellaneous

Benefit Factor Comparison



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Benefit Factors Miscellaneous

Age	<u>1.5%@65</u>	<u>2%@60</u>	<u>2%@55</u>	<u>2.5%@55</u>	<u>2.7%@55</u>	<u>3%@60</u>
50	0.500%	1.092%	1.426%	2.000%	2.000%	2.000%
51	0.567%	1.156%	1.522%	2.100%	2.140%	2.100%
52	0.633%	1.224%	1.628%	2.200%	2.280%	2.200%
53	0.700%	1.296%	1.742%	2.300%	2.420%	2.300%
54	0.767%	1.376%	1.866%	2.400%	2.560%	2.400%
55	0.833%	1.460%	2.000%	2.500%	2.700%	2.500%
56	0.900%	1.552%	2.052%	2.500%	2.700%	2.600%
57	0.967%	1.650%	2.104%	2.500%	2.700%	2.700%
58	1.033%	1.758%	2.156%	2.500%	2.700%	2.800%
59	1.100%	1.874%	2.210%	2.500%	2.700%	2.900%
60	1.167%	2.000%	2.262%	2.500%	2.700%	3.000%
61	1.233%	2.134%	2.314%	2.500%	2.700%	3.000%
62	1.300%	2.272%	2.366%	2.500%	2.700%	3.000%
63	1.367%	2.418%	2.418%	2.500%	2.700%	3.000%
64	1.433%	2.418%	2.418%	2.500%	2.700%	3.000%
65	1.500%	2.418%	2.418%	2.500%	2.700%	3.000%

Member Contribution Rate

2%
7%
7%
8%
8%
8%



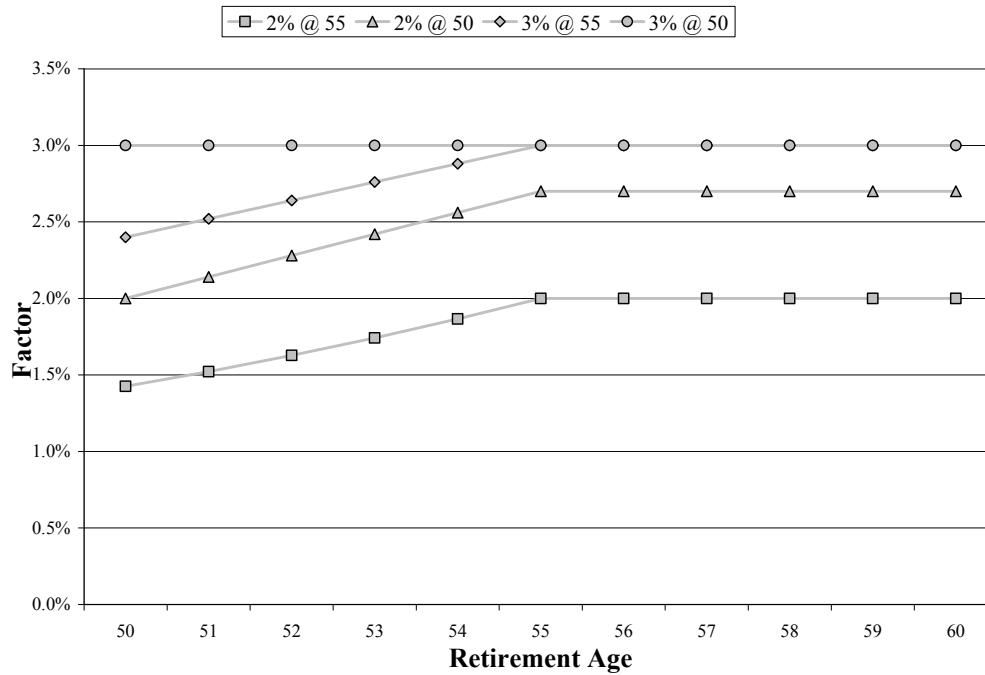
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Benefit Factors Safety

Benefit Factor Comparison



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Benefit Factors Safety

<u>Age</u>	<u>2% @ 55</u>	<u>2% @ 50</u>	<u>3% @ 55</u>	<u>3% @ 50</u>
50	1.426%	2.00%	2.40%	3.00%
51	1.522%	2.14%	2.52%	3.00%
52	1.628%	2.28%	2.64%	3.00%
53	1.742%	2.42%	2.76%	3.00%
54	1.866%	2.56%	2.88%	3.00%
55	2.00%	2.70%	3.00%	3.00%
56	2.00%	2.70%	3.00%	3.00%
57	2.00%	2.70%	3.00%	3.00%
58	2.00%	2.70%	3.00%	3.00%
59	2.00%	2.70%	3.00%	3.00%
60	2.00%	2.70%	3.00%	3.00%

Member Contribution Rate

8%

9%

9%

9%



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Current Benefits

	Miscellaneous	Safety
● Benefit Formula	2.7% @ 55	3% @ 50
● FAE	One Year (FAE1)	One Year (FAE1)
● PRSA	Yes	Yes
● COLA	2%	2%
● EPMC ¹⁵	4.6%	2.1%
● 11/12 ER Contr.		
➢ Normal Cost	10.4%	19.4%
➢ Amortizations	<u>7.2</u>	<u>7.4</u>
➢ Subtotal	17.6	26.8
● EPMC	4.6	2.1
● PERS on PERS		
➢ Normal Cost	0.5	0.4
➢ Amortizations	0.3	0.2
➢ EPMC	<u>0.2</u>	<u>0.0</u>
➢ Subtotal	1.0	0.6
● Total	23.2	29.5

¹⁵ Assumes City pays member contributions based on MOU. The EPMCs shown above are a weighted average. All EPMC is reported as PERSable wages.



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Alternative Benefits

■ Alternative Benefits – Employees Hired ≥ 7/1/11

- Miscellaneous: 2.5%@55, 2%@55, 2%@60¹⁶
- Safety: 3%@55, 2%@50, 2%@55

■ Estimated ER Normal Cost

- Based on Pool Normal Cost from the 6/30/09 valuation
- Adjusted for demographic difference

1. Employer pays member contributions and included in PERSable wages

Formula	Miscellaneous			
	Current	2.5%@55	2%@55	2%@60
➢ Normal Cost	10.4	7.9%	6.9%	6.0%
➢ FAE 1 & PRSA	<u>Included</u>	<u>1.4</u>	<u>1.2</u>	<u>1.1</u>
➢ Subtotal	10.4	9.3	8.1	7.1
➢ EPMC	4.6	4.6	3.6	3.6
➢ PERS on PERS	<u>0.7</u>	<u>0.5</u>	<u>0.4</u>	<u>0.3</u>
➢ Total	15.6	14.4	12.1	11.0
➢ Saving from current formula		1.2%	3.5%	4.6%

¹⁶ We did not include 1.5%@65 for Miscellaneous because no agency has contracted this formula.



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Alternative Benefits

Formula	Safety			
	Current	3%@55	2%@50	2%@55
➤ Normal Cost	19.4	15.3%	13.7%	12.8%
➤ FAE 1 & PRSA	<u>Included</u>	<u>2.6</u>	<u>2.2</u>	<u>1.9</u>
➤ Subtotal	19.4	17.9	15.9	14.7
➤ EPMC	2.1	2.1	2.1	1.1
➤ PERS on PERS	<u>0.4</u>	<u>0.4</u>	<u>0.4</u>	<u>0.2</u>
➤ Total	21.9	20.4	18.3	16.0
➤ Saving from current formula		1.5%	3.6%	5.9%



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Alternative Benefits

2. Employer does not pay member contribution for Tier 2

Formula	Miscellaneous			
	Current	2.5%@55	2%@55	2%@60
➤ Normal Cost	10.4	7.9%	6.9%	6.0%
➤ FAE 1 & PRSA	<u>Included</u>	<u>1.4</u>	<u>1.2</u>	<u>1.1</u>
➤ Subtotal	10.4	9.3	8.1	7.1
➤ EPMC	4.6	0.0	0.0	0.0
➤ PERS on PERS	<u>0.7</u>	<u>0.0</u>	<u>0.0</u>	<u>0.0</u>
➤ Total	15.6	9.3	8.1	7.1
➤ Saving from current formula		6.3%	7.5%	8.5%



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Alternative Benefits

Formula	Safety			
	Current	3%@55	2%@50	2%@55
➤ Normal Cost	19.4	15.3%	13.7%	12.8%
➤ FAE 1 & PRSA	<u>Included</u>	<u>2.6</u>	<u>2.2</u>	<u>1.9</u>
➤ Subtotal	19.4	17.9	15.9	14.7
➤ EPMC	2.1	0.0	0.0	0.0
➤ PERS on PERS	<u>0.4</u>	<u>0.0</u>	<u>0.0</u>	<u>0.0</u>
➤ Total	21.9	17.9	15.9	14.7
➤ Saving from current formula		4.0%	6.0%	7.2%



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Alternative Benefits

3. Employer does not pay member contributions for Tier 1 or Tier 2

Formula	Miscellaneous		
	2.5%@55	2%@55	2%@60
➤ Tier 2 Savings	6.3%	7.5%	8.5%
➤ Tier 1 Savings:			
o Tier 1 EPMC	4.6	4.6	4.6
o Tier 1 PERS on PERS	<u>0.7</u>	<u>0.7</u>	<u>0.7</u>
o Subtotal	5.3%	5.3%	5.3%

Formula	Safety		
	3%@55	2%@50	2%@55
➤ Total Tier 2 Savings	4.0%	6.0%	7.2%
➤ Tier 1 Savings:			
o Tier 1 EPMC	2.1	2.1	2.1
o Tier 1 PERS on PERS	<u>0.4</u>	<u>0.4</u>	<u>0.4</u>
o Subtotal	2.5%	2.5%	2.5%



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Alternative Benefits

■ Estimated Savings

- Projection based on benefits earned, not benefits being paid out
- Tier 1 savings % apply to Tier 1 payroll, Tier 2 savings % apply to Tier 2 payroll



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Alternative Benefits

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Projected Payroll
(000's)

Miscellaneous

1. Tier 1 and Tier 2 with EPMC

Year	Tier 1	Tier 2	Total
2011/12	\$ 45,258	\$ 3,344	\$ 48,602
2012/13	43,823	6,359	50,182
2013/14	42,477	9,335	51,813
2014/15	41,041	12,456	53,497
2015/16	39,443	15,793	55,235
2016/17	37,787	19,243	57,031
2017/18	36,032	22,852	58,884
2018/19	34,407	26,391	60,798
2019/20	32,549	30,225	62,774
2020/21	30,855	33,959	64,814
2021/22	29,097	37,824	66,920



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Projected Payroll
(000's)

Miscellaneous

2. Tier 1 with EPMC, Tier 2 without EPMC

Year	Tier 1	Tier 2	Total
2011/12	\$ 45,258	\$ 3,199	\$ 48,457
2012/13	43,823	6,082	49,905
2013/14	42,477	8,929	51,407
2014/15	41,041	11,914	52,955
2015/16	39,443	15,106	54,548
2016/17	37,787	18,406	56,193
2017/18	36,032	21,857	57,890
2018/19	34,407	25,242	59,649
2019/20	32,549	28,909	61,458
2020/21	30,855	32,481	63,336
2021/22	29,097	36,178	65,274



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Projected Payroll
(000's)

Miscellaneous

3. Tier 1 and Tier 2 without EPMC

Year	Tier 1	Tier 2	Total
2011/12	\$ 43,289	\$ 3,199	\$ 46,487
2012/13	41,916	6,082	47,998
2013/14	40,629	8,929	49,558
2014/15	39,255	11,914	51,169
2015/16	37,726	15,106	52,832
2016/17	36,143	18,406	54,549
2017/18	34,464	21,857	56,322
2018/19	32,910	25,242	58,152
2019/20	31,133	28,909	60,042
2020/21	29,513	32,481	61,993
2021/22	27,830	36,178	64,008



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Projected Payroll
(000's)

Safety

1. Tier 1 and Tier 2 with EPMC

Year	Tier 1	Tier 2	Total
2011/12	\$ 35,079	\$ 1,140	\$ 36,219
2012/13	34,801	2,595	37,396
2013/14	34,258	4,353	38,611
2014/15	33,817	6,049	39,866
2015/16	33,254	7,908	41,162
2016/17	32,641	9,859	42,499
2017/18	31,988	11,892	43,881
2018/19	31,372	13,935	45,307
2019/20	30,709	16,070	46,779
2020/21	30,115	18,185	48,300
2021/22	29,337	20,532	49,869



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Projected Payroll
(000's)

Safety

2. Tier 1 with EPMC, Tier 2 without EPMC

Year	Tier 1	Tier 2	Total
2011/12	\$ 35,079	\$ 1,117	\$ 36,196
2012/13	34,801	2,542	37,343
2013/14	34,258	4,265	38,523
2014/15	33,817	5,926	39,743
2015/16	33,254	7,748	41,001
2016/17	32,641	9,659	42,299
2017/18	31,988	11,651	43,639
2018/19	31,372	13,652	45,024
2019/20	30,709	15,744	46,453
2020/21	30,115	17,816	47,931
2021/22	29,337	20,116	49,453



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Projected Payroll
(000's)

Safety

3. Tier and Tier 2 without EPMC

Year	Tier 1	Tier 2	Total
2011/12	\$ 34,367	\$ 1,117	\$ 35,484
2012/13	34,095	2,542	36,637
2013/14	33,563	4,265	37,828
2014/15	33,131	5,926	39,058
2015/16	32,579	7,748	40,327
2016/17	31,979	9,659	41,638
2017/18	31,340	11,651	42,991
2018/19	30,736	13,652	44,388
2019/20	30,086	15,744	45,831
2020/21	29,504	17,816	47,320
2021/22	28,742	20,116	48,858



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Estimated Savings
(000's)

Miscellaneous

1. Both Tier 1 and Tier 2 with EPMC

	Savings 2.5% @ 55			Savings 2.0% @ 55		
Year	Employer Contribution	Employee Contribution	Total	Employer Contribution	Employee Contribution	Total
2011/12	\$ 39	\$ -	\$ 39	\$ 78	\$ 32	\$ 110
2012/13	75	-	75	148	61	209
2013/14	110	-	110	217	89	306
2014/15	147	-	147	289	119	408
2015/16	186	-	186	367	151	518
2016/17	227	-	227	447	184	631
2017/18	270	-	270	531	219	750
2018/19	312	-	312	613	252	865
2019/20	357	-	357	702	289	991
2020/21	401	-	401	789	325	1,114
2021/22	446	-	446	878	362	1,240



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Estimated Savings
(000's)

Miscellaneous

1. Both Tier 1 and Tier 2 with EPMC

	Savings 2.0% @ 60		
Year	Employer Contribution	Employee Contribution	Total
2011/12	\$ 114	\$ 32	\$ 146
2012/13	217	61	278
2013/14	319	89	408
2014/15	426	119	545
2015/16	540	151	691
2016/17	658	184	842
2017/18	781	219	1,000
2018/19	902	252	1,154
2019/20	1,033	289	1,322
2020/21	1,161	325	1,486
2021/22	1,293	362	1,655



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Estimated Savings
(000's)

Miscellaneous

2. Tier 1 with EPMC, Tier 2 without EPMC

Year	Savings 2.5%@55			Savings 2%@55		
	Employer Contribution	Employee Contribution	Total	Employer Contribution	Employee Contribution	Total
2011/12	\$ 60	\$ 146	\$ 206	\$ 95	\$ 146	\$ 241
2012/13	113	277	390	180	277	457
2013/14	166	406	572	264	406	670
2014/15	222	542	764	353	542	895
2015/16	281	687	968	447	687	1,134
2016/17	343	837	1,180	545	837	1,382
2017/18	407	994	1,401	647	994	1,641
2018/19	470	1,149	1,619	747	1,149	1,896
2019/20	538	1,315	1,853	856	1,315	2,171
2020/21	605	1,478	2,083	961	1,478	2,439
2021/22	673	1,646	2,319	1,071	1,646	2,717



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Estimated Savings
(000's)

Miscellaneous

2. Tier 1 with EPMC, Tier 2 without EPMC

Year	Savings 2%@60		
	Employer Contribution	Employee Contribution	Total
2011/12	\$ 130	\$ 146	\$ 276
2012/13	247	277	524
2013/14	362	406	768
2014/15	483	542	1,025
2015/16	613	687	1,300
2016/17	747	837	1,584
2017/18	887	994	1,881
2018/19	1,024	1,149	2,173
2019/20	1,173	1,315	2,488
2020/21	1,318	1,478	2,796
2021/22	1,468	1,646	3,114



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Estimated Savings
(000's)

Miscellaneous

3. Tier 1 and Tier 2 without EPMC

Year	Savings 2.5%@55			Savings 2%@55		
	Employer Contribution	Employee Contribution	Total	Employer Contribution	Employee Contribution	Total
2011/12	\$ 381	\$ 2,115	\$ 2,496	\$ 419	\$ 2,115	\$ 2,534
2012/13	421	2,184	2,605	494	2,184	2,678
2013/14	461	2,255	2,716	568	2,255	2,823
2014/15	503	2,328	2,831	646	2,328	2,974
2015/16	547	2,404	2,951	729	2,404	3,133
2016/17	593	2,482	3,075	814	2,482	3,296
2017/18	641	2,563	3,204	903	2,563	3,466
2018/19	689	2,646	3,335	991	2,646	3,637
2019/20	739	2,732	3,471	1,086	2,732	3,818
2020/21	790	2,821	3,611	1,180	2,821	4,001
2021/22	842	2,912	3,754	1,276	2,912	4,188



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Estimated Savings
(000's)

Miscellaneous

3. Tier 1 and Tier 2 without EPMC

Year	Savings 2%@60		
	Employer Contribution	Employee Contribution	Total
2011/12	\$ 451	\$ 2,115	\$ 2,566
2012/13	555	2,184	2,739
2013/14	657	2,255	2,912
2014/15	765	2,328	3,093
2015/16	880	2,404	3,284
2016/17	998	2,482	3,480
2017/18	1,122	2,563	3,685
2018/19	1,244	2,646	3,890
2019/20	1,375	2,732	4,107
2020/21	1,504	2,821	4,325
2021/22	1,638	2,912	4,550



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Estimated Savings
(000's)

Safety

1. Both Tier 1 and Tier 2 with EPMC

	Savings 3%@55			Savings 2%@50		
Year	Employer Contribution	Employee Contribution	Total	Employer Contribution	Employee Contribution	Total
2011/12	\$ 16	\$ -	\$ 16	\$ 41	\$ -	\$ 41
2012/13	37	-	37	93	-	93
2013/14	62	-	62	155	-	155
2014/15	87	-	87	216	-	216
2015/16	113	-	113	282	-	282
2016/17	141	-	141	352	-	352
2017/18	171	-	171	425	-	425
2018/19	200	-	200	498	-	498
2019/20	230	-	230	574	-	574
2020/21	261	-	261	649	-	649
2021/22	294	-	294	733	-	733



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Estimated Savings
(000's)

Safety

1. Both Tier 1 and Tier 2 with EPMC

	Savings 2%@55		
Year	Employer Contribution	Employee Contribution	Total
2011/12	\$ 54	\$ 11	\$ 65
2012/13	123	25	148
2013/14	207	43	250
2014/15	288	59	347
2015/16	376	77	453
2016/17	469	97	566
2017/18	566	117	683
2018/19	663	137	800
2019/20	764	157	921
2020/21	865	178	1,043
2021/22	976	201	1,177



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Estimated Savings
(000's)

Safety

2. Tier 1 with EPMC, Tier 2 without EPMC

Year	Savings 3% @ 55			Savings 2% @ 50		
	Employer Contribution	Employee Contribution	Total	Employer Contribution	Employee Contribution	Total
2011/12	\$ 21	\$ 23	\$ 44	\$ 45	\$ 23	\$ 68
2012/13	48	53	101	102	53	155
2013/14	80	88	168	171	88	259
2014/15	111	123	234	238	123	361
2015/16	146	160	306	311	160	471
2016/17	181	200	381	388	200	588
2017/18	219	241	460	468	241	709
2018/19	256	283	539	548	283	831
2019/20	296	326	622	632	326	958
2020/21	335	369	704	715	369	1,084
2021/22	378	416	794	808	416	1,224



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Estimated Savings
(000's)

Safety

2. Tier 1 with EPMC, Tier 2 without EPMC

Year	Savings 2% @ 55		
	Employer Contribution	Employee Contribution	Total
2011/12	\$ 58	\$ 23	\$ 81
2012/13	132	53	185
2013/14	221	88	309
2014/15	307	123	430
2015/16	401	160	561
2016/17	500	200	700
2017/18	603	241	844
2018/19	707	283	990
2019/20	816	326	1,142
2020/21	923	369	1,292
2021/22	1,042	416	1,458



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Estimated Savings

(000's)

Safety

3. Both Tier 1 and Tier 2 without EPMC

Year	Savings 3% @ 55			Savings 2% @ 50		
	Employer Contribution	Employee Contribution	Total	Employer Contribution	Employee Contribution	Total
2011/12	\$ 174	\$ 735	\$ 909	\$ 198	\$ 735	\$ 933
2012/13	199	758	957	254	758	1,012
2013/14	229	783	1,012	320	783	1,103
2014/15	259	809	1,068	385	809	1,194
2015/16	290	835	1,125	456	835	1,291
2016/17	324	862	1,186	530	862	1,392
2017/18	358	890	1,248	607	890	1,497
2018/19	393	919	1,312	685	919	1,604
2019/20	429	949	1,378	766	949	1,715
2020/21	466	980	1,446	846	980	1,826
2021/22	506	1,011	1,517	935	1,011	1,946



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Estimated Savings

(000's)

Safety

3. Both Tier 1 and Tier 2 without EPMC

Year	Savings 2% @ 55		
	Employer Contribution	Employee Contribution	Total
2011/12	\$ 205	\$ 735	\$ 940
2012/13	302	733	1,035
2013/14	406	740	1,146
2014/15	506	749	1,255
2015/16	615	757	1,372
2016/17	730	765	1,495
2017/18	849	773	1,622
2018/19	969	782	1,751
2019/20	1,094	791	1,885
2020/21	1,219	801	2,020
2021/22	1,357	810	2,167



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CalPERS Two Tier Options Non Pooled Plan

- Option One
 - Two separate plans, two separate rates
 - Tier 1 (Current Plan)
 - Closed to new employees
 - Gains/Losses amortized over decreasing payroll
 - ER rate increases
 - Forced to pool once counts drop below 100 & set up side fund
 - Tier 2 (New Plan)
 - New employees join Tier 2
 - Lower ER rate
 - Stays in pool until counts > 100
 - Actual saving less because Tier 2 has to pay for pool amortization



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CalPERS Two Tier Options Non Pooled Plan

- Option Two
 - Two formulas/tiers, one blended rate
 - No rate impact until 3 years later
 - e.g. if Tier 2 effective 7/1/11, no rate impact until FY 2014/15
 - ER rate decreases gradually as employees hired
 - Actual saving less because no rate impact until FY 2014/15 (3 years after change)
- Option Three
 - Combined Option One and Two
 - Two separate rates for first 3 years (as in Option One)
 - Then merged to one blended rate, similar to Option Two
 - Actual saving slightly less



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CalPERS Smoothing Method

6/30/2009:	Unmodified	Modified
Market Value	100.0%	100.0%
Actuarial Value	120.0%	137.0%
6/30/2010:	13.3%	13.3%
Market Value	113.3%	113.3%
Actuarial Value:		
1. Project @ 7.75%	129.3%	147.6%
2. Adjust:[(MV-AV) x (1/15)]	128.2%	145.3%
3. Limited by corridor [Unmodified: 120%, Modified: 130%]	128.2%	145.3%
Actuarial Rate of Return	6.9%	6.1%
Ratio of Actuarial Value to Market Value	113.2%	128.2%



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CalPERS Smoothing Method

Actuarial Asset Values	Unmodified	Modified
• Project Assets forward	7.75%	7.75%
• Asset Gain/Losses Recognized	15 Years	15 Years
• Ratio of Actuarial to Market Value of Assets	80-120%	60-140%
Actuarial Asset Methods		
• Amortization		
o Years	30 Years	30 Years
o Factor	6%	6%
• Minimum	Normal Cost less 30 Year Amortization of Surplus	Normal Cost less 30 Year Amortization of Surplus



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