**CITY OF CULVER CITY**
**MISCELLANEOUS AND SAFETY PLANS**

BARTEL ASSOCIATES, LLC

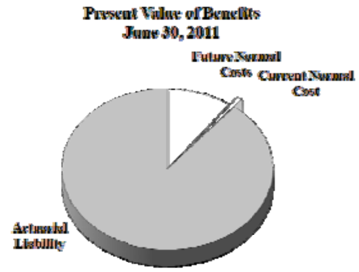
# CalPERS Actuarial Issues – 6/30/11 Valuation
# Preliminary Results


*Presented by* **John E. Bartel**
*Prepared by* Bianca Lin
Tina Haugbro
**Bartel Associates, LLC**


May 13, 2013

## Agenda

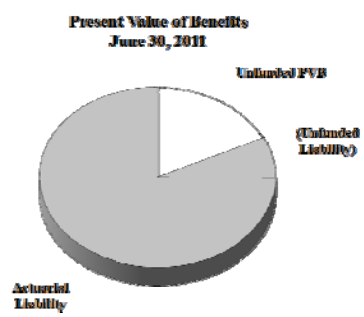
## Definitions




- **PVB - Present Value of all Projected Benefits:**
  - Discounted value (at valuation date - 6/30/11), 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



## Definitions




- **Target-** Have money in the bank to cover Actuarial Liability (past service)
- **Unfunded Liability -** Money short of target <u>at valuation date</u>
- **Excess Assets / Surplus:**
  - Money over and above target <u>at that point in time</u>.
  - 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.

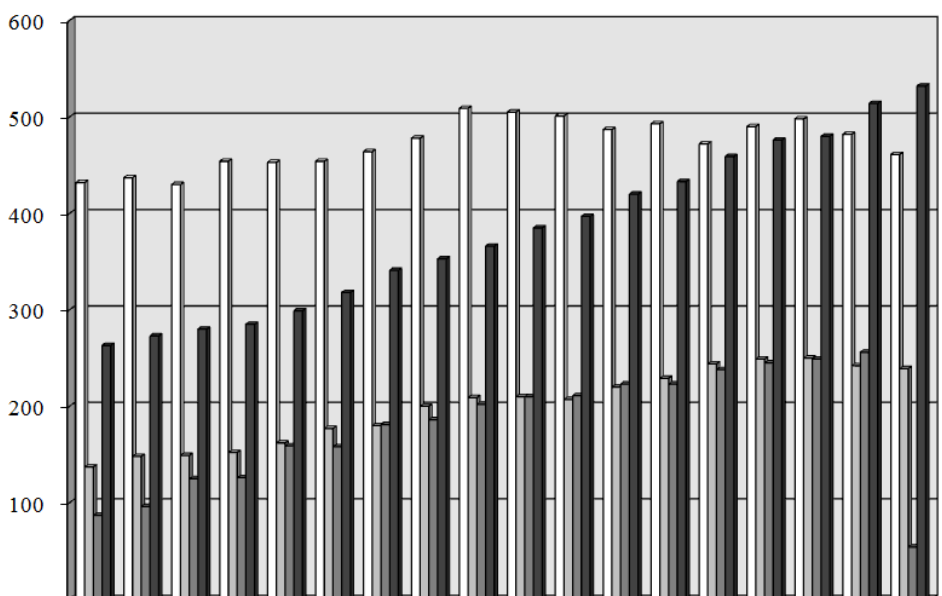
## Summary of Demographic Information – Miscellaneous

| | 1994 | 2003 | 2010 | 2011 |
|---|---|---|---|---|
| **Actives** | | | | |
| ■ Counts | 432 | 505 | 482 | 461 |
| ■ Average | | | | |
| • Age | 43 | 44 | 45 | 45 |
| • City Service | 10 | 9 | 10 | 10 |
| • PERSable Wages | $40,000 | $47,400 | $63,800 | $65,200 |
| ■ Total PERSable Wages (millions) | 18.9 | 26.4 | 33.8 | 32.8 |
| **Receiving Payments** | | | | |
| ■ Counts | | | | |
| • Service | | 251 | 362 | 375 |
| • Disablity | | 69 | 73 | 76 |
| • Beneficiaries | | 65 | 79 | 81 |
| • Total | 263 | 385 | 514 | 532 |
| ■ Average Annual City Provided Benefit[1] | | | | |
| • Service | | $14,000 | $20,200 | $21,000 |
| • Disability | | 7,100 | 7,400 | 7,600 |
| • Service Retirements in last 5 years | | 15,600 | 23,300 | 25,200 |

[1] Average City provided pensions are based on City service & City benefit formula, and are not representative of benefits for long service employees.

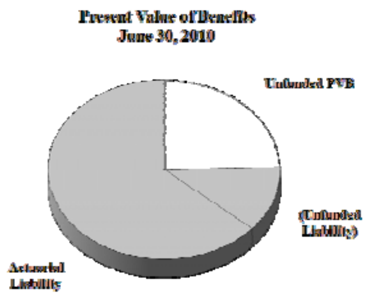


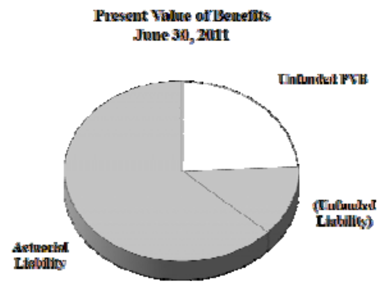
## Members Included in Valuation
## Miscellaneous




| | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| □ Active | 432 | 437 | 430 | 454 | 453 | 454 | 464 | 478 | 509 | 505 | 501 | 487 | 493 | 472 | 490 | 498 | 482 | 461 |
| ■ Transfers | 137 | 148 | 149 | 152 | 162 | 177 | 180 | 200 | 209 | 210 | 207 | 220 | 229 | 244 | 249 | 250 | 242 | 239 |
| ■ Vested Terminations | 87 | 96 | 125 | 126 | 159 | 158 | 181 | 186 | 202 | 210 | 211 | 223 | 223 | 238 | 245 | 249 | 256 | 54 |
| ■ Receiving Payments | 263 | 273 | 280 | 285 | 299 | 318 | 341 | 353 | 366 | 385 | 397 | 420 | 433 | 459 | 476 | 480 | 514 | 532 |

## Plan Funded Status
## Miscellaneous



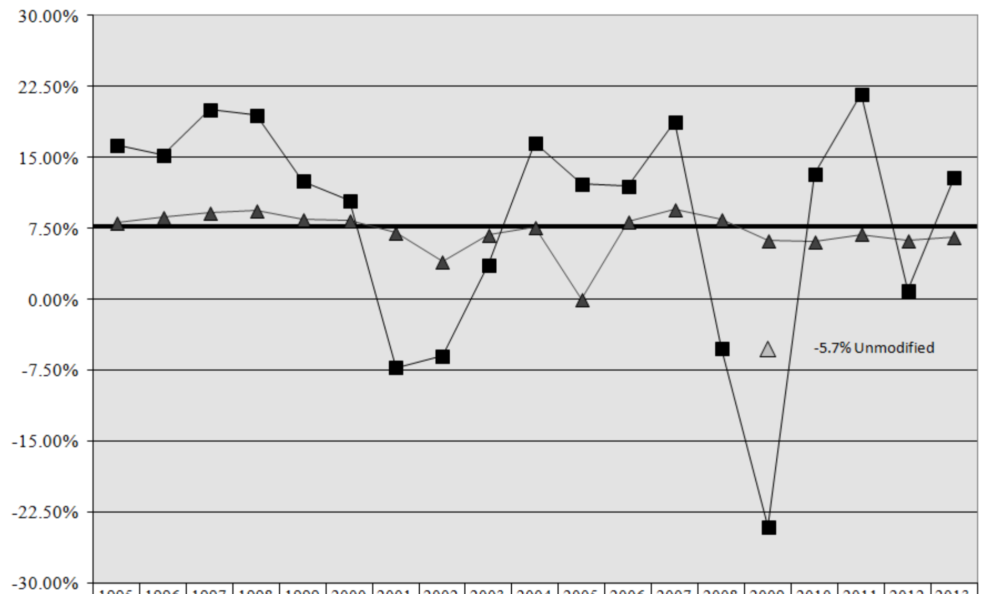

| June 30, 2010 | | June 30, 2011 |
|---|---|---|
| $ 192,800,000 | **Actuarial Liability** | $ 205,800,000 |
| 157,000,000 | **Actuarial Asset Value** | 165,000,000 |
| (35,800,000) | **(Unfunded Liability)** | (40,800,000) |
| **June 30, 2010** | | **June 30, 2011** |
| $ 192,800,000 | **Actuarial Liability** | $ 205,800,000 |
| 122,900,000 | **Market Asset Value** | 146,700,000 |
| (69,900,000) | **(Unfunded Liability)** | (59,100,000) |



## Plan Funded Status
## Miscellaneous

- What happened between 6/30/10 and 6/30/11?
  - Market Value Asset Gain/(Loss) ≈ 19.1 million
  - Unfunded Liability (Increase)/Decrease ≈ (5.0) million
- Reasons for Unfunded Liability increase
  - Actuarial Asset gain/(loss): ≈ (1.3) million
    - $18 million remaining unrecognized asset losses
  - Assumption Change ≈ (3.6) million
  - Gold Handshake ≈ (0.2) million
  - Actuarial gain/(loss): ≈ 0.7 million
    - Average Salary $63,800 → $65,200
    - Number of Actives 482 → 461
    - Number of Inactives 498 → 293
    - Number of Retirees 514 → 532
  - Other gain/(loss): ≈ (0.6) million
    - Contributions
    - Other (expected)

## Actuarial Investment Return
## Miscellaneous




| | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| AVA | 8.2% | 8.7% | 9.1% | 9.4% | 8.5% | 8.4% | 7.1% | 4.0% | 6.8% | 7.6% | 0.0% | 8.2% | 9.5% | 8.5% | 6.3% | 6.1% | 6.9% | 6.3% | 6.6% |
| MVA | 16.3% | 15.3% | 20.1% | 19.5% | 12.5% | 10.5% | -7.2% | -6.0% | 3.7% | 16.6% | 12.3% | 11.9% | 18.8% | -5.1% | -24.0 | 13.3% | 21.7% | 1.0% | 12.9% |

Above assumes contributions, payments, etc. received evenly throughout year.
2013 estimate based on 12/13 return of 10.2% through February 28, 2013

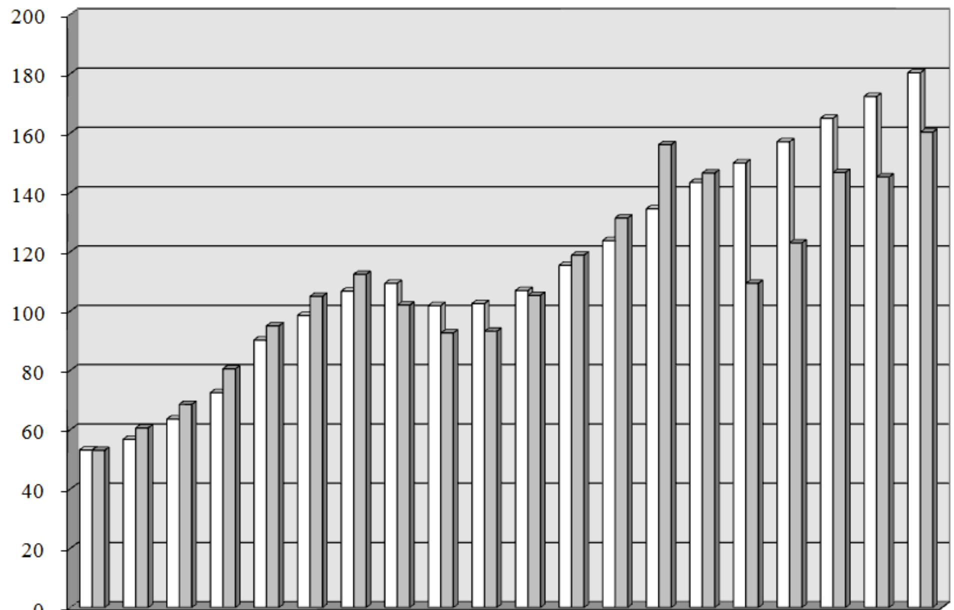


## Actuarial Investment Return
## Miscellaneous

| | Market | Actuarial |
|---|---|---|
| ■ June 30, 2008 | | |
| ● Return | (5.1%) | 8.5% |
| ● Gain/(Loss) | (12.9%) | 0.7% |
| ■ June 30, 2009 | | |
| ● Return | (24.0)% | 6.3% |
| ● Gain/(Loss) | **(31.8)%** | **(1.5)%** |
| ■ June 30, 2010 | | |
| ● Return | 13.3% | 6.1% |
| ● Gain/(Loss) | **5.5%** | **(1.7)%** |
| ■ June 30, 2011 | | |
| ● Return | 21.7% | 6.9% |
| ● Gain/(Loss) | **13.9%** | **(0.9)%** |
| ■ June 30, 2012 | | |
| ● Return | 1.0% | 6.3% |
| ● Gain/(Loss) | **(6.5)%** | **(1.2)%** |

- Accumulated Market Value Gains/(Losses) through June 30, 2012 ≈ (31.8)%
  [(12.9)% + (31.8)% + 5.5% + 13.9% + (6.5%)]

# Asset Values (Millions)
# Miscellaneous

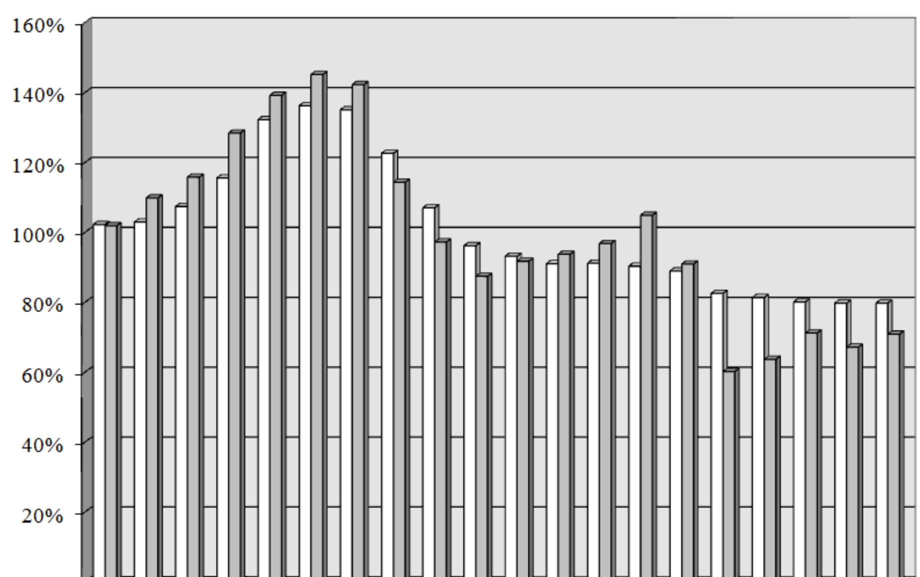


| | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| □Actuarial | 53 | 57 | 64 | 72 | 90 | 98 | 107 | 109 | 102 | 102 | 107 | 115 | 124 | 134 | 143 | 150 | 157 | 165 | 172 | 180 |
| ▨Market | 53 | 61 | 68 | 80 | 95 | 105 | 112 | 102 | 93 | 93 | 105 | 119 | 131 | 156 | 146 | 109 | 123 | 147 | 145 | 160 |

6/30/12 & 6/30/13 asset values estimated.



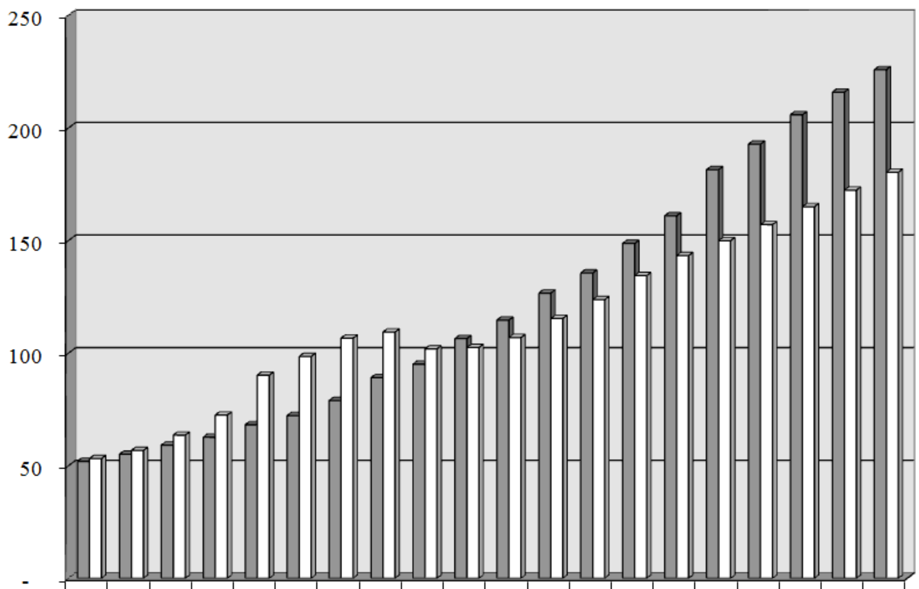
# Funded Status
# Miscellaneous



| | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| □Funded Ratio - AVA | 102% | 103% | 107% | 116% | 132% | 136% | 135% | 123% | 107% | 96% | 93% | 91% | 91% | 90% | 89% | 83% | 81% | 80% | 80% | 80% |
| ▨Funded Ratio - MVA | 102% | 110% | 116% | 128% | 139% | 145% | 142% | 114% | 97% | 88% | 92% | 94% | 97% | 105% | 91% | 60% | 64% | 71% | 67% | 71% |

6/30/12 & 6/30/13 funded status estimated

## Funded Status (Millions)
## Miscellaneous

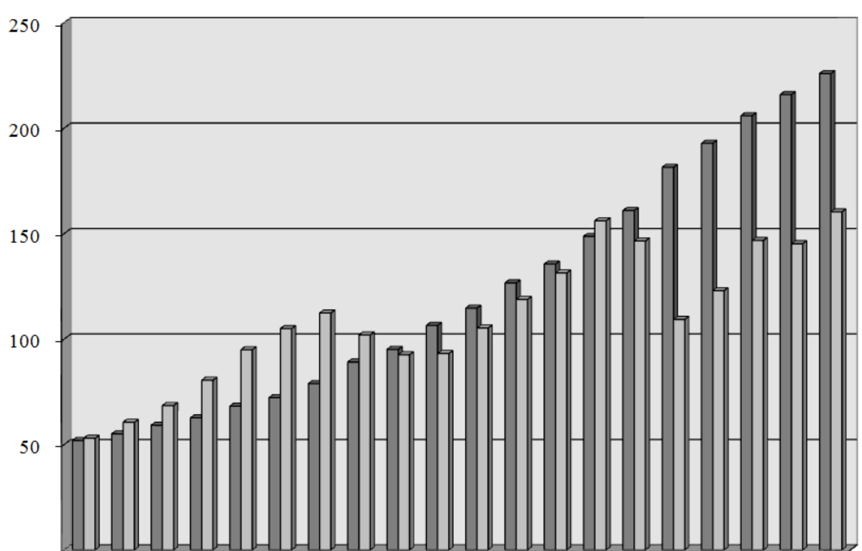



| | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Actuarial Liability | 52 | 55 | 59 | 63 | 68 | 72 | 79 | 89 | 95 | 106 | 115 | 127 | 136 | 149 | 161 | 181 | 193 | 206 | 216 | 226 |
| Actuarial Asset Value | 53 | 57 | 64 | 72 | 90 | 98 | 107 | 109 | 102 | 102 | 107 | 115 | 124 | 134 | 143 | 150 | 157 | 165 | 172 | 180 |

6/30/12 & 6/30/13 funded status estimated



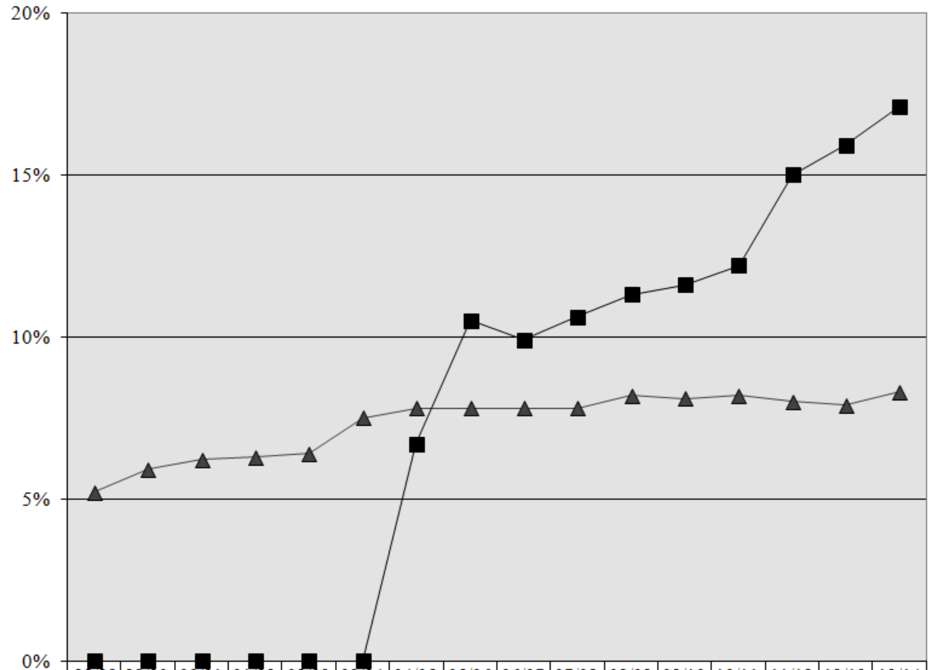
## Funded Status (Millions)
## Miscellaneous




| | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Actuarial Liability | 52 | 55 | 59 | 63 | 68 | 72 | 79 | 89 | 95 | 106 | 115 | 127 | 136 | 149 | 161 | 181 | 193 | 206 | 216 | 226 |
| Market Asset Value | 53 | 61 | 68 | 80 | 95 | 105 | 112 | 102 | 93 | 93 | 105 | 119 | 131 | 156 | 146 | 109 | 123 | 147 | 145 | 160 |

6/30/12 & 6/30/13 funded status estimated

## Contribution Rates
## Miscellaneous




| | 98/99 | 99/00 | 00/01 | 01/02 | 02/03 | 03/04 | 04/05 | 05/06 | 06/07 | 07/08 | 08/09 | 09/10 | 10/11 | 11/12 | 12/13 | 13/14 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ER NC | 5.2% | 5.9% | 6.2% | 6.3% | 6.4% | 7.5% | 7.8% | 7.8% | 7.8% | 7.8% | 8.2% | 8.1% | 8.2% | 8.0% | 7.9% | 8.3% |
| Total ER Cont Rate | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 6.7% | 10.5% | 9.9% | 10.6% | 11.3% | 11.6% | 12.2% | 15.0% | 15.9% | 17.1% |



## Contribution Rates
## Miscellaneous

| | 6/30/10<br>2012/2013 | 6/30/11<br>2013/2014 |
|---|---|---|
| ■ Total Normal Cost | 15.7% | 16.1% |
| ■ Employee Normal Cost | 7.8% | 7.8% |
| ■ Employer Normal Cost | 7.9% | 8.3% |
| ■ Amortization Bases: | 8.0% | 8.8% |
| ■ Total Employer Contribution Rate | 15.9% | 17.1% |
| ■ Amortization Period | Multiple<br>≈ 22 years | Multiple<br>≈ 24 years |

- What Happened from 6/30/10 to 6/30/11:
  - 2012/13 Rate 15.9%
  - (Gains)/Losses 0.5
  - Plan Change (Golden Handshake) 0.1
  - Assumption Change 0.6
  - 2013/14 Rate 17.1%

## CalPERS Upcoming Issues

- CalPERS actuarial staff recommended & CalPERS Board adopted changes to contribution policy. Four reasons why:
  - Asset corridor generates volatility when extreme events happen
  - Slow progress towards increased funded status
  - Current method needs improved transparency
  - GASB 68 encourages faster funding by requiring a lower discount rate for slower funding
- Changes - Direct rate smoothing based on:
  - 5 year ramp up
  - No asset smoothing
  - Future Gains/losses 25 year amortization period
    - with 5 year ramp up means paid over 30 years
  - Method & Assumption changes 15 year amortization period
    - with 5 year ramp up means paid over 20 years
  - No cap on rate increases each year



## CalPERS Upcoming Issues

- CalPERS starting an assumption study and Chief Actuary will likely recommend generational mortality improvement
- CalPERS starting an asset allocation study and Chief Actuary will:
  - Likely recommend a .25% margin
  - Possibly (but does not know until asset allocation study is done) recommend .25% reduction in real rate of return.
- Timing:
  - All the above will probably be included in 6/30/13 valuation (first impact 15/16 rates)
  - Will be estimated as part of 6/30/12 valuation when they project contribution rates.

## Contribution Projections
## Miscellaneous

- Market Value Investment Return:
  - June 30, 2011 — 21.7%
  - June 30, 2012 — 1.0%[2]
  - June 30, 2013 — 12.9%[3]
  - June 30, 2014 - 2017 — Poor Investment Return: ≈ **0.2% - 3.4%**
    Expected Investment Ret: ≈ **7.50%**
    Good Investment Return: ≈ **11.6% - 15.1%**
- No Other: Gains/Losses, Method/Assumption Changes, Benefit Improvements
- Excludes Employer Paid Member Contributions (EPMC)
- Impact of assumption changes (excluding Normal Cost impact)

| | With Phase In | W/O Phase In | Net Rate Impact |
|---|---|---|---|
| Initial 2013/14 Rate Impact | 0.336% | 1.008% | 0.672% |
| Rate Impact 2014/15+ | 1.062% | 1.008% | (0.054)% |

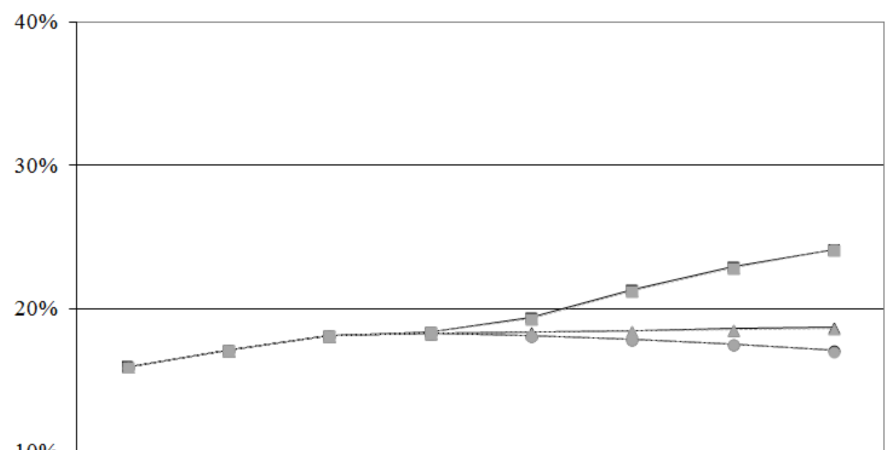
- Contribution projections assume 2 year phase in.
- 2nd tier 2%@60 FAE3 effective 7/1/11
- New hire assumptions:
  - Assumes 50% of 2013 new hires will be Classic Members and 50% will be New Members with PEPRA benefits.
  - Assumes Classic Members will decrease from 50% to 0% of new hires over 20 years.

---

[2] Based on CalPERS press release.
[3] Based on CalPERS actual return (10.2%) through February 28, 2013 and 7.5% thereafter.



## Contribution Projections
## Miscellaneous
### Investment Return Varies
### Tier 1 + Tier 2 + PEPRA




| | 12/13 | 13/14 | 14/15 | 15/16 | 16/17 | 17/18 | 18/19 | 19/20 |
|---|---|---|---|---|---|---|---|---|
| T1 + T2 - Poor IR | 15.9% | 17.1% | 18.1% | 18.4% | 19.3% | 21.3% | 22.9% | 24.2% |
| T1 + T2 - Exp IR | 15.9% | 17.1% | 18.1% | 18.3% | 18.4% | 18.5% | 18.6% | 18.7% |
| T1 + T2 - Good IR | 15.9% | 17.1% | 18.1% | 18.3% | 18.1% | 17.9% | 17.6% | 17.1% |
| All - Poor IR | 15.9% | 17.1% | 18.1% | 18.3% | 19.3% | 21.3% | 22.8% | 24.1% |
| All - Exp IR | 15.9% | 17.1% | 18.1% | 18.3% | 18.3% | 18.4% | 18.5% | 18.6% |
| All - Good IR | 15.9% | 17.1% | 18.1% | 18.2% | 18.1% | 17.9% | 17.5% | 17.1% |

## Contribution Projections
## Miscellaneous

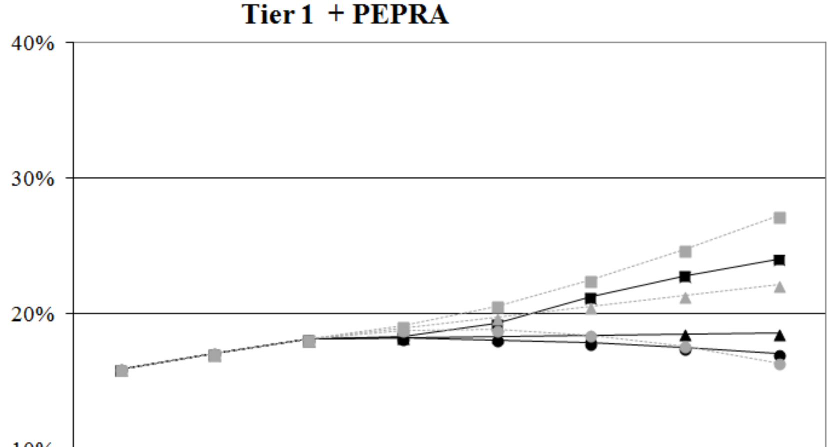
- In addition to above assumptions:
  - New Amortization Periods and Smoothing Methods
    - 4/17/13 Board Agenda Item 8b
    - 5 Year Direct Rate Smoothing
    - 25 Year (Fixed) Amortization Period of Gains and Losses, paid over 30 years
- Changes will take place June 30, 2013 affecting 2015/16 contribution rates
- CalPERS will amortize the smoothing method change using 25 Year (Fixed) Amortization Period paid over 30 years.

.



## Contribution Projections
## Miscellaneous

**Investment Return Varies**
**Direct Rate Smoothing**
**Tier 1 + PEPRA**




| | 12/13 | 13/14 | 14/15 | 15/16 | 16/17 | 17/18 | 18/19 | 19/20 |
|---|---|---|---|---|---|---|---|---|
| All WO Change - Poor IR | 15.9% | 17.1% | 18.1% | 18.3% | 19.3% | 21.3% | 22.8% | 24.1% |
| All WO Change - Exp IR | 15.9% | 17.1% | 18.1% | 18.3% | 18.3% | 18.4% | 18.5% | 18.6% |
| All WO Change - Good IR | 15.9% | 17.1% | 18.1% | 18.2% | 18.1% | 17.9% | 17.5% | 17.1% |
| All W Changes - Poor IR | 15.9% | 17.1% | 18.1% | 19.2% | 20.6% | 22.5% | 24.8% | 27.3% |
| All W Changes - Exp IR | 15.9% | 17.1% | 18.1% | 19.0% | 19.7% | 20.6% | 21.4% | 22.2% |
| All W Changes - Good IR | 15.9% | 17.1% | 18.1% | 18.8% | 18.9% | 18.5% | 17.6% | 16.4% |

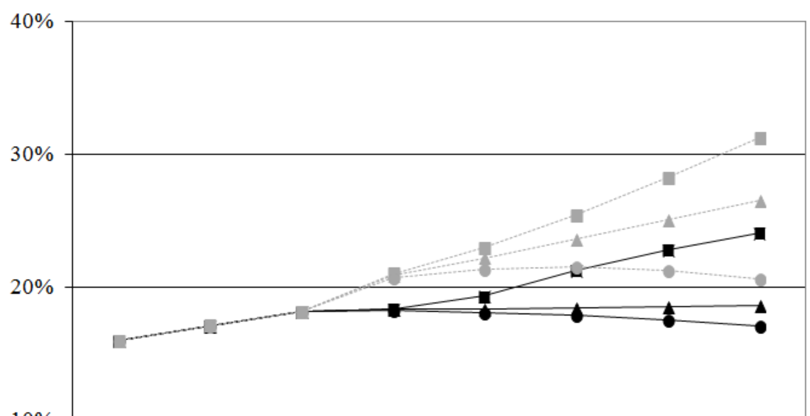
## Contribution Projections
## Miscellaneous

- In addition to above assumptions:
  - New Amortization Periods and Smoothing Methods
    - 4/17/13 Board Agenda Item 8b
    - 5 Year Direct Rate Smoothing
    - 25 Years (Fixed) Amortization Period of Gains and Losses, paid over 30 years
  - Anticipated discount rate change from 7.50% to 7.25%
  - Anticipated mortality assumption changes
- Above changes assumed to take place June 30, 2013 affecting 2015/16 contribution rates
- We expect CalPERS will amortize the above changes as follows:
  - The smoothing method change will be paid over 30 years.
  - The discount rate and mortality changes will be paid over 20 years.



## Contribution Projections
## Miscellaneous

**Investment Return Varies (7.25% Expected)**
**Direct Rate Smoothing and Mortality**




| | 12/13 | 13/14 | 14/15 | 15/16 | 16/17 | 17/18 | 18/19 | 19/20 |
|---|---|---|---|---|---|---|---|---|
| All WO Change - Poor IR | 15.9% | 17.1% | 18.1% | 18.3% | 19.3% | 21.3% | 22.8% | 24.1% |
| All WO Change - Exp IR | 15.9% | 17.1% | 18.1% | 18.3% | 18.3% | 18.4% | 18.5% | 18.6% |
| All WO Chagne - Good IR | 15.9% | 17.1% | 18.1% | 18.2% | 18.1% | 17.9% | 17.5% | 17.1% |
| All W 3 Changes - Poor IR | 15.9% | 17.1% | 18.1% | 21.0% | 23.0% | 25.4% | 28.2% | 31.2% |
| All W 3 Changes - Exp IR | 15.9% | 17.1% | 18.1% | 20.8% | 22.2% | 23.6% | 25.0% | 26.5% |
| All W 3 Chagnes - Good IR | 15.9% | 17.1% | 18.1% | 20.7% | 21.3% | 21.5% | 21.3% | 20.6% |

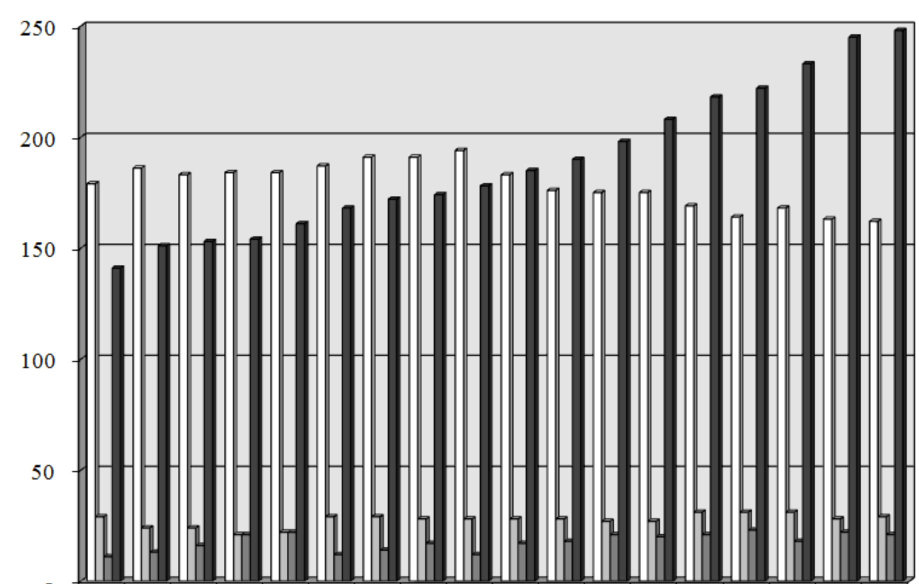
## Summary of Demographic Information – Safety

| | 1994 | 2003 | 2010 | 2011 |
|---|---|---|---|---|
| **Actives** | | | | |
| ■ Counts | 179 | 183 | 163 | 162 |
| ■ Average | | | | |
| • Age | 39 | 42 | 42 | 42 |
| • City Service | 14 | 15 | 15 | 15 |
| • PERSable Wages | $63,900 | $85,800 | $105,800 | $107,500 |
| ■ Total PERSable Wages (millions) | 12.5 | 17.3 | 19. | 19.0 |
| **Receiving Payments** | | | | |
| ■ Counts | | | | |
| • Service | | 69 | 102 | 103 |
| • Disablity | | 90 | 104 | 107 |
| • Beneficiaries | | 26 | 39 | 38 |
| • Total | 141 | 185 | 245 | 248 |
| ■ Average Annual City Provided Benefit[4] | | | | |
| • Service | | $38,900 | $64,000 | $64,400 |
| • Disability | | 28,800 | 42,400 | 45,400 |
| • Service Retirements in last 5 years | | 57,100 | 78,800 | 76,700 |

[4] Average City provided pensions are based on City service & City benefit formula and are not representative of benefits for long service employees.

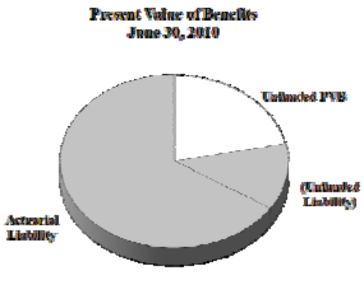


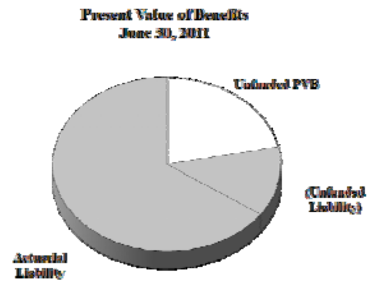
## Members Included in Valuation
## Safety




| | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Active | 179 | 186 | 183 | 184 | 184 | 187 | 191 | 191 | 194 | 183 | 176 | 175 | 175 | 169 | 164 | 168 | 163 | 162 |
| Transfers | 29 | 24 | 24 | 21 | 22 | 29 | 29 | 28 | 28 | 28 | 28 | 27 | 27 | 31 | 31 | 31 | 28 | 29 |
| Vested Terminations | 11 | 13 | 16 | 21 | 22 | 12 | 14 | 17 | 12 | 17 | 18 | 21 | 20 | 21 | 23 | 18 | 22 | 21 |
| Receiving Payments | 141 | 151 | 153 | 154 | 161 | 168 | 172 | 174 | 178 | 185 | 190 | 198 | 208 | 218 | 222 | 233 | 245 | 248 |

## Plan Funded Status
## Safety



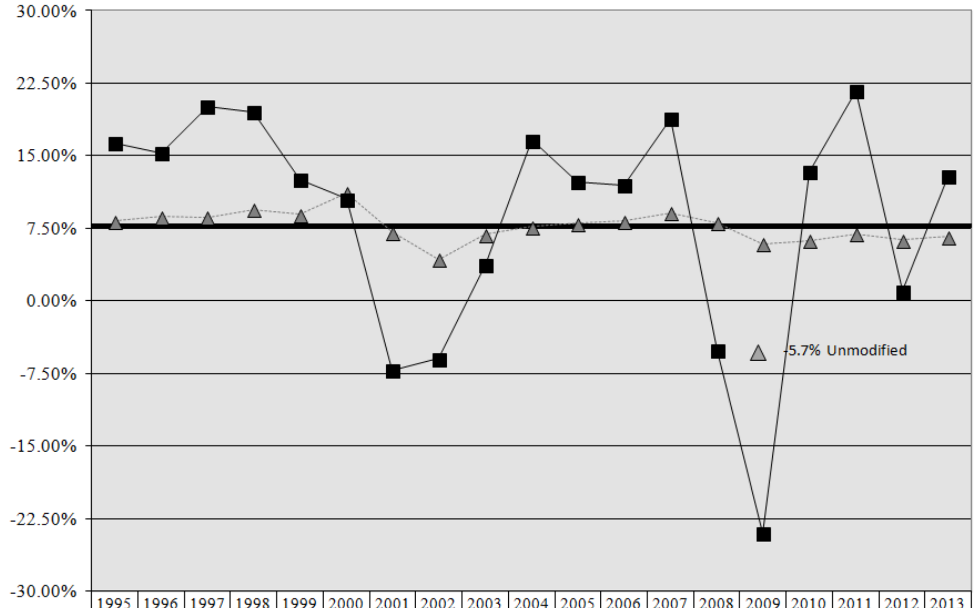

| June 30, 2010 | | June 30, 2011 |
|---|---|---|
| $ 250,700,000 | **Actuarial Liability** | $ 264,500,000 |
| 204,000,000 | **Actuarial Asset Value** | 212,400,000 |
| (46,700,000) | **(Unfunded Liability)** | (52,100,000) |
| **June 30, 2010** | | **June 30, 2011** |
| $ 250,700,000 | **Actuarial Liability** | $ 264,500,000 |
| 159,500,000 | **Market Asset Value** | 188,500,000 |
| (91,200,000) | **(Unfunded Liability)** | (76,000,000) |



## Plan Funded Status
## Safety

- What happened between 6/30/10 and 6/30/11?
  - Market Value Asset Gain/(Loss) ≈ 24.7 million
  - Unfunded Liability increase ≈ (5.4) million
- Reasons for Unfunded Liability increase
  - Actuarial Asset gain/(loss): ≈ (1.7) million
    - $24 million remaining unrecognized asset losses
  - Assumption change ≈ (4.5) million
  - Actuarial gain/(loss): ≈ 2.3 million
    - Average Salary $105,800 → $107,500
    - Number of Actives 163 → 162
    - Number of Inactives 50 → 50
    - Number of Retirees 245 → 248
  - Other gain/(loss): ≈ (1.5) million
    - Contributions
    - Other (expected)

## Actuarial Investment Return
## Safety




| | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| AVA | 8.2% | 8.7% | 8.7% | 9.4% | 8.9% | 11.2% | 7.1% | 4.3% | 6.8% | 7.6% | 8.0% | 8.2% | 9.1% | 8.1% | 5.9% | 6.2% | 6.9% | 6.3% | 6.6% |
| MVA | 16.3% | 15.3% | 20.1% | 19.5% | 12.5% | 10.5% | -7.2% | -6.0% | 3.7% | 16.6% | 12.3% | 11.9% | 18.8% | -5.1% | -24.0 | 13.3% | 21.7% | 1.0% | 12.9% |

Above assumes contributions, payments, etc. received evenly throughout year.
2013 estimate based on 12/13 return of 10.2% through February 28, 2013

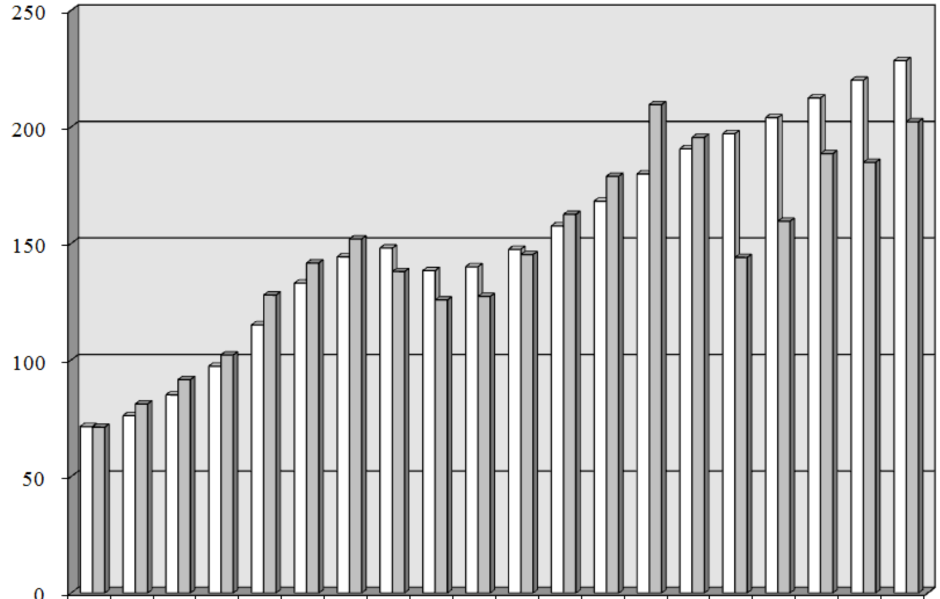


## Actuarial Investment Return
## Safety

| | Market | Actuarial |
|---|---|---|
| ■ June 30, 2008 | | |
| ● Return | (5.1%) | 8.1% |
| ● Gain/(Loss) | (12.9%) | 0.3% |
| ■ June 30, 2009 | | |
| ● Return | (24.0)% | 5.9% |
| ● Gain/(Loss) | **(31.8)%** | **(1.9)%** |
| ■ June 30, 2010 | | |
| ● Return | 13.3% | 6.2% |
| ● Gain/(Loss) | **5.5%** | **(1.6)%** |
| ■ June 30, 2011 | | |
| ● Return | 21.7% | 6.9% |
| ● Gain/(Loss) | **13.9%** | **(0.9)%** |
| ■ June 30, 2012 | | |
| ● Return | 1.0% | 6.3% |
| ● Gain/(Loss) | **(6.5)%** | **(1.2)%** |

- Accumulated Market Value Gains/(Losses) through June 30, 2012 ≈ (31.8)%
  [(12.9)% + (31.8)% + 5.5% + 13.9% + (6.5%)]

## Asset Values (Millions)
## Safety

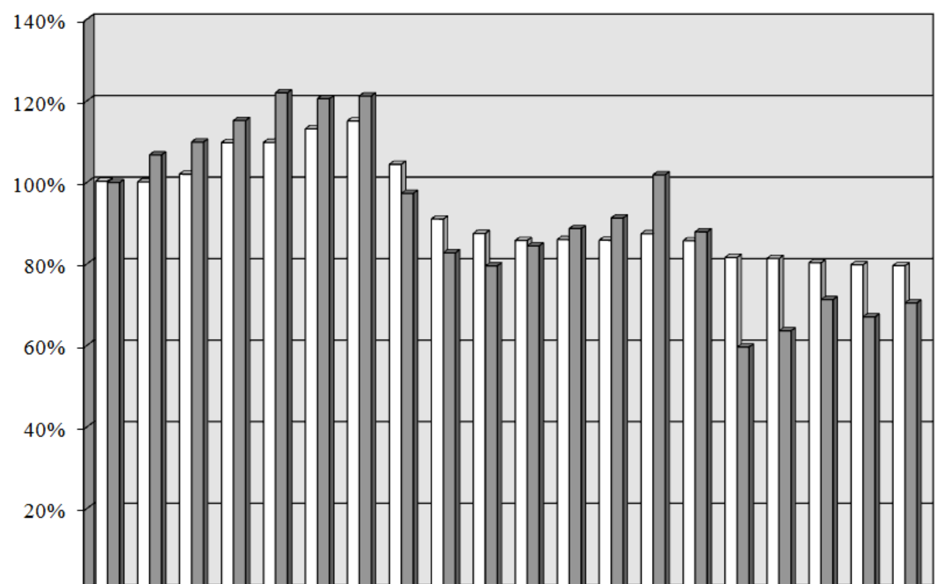



| | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Actuarial | 71 | 76 | 85 | 97 | 115 | 133 | 144 | 148 | 138 | 140 | 147 | 158 | 168 | 180 | 191 | 197 | 204 | 212 | 220. | 228. |
| Market | 71 | 81 | 92 | 102 | 128 | 142 | 152 | 138 | 126 | 127 | 145 | 162 | 179 | 210 | 195 | 144 | 160 | 189 | 184. | 202. |

6/30/12 & 6/30/13 asset values estimated.



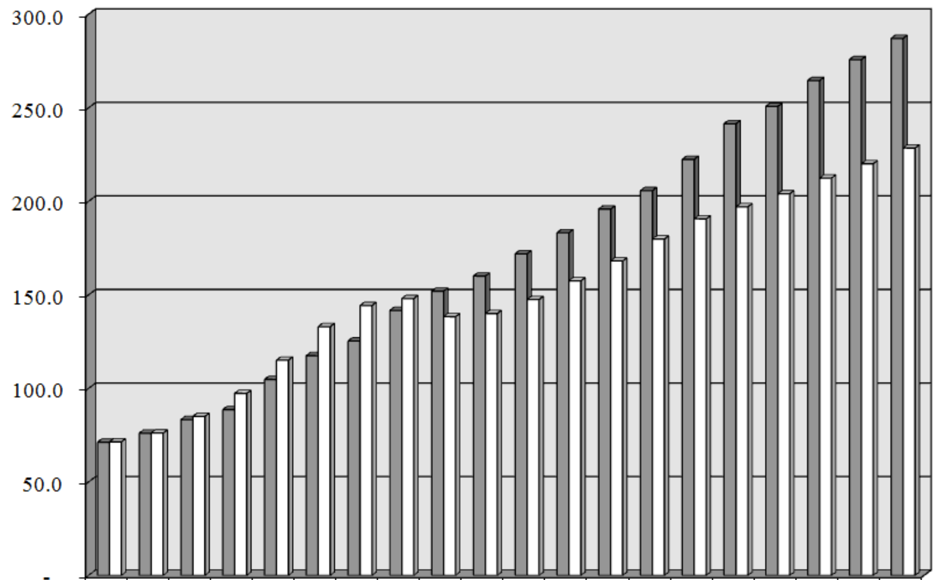
## Funded Status
## Safety




| | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Funded Ratio - AVA | 100% | 100% | 102% | 110% | 110% | 113% | 115% | 104% | 91% | 87% | 86% | 86% | 86% | 87% | 86% | 82% | 81% | 80% | 80% | 80% |
| Funded Ratio - MVA | 100% | 107% | 110% | 115% | 122% | 121% | 121% | 97% | 83% | 80% | 84% | 89% | 91% | 102% | 88% | 60% | 64% | 71% | 67% | 70% |

6/30/12 & 6/30/13 funded status estimated

## Funded Status (Millions)
## Safety

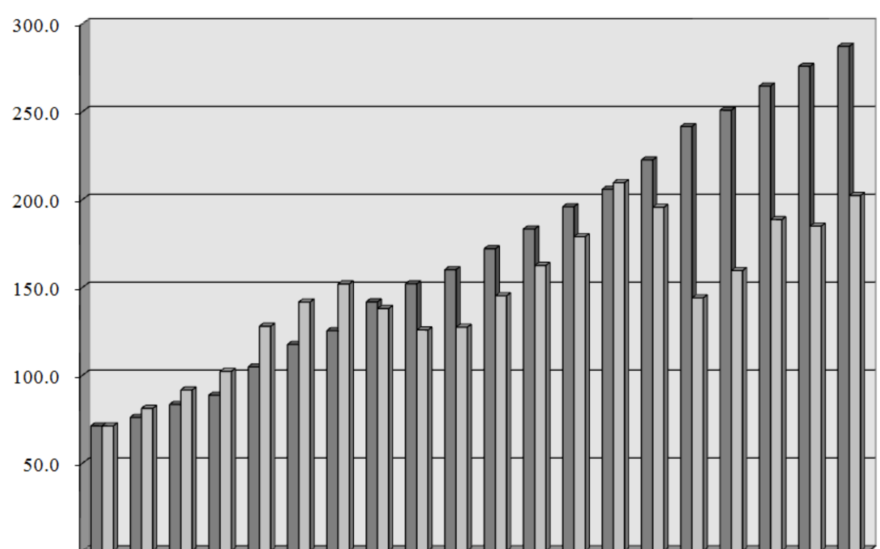



| | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Actuarial Liability | 71.2 | 76.0 | 83.3 | 88.6 | 104. | 117. | 125. | 141. | 151. | 160. | 171. | 183. | 195. | 205. | 222. | 241. | 250. | 264. | 275. | 287. |
| Actuarial Asset Value | 71.4 | 76.1 | 85.0 | 97.3 | 115. | 133. | 144. | 148. | 138. | 140. | 147. | 157. | 168. | 179. | 190. | 197. | 204. | 212. | 220. | 228. |

6/30/12 & 6/30/13 funded status estimated



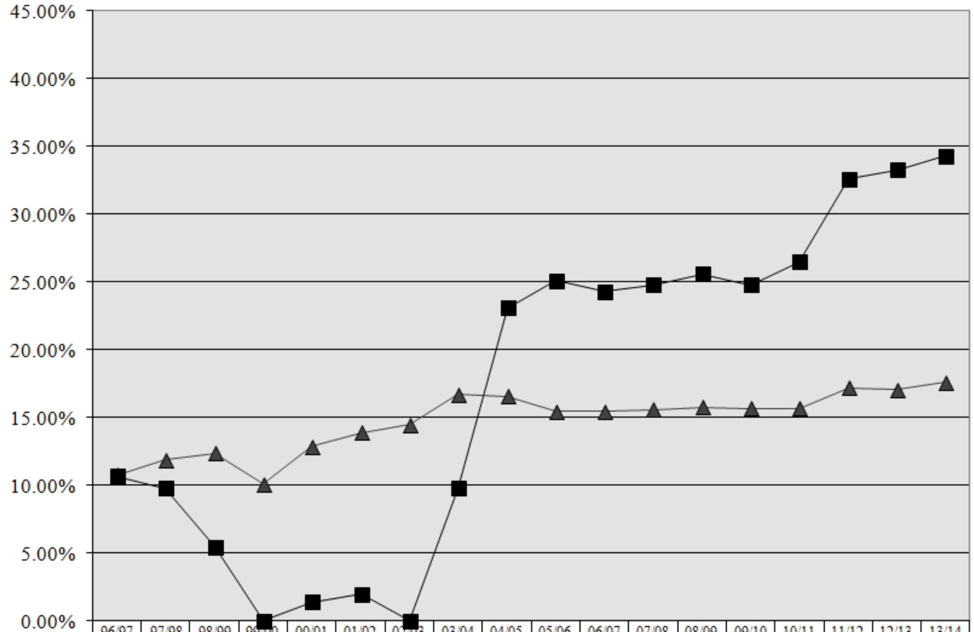
## Funded Status (Millions)
## Safety




| | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Actuarial Liability | 71.2 | 76.0 | 83.3 | 88.6 | 104. | 117. | 125. | 141. | 151. | 160. | 171. | 183. | 195. | 205. | 222. | 241. | 250. | 264. | 275. | 287. |
| Market Asset Value | 71 | 81 | 92 | 102 | 128 | 142 | 152 | 138 | 126 | 127 | 145 | 162 | 179 | 210 | 195 | 144 | 160 | 189 | 184. | 202. |

6/30/12 & 6/30/13 funded status estimated

## Contribution Rates
## Safety




| | 96/97 | 97/98 | 98/99 | 99/00 | 00/01 | 01/02 | 02/03 | 03/04 | 04/05 | 05/06 | 06/07 | 07/08 | 08/09 | 09/10 | 10/11 | 11/12 | 12/13 | 13/14 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Total ER NC | 10.8% | 11.9% | 12.4% | 10.1% | 12.9% | 13.9% | 14.5% | 16.7% | 16.6% | 15.5% | 15.5% | 15.6% | 15.8% | 15.7% | 15.7% | 17.2% | 17.1% | 17.6% |
| Total ER Cont Rate | 10.7% | 9.8% | 5.5% | 0.0% | 1.4% | 2.0% | 0.0% | 9.8% | 23.1% | 25.1% | 24.3% | 24.8% | 25.6% | 24.8% | 26.5% | 32.6% | 33.3% | 34.3% |



## Contribution Rates
## Safety

| | 6/30/10<br>2012/2013 | 6/30/11<br>2013/2014 |
|---|---|---|
| Total Normal Cost | 26.1% | 28.6% |
| Employee Normal Cost | 9.0% | 9.0% |
| Employer Normal Cost | 17.1% | 17.6% |
| Amortization Bases | 16.1% | 16.7% |
| Total Employer Contribution Rate | 33.2% | 34.3% |
| Amortization Period | Multiple<br>≈ 28 years | Multiple<br>≈ 31 years |

- What Happened from 6/30/10 to 6/30/11:
  - 2012/13 Rate 33.2%
  - (Gains)/Losses (0.0)
  - Assumption Change 1.1
  - 2013/14 Rate 34.3%

# Contribution Projections
## Safety

- Market Value Investment Return:
  - June 30, 2011 — 21.7%
  - June 30, 2012 — 1.0%[5]
  - June 30, 2013 — 12.9%[6]
  - June 30, 2014 - 2017
    - Poor Investment Return: ≈ **0.2% - 3.4%**
    - Expected Investment Ret: ≈ **7.50%**
    - Good Investment Return: ≈ **11.6% - 15.1%**
- No Other: Gains/Losses, Method/Assumption Changes, Benefit Improvements
- Excludes Employer Paid Member Contributions (EPMC)
- Impact of assumption changes (excluding Normal Cost impact)

| | With Phase In | W/O Phase In | Net Rate Impact |
|---|---|---|---|
| Initial 2013/14 Rate Impact | 0.714% | 2.142% | 1.428% |
| Rate Impact 2014/15+ | 2.253% | 2.142% | (0.111)% |

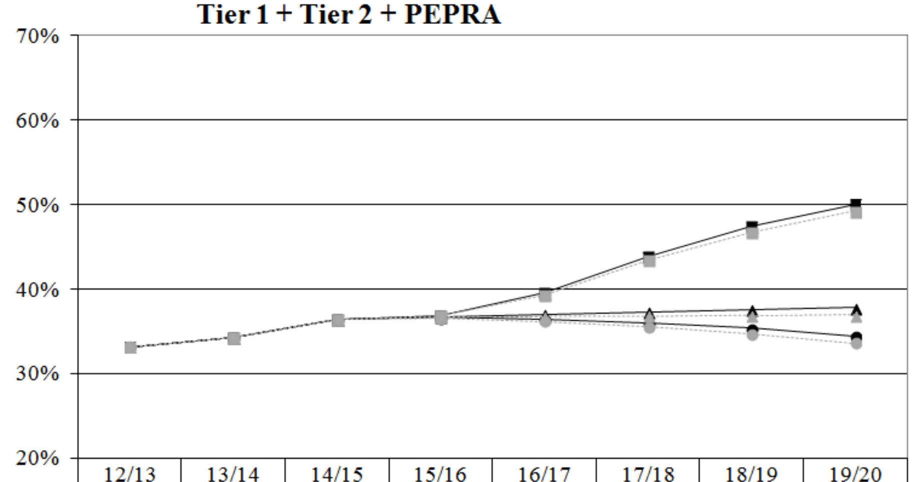
- Contribution projections assume 2 year phase in and 4% EE cost sharing for all
- 2nd Tier 3%@55 FAE3 effective 7/1/11
- New hire Assumptions:
  - Assumes 50% of 2013 new hires will be Classic Members with current benefits and 50% will be New Members with PEPRA benefits.
  - Assumes Classic Member will decrease from 50% to 0% of new hires over 10 years.

---

[5] Based on CalPERS press release.
[6] Based on CalPERS actual return (10.2%) through February 28, 2013 and 7.5% thereafter.



# Contribution Projections
## Safety
### Investment Return Varies
### Tier 1 + Tier 2 + PEPRA



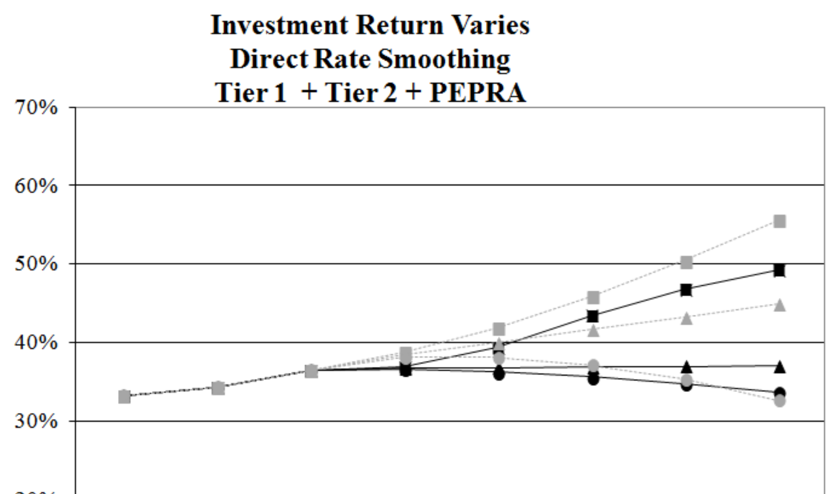

| | 12/13 | 13/14 | 14/15 | 15/16 | 16/17 | 17/18 | 18/19 | 19/20 |
|---|---|---|---|---|---|---|---|---|
| T1 + T2 - Poor IR | 33.2% | 34.3% | 36.5% | 36.9% | 39.6% | 43.9% | 47.4% | 50.1% |
| T1 + T2 - Exp IR | 33.2% | 34.3% | 36.5% | 36.8% | 37.1% | 37.4% | 37.6% | 37.8% |
| T1 + T2 - Good IR | 33.2% | 34.3% | 36.5% | 36.7% | 36.5% | 36.1% | 35.4% | 34.5% |
| All - Poor IR | 33.2% | 34.3% | 36.5% | 36.8% | 39.3% | 43.5% | 46.7% | 49.3% |
| All - Exp IR | 33.2% | 34.3% | 36.5% | 36.7% | 36.8% | 36.9% | 36.9% | 37.0% |
| All - Good IR | 33.2% | 34.3% | 36.5% | 36.6% | 36.2% | 35.6% | 34.7% | 33.6% |

## Contribution Projections
## Safety

- In addition to above assumptions:
  - New Amortization Periods and Smoothing Methods
    - 4/17/13 Board Agenda Item 8b
    - 5 Year Direct Rate Smoothing
    - 25 Year (Fixed) Amortization Period of Gains and Losses, paid over 30 years
- Changes will take place June 30, 2013 affecting 2015/16 contribution rates
- CalPERS will amortize the smoothing method change using 25 Year (Fixed) Amortization Period paid over 30 years.



## Contribution Projections
## Safety




| | 12/13 | 13/14 | 14/15 | 15/16 | 16/17 | 17/18 | 18/19 | 19/20 |
|---|---|---|---|---|---|---|---|---|
| All WO Change - Poor IR | 33.2% | 34.3% | 36.5% | 36.8% | 39.3% | 43.5% | 46.7% | 49.3% |
| All WO Change - Exp IR | 33.2% | 34.3% | 36.5% | 36.7% | 36.8% | 36.9% | 36.9% | 37.0% |
| All WO Change - Good IR | 33.2% | 34.3% | 36.5% | 36.6% | 36.2% | 35.6% | 34.7% | 33.6% |
| All W Changes - Poor IR | 33.2% | 34.3% | 36.5% | 38.8% | 41.8% | 45.8% | 50.4% | 55.6% |
| All W Changes - Exp IR | 33.2% | 34.3% | 36.5% | 38.4% | 40.0% | 41.6% | 43.3% | 44.9% |
| All W Changes - Good IR | 33.2% | 34.3% | 36.5% | 38.1% | 38.1% | 37.1% | 35.3% | 32.6% |

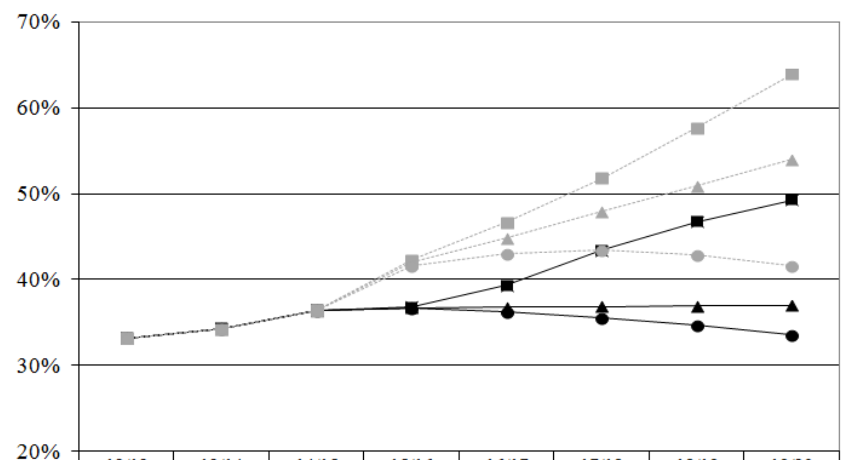
## Contribution Projections
## Safety

- In addition to above assumptions:
  - New Amortization Periods and Smoothing Methods
    - 4/17/13 Board Agenda Item 8b
    - 5 Year Direct Rate Smoothing
    - 25 Years (Fixed) Amortization Period of Gains and Losses, paid over 30 years
  - Anticipated discount rate change from 7.50% to 7.25%
  - Anticipated mortality assumption changes
- Above changes assumed to take place June 30, 2013 affecting 2015/16 contribution rates
- We expect CalPERS will amortize the above changes as follows:
  - The smoothing method change is will be paid over 30 years.
  - The discount rate and mortality changes will be paid over 20 years.



## Contribution Projections
## Safety

**Investment Return Varies (7.25% Expected)**
**Direct Rate Smoothing and Mortality**




| | 12/13 | 13/14 | 14/15 | 15/16 | 16/17 | 17/18 | 18/19 | 19/20 |
|---|---|---|---|---|---|---|---|---|
| All WO Change - Poor IR | 33.2% | 34.3% | 36.5% | 36.8% | 39.3% | 43.5% | 46.7% | 49.3% |
| All WO Change - Exp IR | 33.2% | 34.3% | 36.5% | 36.7% | 36.8% | 36.9% | 36.9% | 37.0% |
| All WO Change - Good IR | 33.2% | 34.3% | 36.5% | 36.6% | 36.2% | 35.6% | 34.7% | 33.6% |
| All W 3 Changes - Poor IR | 33.2% | 34.3% | 36.5% | 42.4% | 46.6% | 51.8% | 57.6% | 64.0% |
| All W 3 Changes - Exp IR | 33.2% | 34.3% | 36.5% | 42.0% | 44.9% | 47.9% | 50.9% | 54.0% |
| All W 3 Changes - Good IR | 33.2% | 34.3% | 36.5% | 41.7% | 43.0% | 43.4% | 42.9% | 41.6% |

## PEPRA Cost Sharing

- Target of 50% of total normal cost for everyone
- *New members* must pay greater of 50% of total normal cost or bargained amount if higher
- Employer cannot pay any part of *new member* required employee contributions
- Employer may impose current employees pay 50% of total normal cost (limited to certain amounts) if not agreed through collective bargaining by 1/1/18
- Miscellaneous Plan:

| | Tier 1 | Tier 2 | |
|---|---|---|---|
| | Current Members | | New Members |
| Employer Normal Cost | 8.3% | 6.6% | 6.25% |
| Member Normal Cost | 7.8% | 7.0% | 6.25% |
| Total Normal Cost | 16.1% | 13.6% | 12.5% |
| 50% Target | 8.05% | 6.8% | 6.25% |



## PEPRA Cost Sharing

- Safety Plan

| | Tier 1 | Tier 2 | |
|---|---|---|---|
| | Current Members | | New Members |
| Employer Normal Cost | 17.6% | 16.5% | 12.25% |
| Member Normal Cost | 9.0% | 9.0% | 12.25% |
| Total Normal Cost | 26.6% | 25.5% | 24.50% |
| 50% Target | 13.3% | 12.75% | 12.25% |