City of Novato

BARTEL ASSOCIATES, LLC

CalPERS Actuarial Issues
June 30, 2010 Valuation

January 2012

CITY OF NOVATO
CALPERS ACTUARIAL ISSUES – JUNE 30, 2010 VALUATION
CALPERS INVESTMENT RETURNS

The City of Novato retained Bartel Associates to provide CalPERS related actuarial consulting services. This Executive Summary provides the City analysis of their CalPERS Miscellaneous and Safety pension plans and is designed to assist the City in evaluating their current funding situation. It may be helpful for the reader to first review the summary of basic definitions starting on page 32.

Index

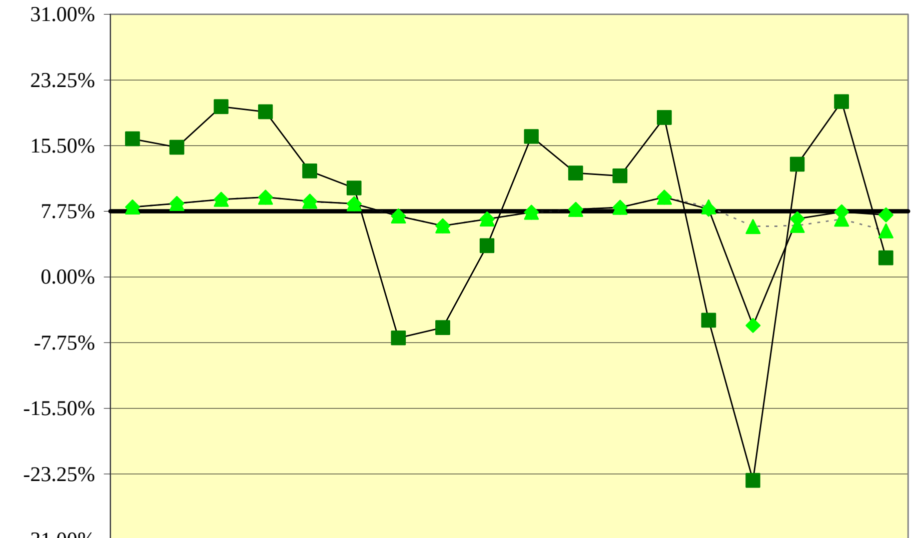
Study Highlights

- The City provides the 2%@55 CalPERS benefit formula for Miscellaneous employees, rather than one of the enhanced formulas, and 3%@55 for Safety employees, rather than the more expensive 3%@50 formula. The formulas provided result in generally lower City contribution rates.
- CalPERS investment losses during 2008/09 will either be paid for with higher contributions or future investment returns greater than currently anticipated. However, due to rate smoothing (including subsequent modifications), absent higher than expected investment returns, higher contribution rates will likely gradually materialize over several years.
- When considering a second tier benefit level, it is important to understand that cost savings are:
  1. Limited to Normal Cost difference between the old and new tier and
  2. Very modest until the second tier payroll becomes dominant and, even then, will not result in a significant budget savings.

  There are reasons to consider a second pension tier other than short term cash savings, such as implementing a more appropriate benefit level or encouraging longer City service. However second tiers result in very minor short term financial benefits.
- The City realized savings issuing Pension Obligation Bonds by funding the Miscellaneous Plan and paying off the Safety Plan's "Side Fund" balance. The unfunded liabilities paid by the Pension Obligation Bonds were charged at 7.75% while Bonds are issued at between 5.67% and 6.12%.

CalPERS Historical Investment Return

The following chart illustrates CalPERS market and actuarial value investment returns over the past several years:



	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
AVA Modified	8.3%	8.7%	9.2%	9.4%	8.9%	8.6%	7.2%	6.0%	6.8%	7.6%	8.0%	8.2%	9.4%	8.3%	5.9%	6.1%	6.8%	5.5%
MVA Rate	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%	20.7%	2.3%
AVA Unmodified	8.3%	8.7%	9.2%	9.4%	8.9%	8.6%	7.2%	6.0%	6.8%	7.6%	8.0%	8.2%	9.4%	8.0%	-5.7%	6.9%	7.7%	7.3%

The 2011 return shown was reported in a CalPERS press release. The 2012 return is estimated to be 2.3% based on October 31, 2011 return of -2.7% and 7.75% annualized for the remaining eight months (to June 30, 2012).

CalPERS' 10 year average annual return (from July 1, 2002 through June 30, 2011) is 6.2%, while their 20 year average annual return (from July 1, 1992 through June 30, 2011) is 8.9%.

The above chart shows three lines, AVA Modified (Actuarial Value of Assets with CalPERS recent smoothing modification), MVA (Market Value of Assets) Rate and AVA Unmodified (Actuarial Value of Assets based on CalPERS smoothing method prior to CalPERS asset smoothing modification). The MVA Rate is the investment return CalPERS' assets actually earned during the respective fiscal year ends, while the AVA shows the investment return as a smoothed rate reflecting asset gains and losses over a period of time, rather than immediately. The AVA Modified investment return directly affects City contribution rates.

The chart indicates a -24.0% June 30, 2009 year end investment return. This compares to an expected return of +7.75%, for a net loss of 31.8%. This loss would have had a significant impact on the City's 2011/12 Miscellaneous and Safety contribution rates. However, CalPERS smoothes asset gains and losses using a technique that generally recognizes one fifteenth of market asset gains or losses in a given year. In addition, the smoothing method does not allow the smoothed (actuarial) value to be less than 80% or more than 120% of the market value (the 80-120% corridor). To mitigate the economic impact of the June 30, 2009 market decline, on June 13, 2009, CalPERS' Board approved a modification to the corridor, increasing it to 140% for the June 30, 2009 valuation and to 130% for June 30, 2010 valuation. The corridor will return to 120% for the June 30, 2011 and subsequent valuations. Complicating matters a bit is that each CalPERS valuation determines agency contribution rates two years later (for example, the June 30, 2010 valuation determines fiscal year 2012/13 contribution rates.)

Miscellaneous Plan

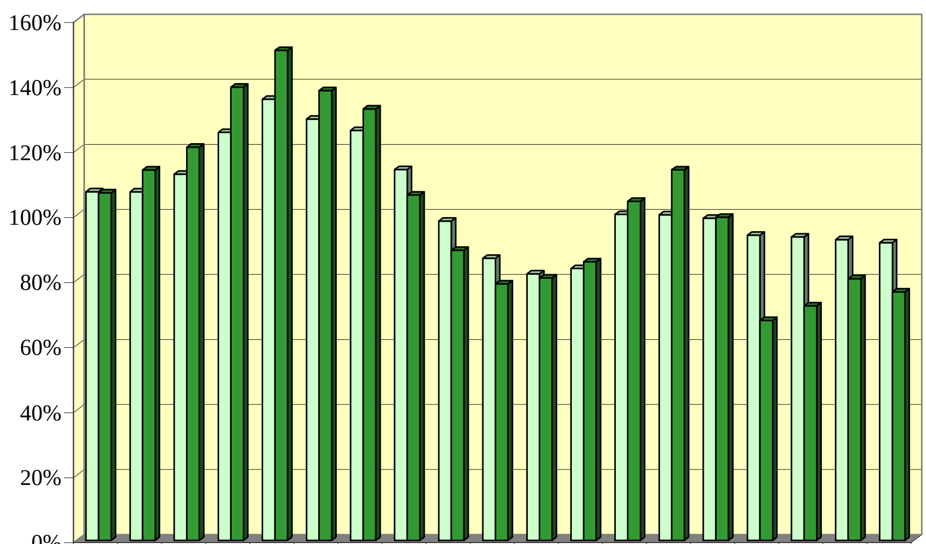
The City provides 2.0%@55 benefit formula for Miscellaneous employees.

Funded Status

The following two charts show the City's Miscellaneous Plan funded status. The first chart displays the funded status as a percentage of Actuarial Value of Assets and Market Value of Assets. The second chart compares the Actuarial Accrued Liability to the Actuarial Value of Assets (amount in millions). The City issued a Pension Obligation Bond in June 2006. The Plan's funded ratio was then brought to 100% in 2006. The two charts include POB proceeds transferred to CalPERS in the assets but not the POB balance as a liability. Note that the 6/30/11 and 6/30/12 asset values are estimated.

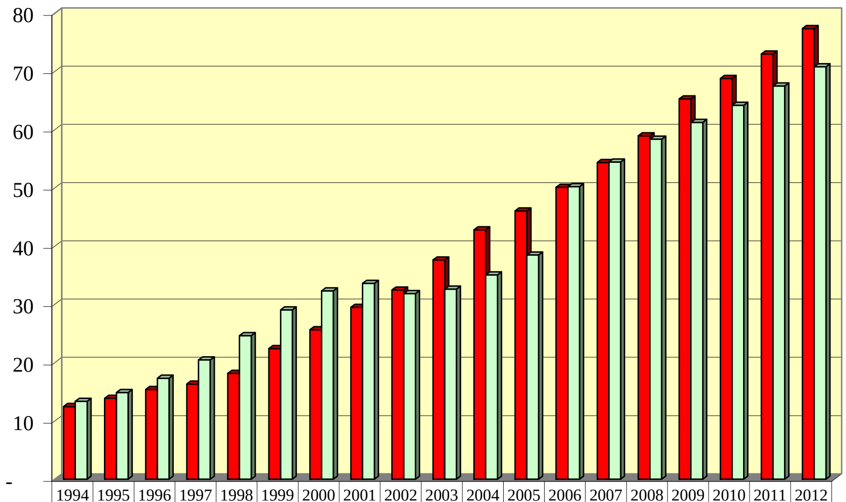
Having assets equal to Actuarial Liability should be viewed as a target. While this is an appropriate measuring stick, it is expected that assets will move above and sometimes below the actuarial liability. The funding percentage is subject to annual fluctuations based on numerous factors including asset and actuarial (non-asset) gains and losses, and will only become a concern if the plan is consistently under-funded or runs the risk of not being able to pay benefits.

Includes POB Proceeds But Not POB Balance as a Liability



	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Funded Ratio - AVA	107%	107%	113%	125%	136%	130%	126%	114%	98%	87%	82%	84%	100%	100%	99%	94%	93%	92%	92%
Funded Ratio - MVA	107%	114%	121%	139%	151%	138%	133%	106%	89%	79%	81%	86%	104%	114%	99%	68%	72%	80%	76%

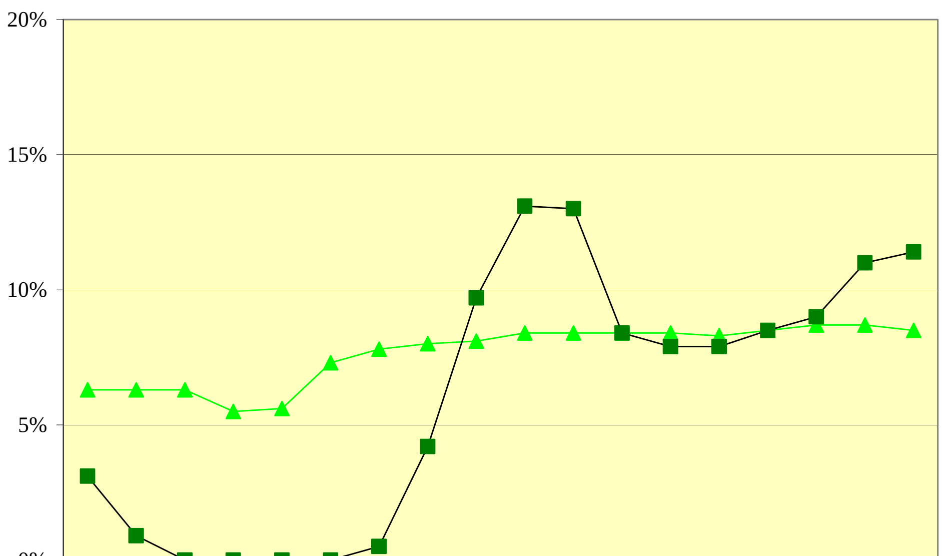
Includes POB Proceeds But Not POB Balance as a Liability



	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Actuarial Liability	12	14	15	16	18	22	26	29	32	38	43	46	50	54	59	65	69	73	77
Actuarial Asset Value	13	15	17	20	25	29	32	34	32	33	35	38	50	54	58	61	64	67	71

Contribution Rates

The following chart shows historical contribution rates for the City's Miscellaneous Plan over the past several years. The chart includes POB proceeds but not POB debt service.



	96/97	97/98	98/99	99/00	00/01	01/02	02/03	03/04	04/05	05/06	06/07-Before POB	06/07-After POB	07/08	08/09	09/10	10/11	11/12	12/13
Total NC	6.3%	6.3%	6.3%	5.5%	5.6%	7.3%	7.8%	8.0%	8.1%	8.4%	8.4%	8.4%	8.4%	8.3%	8.5%	8.7%	8.7%	8.5%
Total Cont Rate	3.1%	0.9%	0.0%	0.0%	0.0%	0.0%	0.5%	4.2%	9.7%	13.1%	13.0%	8.4%	7.9%	7.9%	8.5%	9.0%	11.0%	11.4%

The years in the above table reflect CalPERS valuation dates, which determine the City's contribution rates two years later. For example 2010 reflects CalPERS June 30, 2010 valuation which determines the City's 2012/13 contribution rates.

Projected Contribution Rates

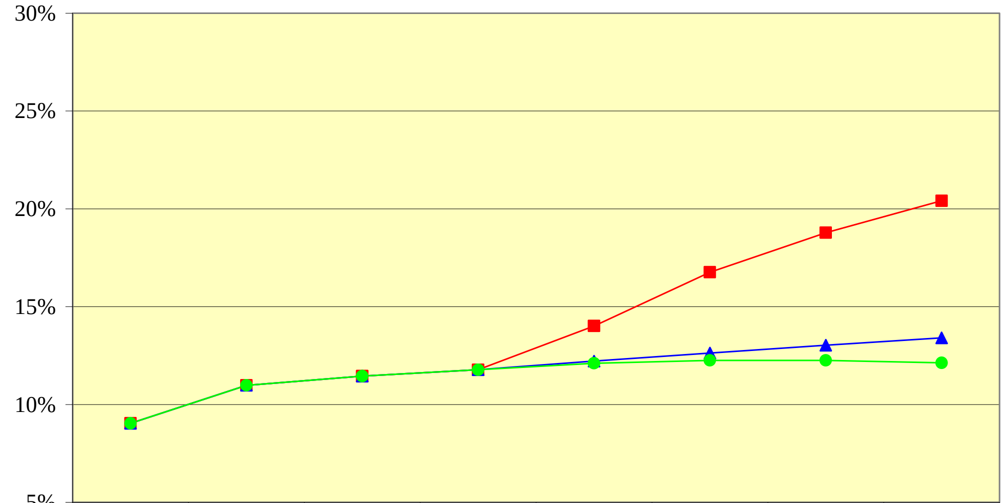
CalPERS' actual investment return will significantly impact future City contribution rates. The following charts shows the City's projected contribution rates assuming future (beyond June 30, 2011) investment returns will be -2.4%, 2.3%, and 7.0% for June 30, 2012[1] and average 0.4% - 3.6%, 7.75% and 11.8% - 15.3%[2]) for June 30, 2013 through June 30, 2016 (the 75th, 50th and 25th confidence limits respectively.

The graphs below projects future contribution rates under CalPERS' modified asset smoothing methods. As mentioned on Page 2 of this report, in June 2009, CalPERS' Board approved a modification to increase the corridor used in the actuarial value assets to 140% for the June 30, 2009 valuation and to 130% for the June 30, 2010 valuation. As illustrated above, the June 30, 2009 asset loss is deferred for several years under the modified asset smoothing method. This will give the economy time to recover while allowing the City proper time to plan for the increases contribution rates. However, it will also likely result in higher contributions in future years.

The projections are based on CalPERS projected payroll from the June 30, 2010 report.

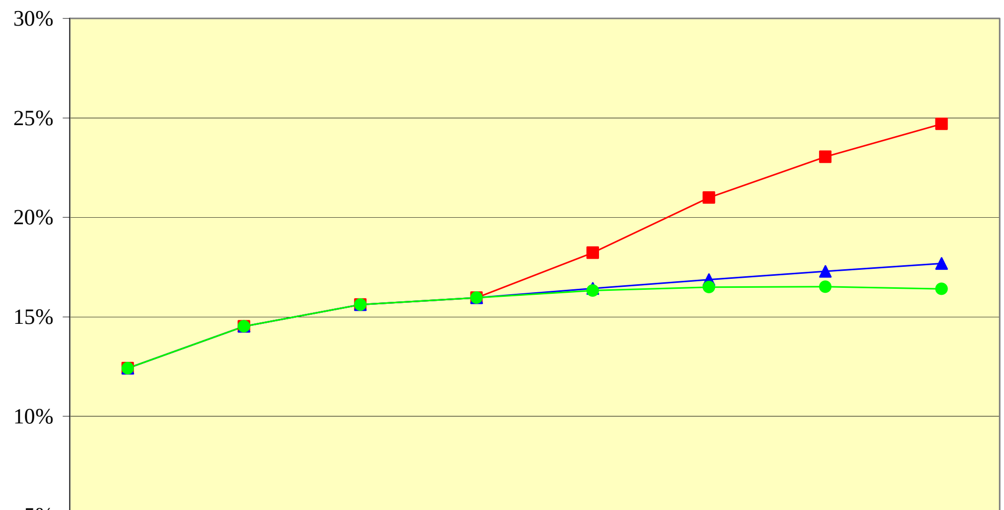
1 Based on CalPERS actual return -2.7% through 10/31/11 and various returns for the remaining 8 months.
2 Investment Return will exceed the confidence limit by the given probability

Investment Return Varies
Includes POB Proceeds But Not Debt Service



	10/11	11/12	12/13	13/14	14/15	15/16	16/17	17/18
Poor IR	9.04%	11.0%	11.4%	11.8%	14.0%	16.8%	18.8%	20.4%
Exp IR	9.04%	11.0%	11.4%	11.8%	12.2%	12.6%	13.0%	13.4%
Good IR	9.04%	11.0%	11.4%	11.8%	12.1%	12.3%	12.3%	12.1%

Investment Return Varies
Includes POB Proceeds And Debt Service



	10/11	11/12	12/13	13/14	14/15	15/16	16/17	17/18
Poor IR	12.4%	14.5%	15.6%	16.0%	18.2%	21.0%	23.0%	24.7%
Exp IR	12.4%	14.5%	15.6%	16.0%	16.4%	16.9%	17.3%	17.7%
Good IR	12.4%	14.5%	15.6%	16.0%	16.3%	16.5%	16.5%	16.4%

The chart above shows future contribution rates including the debt service payment of the POB issued in 2006.

The below tables illustrate the City projected payroll.

PERSable Payroll
('000s)

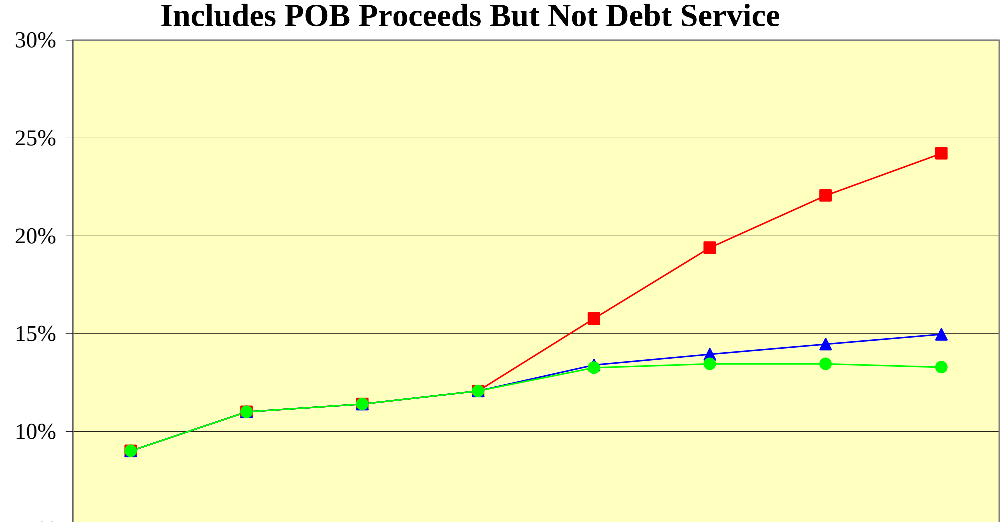
■	CalPERS valuation report 6/30/10 payroll	$10,581
■	City actual FY 09/10 payroll	10,315
■	City actual FY 10/11 payroll	9,864
■	Estimated City FY 11/12 budgeted payroll	8,416

Adjusted Valuation Payroll

	City Adjusted	CalPERS Projected
■ 6/30/11	$9,864 x 1.0325^½ = $10,023	$10,925
■ 6/30/12	$8,416 x 1.0325^½ = $8,552	11,280

The following chart shows contribution rate projections based on City projected payroll.

Investment Return Varies
Includes POB Proceeds But Not Debt Service



	10/11	11/12	12/13	13/14	14/15	15/16	16/17	17/18
Poor IR	9.0%	11.0%	11.4%	12.1%	15.8%	19.4%	22.1%	24.2%
Exp IR	9.0%	11.0%	11.4%	12.1%	13.4%	13.9%	14.5%	15.0%
Good IR	9.0%	11.0%	11.4%	12.1%	13.3%	13.5%	13.4%	13.3%

Safety Plan

The City participates in CalPERS 3%@55 risk pool for Safety employees.

Contribution Rates

In October 2011, CalPERS completed its June 30, 2010 valuation cycle. The following table shows the Safety Plan's contribution rates for the 2011/12 and 2012/13 fiscal years.

	6/30/09 2011/2012	6/30/10 2012/2013
■ Employer Contribution Required		
● Risk Pool's Net Employer Normal Cost	15.7%	15.5%
● Risk Pool's Payment on Amortization Bases	4.6%	4.6%
● Class 1 Benefits		
□ FAC 1	0.9%	0.9%
● Amortization of Side Fund	0.2%	0.2%
● Total ER Contribution	21.4%	21.2%
● POB Debt Service	9.2%	9.3%

Side Fund

A "side fund" was set up when the City's Safety Plan joined the 3% @ 55 Risk Pool at June 30, 2003. The side fund's purpose was to account for the difference between the City plan's funded status and the Risk Pool when risk pools were established (June 30, 2003). Side fund payments are calculated as a level percentage of payroll based on a 7.75% interest rate and a 3.25% aggregate payroll increase. The City's Safety Plan June 30, 2012 side fund balance is $113,150 and expected 2012/13 payment is $10,378. However, actual 2012/13 side fund amounts paid will be based on a contribution rate (0.16%) times actual 2012/13 payroll. Any difference between expected and actual payments will go to the pool. Overpayments or underpayments do not decrease or increase the side fund's outstanding balance. CalPERS adjusts side fund contribution rate each year based on amortization payment and City projected payroll. There are 15 years of payment remaining.

The City can realize significant savings by paying off its Side Fund balance for the Safety Plan early because balances are charge 7.75%. The Safety Plan's $113 thousand June 30, 2012 Side Fund balance, if paid off at June 30, results in an $83 thousand cash savings.

Projected Contribution Rates

CalPERS' actual investment return will significantly impact future City contribution rates. The following charts shows the City's projected contribution rates assuming future (beyond June 30, 2011) investment returns will be -2.4%, 2.3%, and 7.0% for June 30, 2012[3] and

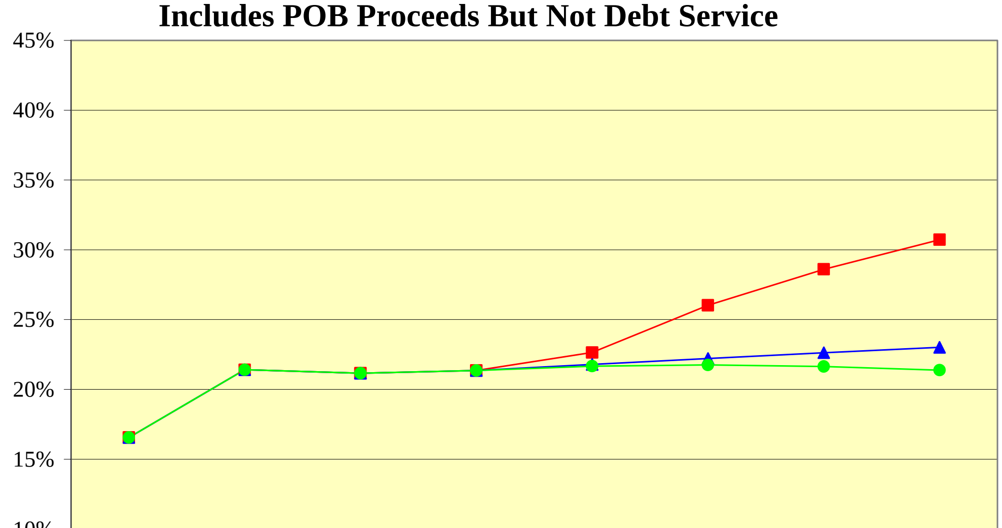
[3] Based on CalPERS actual return -2.7% through 10/31/11 and various returns for the remaining 8 months.

average 0.4% - 3.6%, 7.75% and 11.8% - 15.3%[4]) for June 30, 2013 through June 30, 2016 (the 75th, 50th and 25th confidence limits respectively.

The graphs below projects future contribution rates under CalPERS' modified asset smoothing methods. As mentioned on Page 2 of this report, in June 2009, CalPERS' Board approved a modification to increase the corridor used in the actuarial value assets to 140% for the June 30, 2009 valuation and to 130% for the June 30, 2010 valuation. As illustrated above, the June 30, 2009 asset loss is deferred for several years under the modified asset smoothing method. This will give the economy time to recover while allowing the City proper time to plan for the increases contribution rates. However, it will also likely result in higher contributions in future years.

The projections are based on CalPERS projected payroll from the June 30, 2010 report.

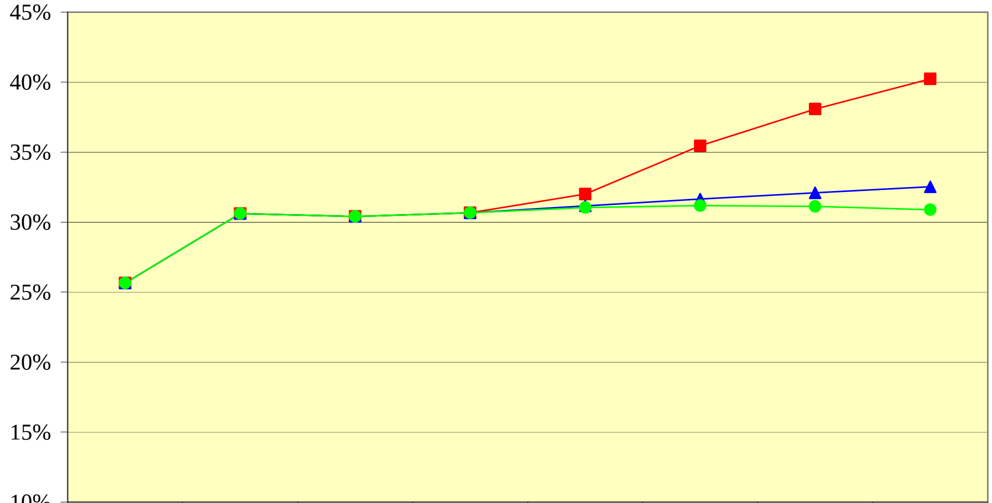
Investment Return Varies
Includes POB Proceeds But Not Debt Service



	10/11	11/12	12/13	13/14	14/15	15/16	16/17	17/18
Poor IR	16.6%	21.4%	21.2%	21.4%	22.6%	26.0%	28.6%	30.7%
Exp IR	16.6%	21.4%	21.2%	21.4%	21.8%	22.2%	22.6%	23.0%
Good IR	16.6%	21.4%	21.2%	21.4%	21.7%	21.8%	21.6%	21.4%

4 Investment Return will exceed the confidence limit by the given probability

Investment Return Varies
Includes POB Proceeds And Debt Service



	10/11	11/12	12/13	13/14	14/15	15/16	16/17	17/18
Poor IR	25.7%	30.6%	30.4%	30.7%	32.0%	35.4%	38.1%	40.2%
Exp IR	25.7%	30.6%	30.4%	30.7%	31.2%	31.6%	32.1%	32.5%
Good IR	25.7%	30.6%	30.4%	30.7%	31.0%	31.2%	31.1%	30.9%

Implication of a Second Benefit Tier

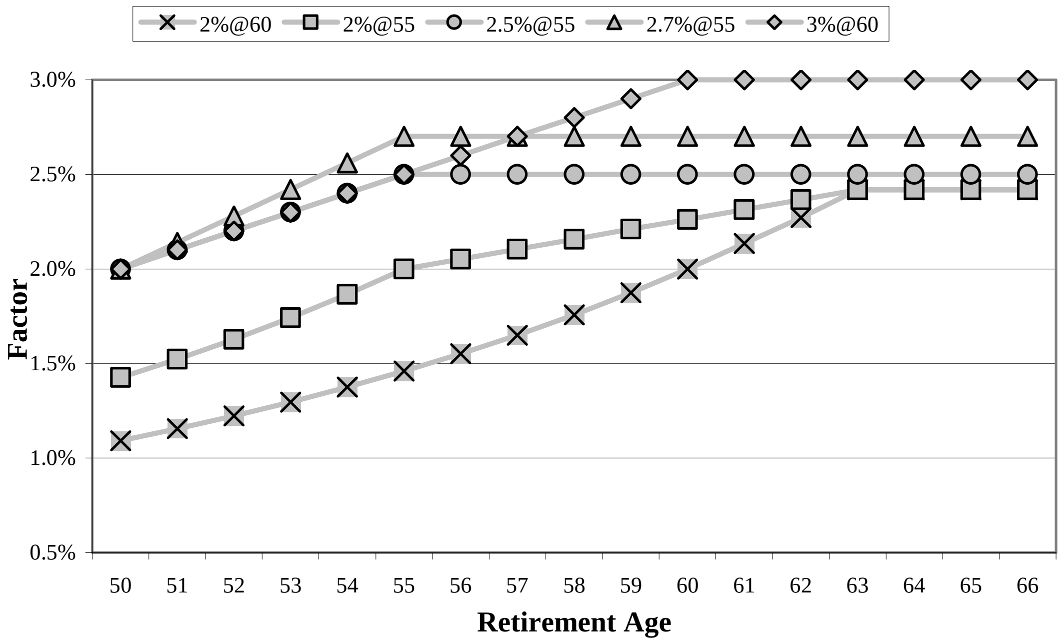
The City has negotiated with Miscellaneous bargaining groups to increase the portion of the member contribution rates employees pay and to provide that future employees will no longer have benefits based on highest year final average earnings. The City has negotiated with Safety bargaining groups to increase the portion of the member contribution rates employees pay.

For purposes of this report we have assumed employees hired on and after July 1, 2012 would be placed into a second tier (Tier 2) providing lower pension benefits. For current employees (Tier 1), benefits would remain the same. Contribution calculations would then be calculated on benefits depending on which tier they belong. However, it is important to note that moving new employees into a different benefit level has no impact on existing unfunded liabilities; it only impacts the level of benefit future employees would earn. This means the amortization of any unfunded liability component of the contribution rate would remain the same for Tier 2 as it is for Tier 1, but the Normal Cost component of the contribution rate would be lower. As Tier 2 grows, and Tier 1 is closed, the cost for Tier 1 will decrease (as a dollar amount) and the replacement cost of the new Tier 2 participants would be less than if they had been in the current Tier 1 plan. This results in deceasing City contribution as a percent of payroll.

The following two pages show the CalPERS benefit factor comparison for Miscellaneous and Safety Plans.

Miscellaneous Plans

Benefit Factor Comparison

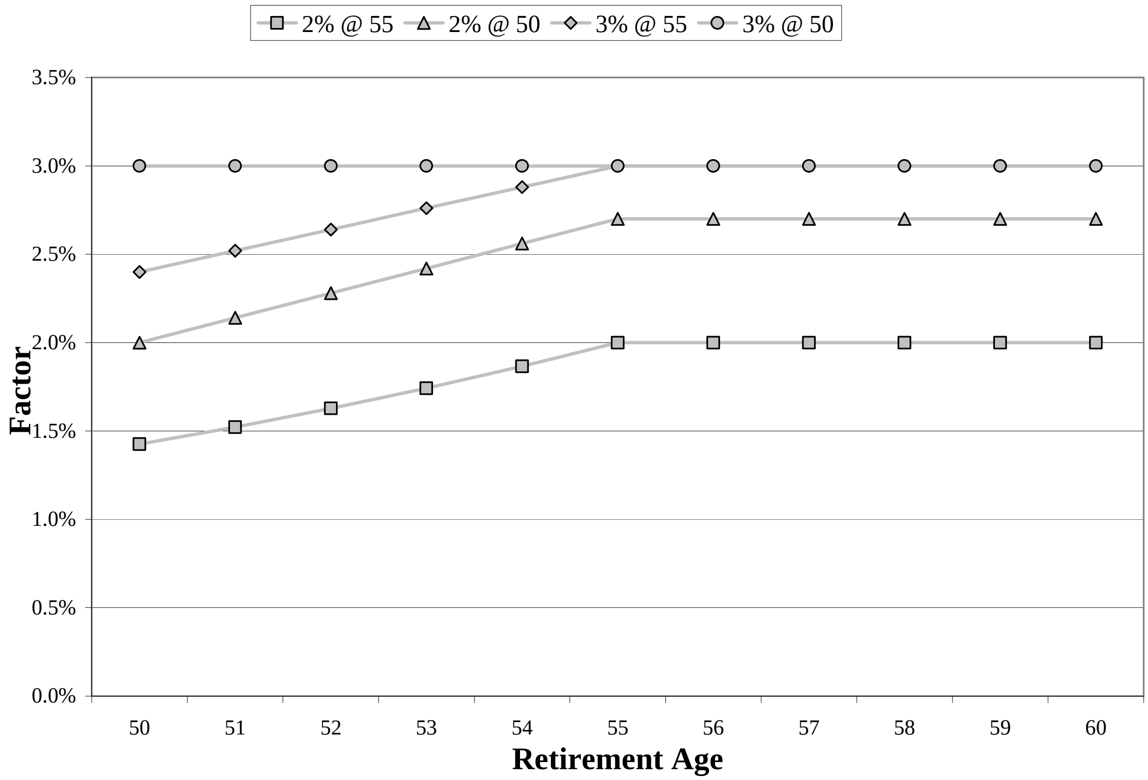


Miscellaneous Plans

Age	2%@60	2%@55	2.5%@55	2.7%@55	3%@60
50	1.092%	1.426%	2.000%	2.000%	2.000%
51	1.156%	1.522%	2.100%	2.140%	2.100%
52	1.224%	1.628%	2.200%	2.280%	2.200%
53	1.296%	1.742%	2.300%	2.420%	2.300%
54	1.376%	1.866%	2.400%	2.560%	2.400%
55	1.460%	2.000%	2.500%	2.700%	2.500%
56	1.552%	2.052%	2.500%	2.700%	2.600%
57	1.650%	2.104%	2.500%	2.700%	2.700%
58	1.758%	2.156%	2.500%	2.700%	2.800%
59	1.874%	2.210%	2.500%	2.700%	2.900%
60	2.000%	2.262%	2.500%	2.700%	3.000%
61	2.134%	2.314%	2.500%	2.700%	3.000%
62	2.272%	2.366%	2.500%	2.700%	3.000%
63	2.418%	2.418%	2.500%	2.700%	3.000%
64	2.418%	2.418%	2.500%	2.700%	3.000%
65	2.418%	2.418%	2.500%	2.700%	3.000%
Member Contribution Rate					
	7%	7%	8%	8%	8%

Safety Plans

Benefit Factor Comparison



	Safety Plans			
Age	**2% @ 55**	**2% @ 50**	**3% @ 55**	**3% @ 50**
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%

The City's current benefit formula and 2012/13 contribution rates are

	Miscellaneous	Safety
■ Benefit Formula	2% @ 55	3% @ 55
■ Final Average Earnings	One Year (FAE1)	One Year (FAE1)
■ Post Retirement Survivor Allowance	No	No
■ Cost Of Living Adjustment	2%	2%
■ Employer Paid Member Contribution[5]	5%	7%
■ 12/13 ER Contribution	11.4%	21.2%
■ Employer Paid Member Contribution	5.0	7.0
■ PERS on PERS[6]	0.8	2.0
■ Total	17.2	30.2

The following two exhibits summarize the five scenarios for the rate mitigation strategies:

1. No changes to current employees (Tier 1). Current employees keep the same formula. The City continues to pay member contribution (5% for Miscellaneous and 7% for Safety). For future new hires (Tier 2), the formula stays the same but changes from final one year average earnings to final three year average earnings. The City will continue to pay the current member contributions (5% for Miscellaneous and 7% for Safety) but it will not be reported as PERSable wages.
2. No changes to current employees. Current employees keep the same formula. The City continues to pay member contribution (5% for Miscellaneous and 7% for Safety). For future new hires, the formula stays the same but changes from final one year average earnings to final three year average earnings. The City does not pay any member contribution.
3. No changes to current employees. Current employees keep the same formula. The City does not pay member contribution. For future new hires, the formula stays the same but changes from final one year average earnings to final three year average earnings. The City does not pay any member contribution.
4. No changes to current employees. Current employees keep the same formula. Current employees phase into pay their member contribution in two years (4.5% in 2012/13 and 7% in 2013/14). For future new hires, the formula stays the same but changes from final one year average earnings to final three year average earnings. The City does not pay any member contribution.
5. No changes to current employees (Tier 1). Current employees keep the same formula. The City continues to pay member contribution (5% for Miscellaneous and 7% for Safety). For future new hires (Tier 2), the formula changes 2%@60 with final three year

[5] Effective 1/1/12.
[6] PERS on PERS for employees hired before 1/1/11 only.

average earnings. The City will continue to pay the current member contributions (5% for Miscellaneous and 7% for Safety) but it will not be reported as PERSable wages.

Miscellaneous Alternative Formulas	Savings
1. Tier 1 – No Change Tier 2 – Current formula with FAE3, City pays 5% EPMC but does not report as PERSable wages	
■ Tier 2 Savings	1.3%
2. Tier 1 – No Change Tier 2 - Current formula with FAE3, City does not pay EPMC	
■ Tier 2 Savings	6.3%
3. Tier 1 - City does not pay EPMC Tier 2 - Current formula with FAE3, City does not pay EPMC	
■ Tier 2 Savings	6.3%
■ Tier 1 Savings:	
● Tier 1 EPMC	5.0
● Tier 1 PERS on PERS	0.8
● Subtotal	5.8%
4. Tier 1 – Phase into no EPMC in two years[7] Tier 2 - Current formula with FAE3, City does not pay EPMC	
■ Tier 2 Savings:	6.3%
■ Tier 1 Savings: (after 2 years)	
● Tier 1 EPMC	5.0
● Tier 1 PERS on PERS	0.8
● Subtotal	5.8%
5. Tier 1 – No Change Tier 2 – 2%@60 with FAE3, City pays EPMC but not report as PERSable wages	
■ Tier 2 Savings	2.5%

7 Employee pays 4.5% in 2012/13 and 7% in 2013/14.

Safety Alternative Formulas	Savings
1. Tier 1 – No Change Tier 2 – Current formula with FAE3, City pays EPMC but does not report as PERSable wages ■ Tier 2 Savings	 3.1%
2. Tier 1 – No Change Tier 2 - Current formula with FAE3, City does not pay EPMC ■ Tier 2 Savings	 10.1%
3. Tier 1 - City does not pay EPMC Tier 2 - Current formula with FAE3, City does not pay EPMC ■ Tier 2 Savings ■ Tier 1 Savings: ● Tier 1 EPMC ● Tier 1 PERS on PERS ● Subtotal	 10.1% 7.0 2.0 9.0%
4. Tier 1 – Phase into no EPMC in three years[8] Tier 2 - Current formula with FAE3, City does not pay EPMC ■ Tier 2 Savings ■ Tier 1 Savings: (after 3 years) ● Tier 1 EPMC ● Tier 1 PERS on PERS ● Subtotal	 10.1% 7.0 2.0 9.0%
5. Tier 1 – No Change Tier 2 – 2%@50 with FAE3, City pays EPMC but not report as PERSable wages ■ Tier 2 Savings	 3.9%

[8] Employee pays 4.5% in 2012/13 and 7% in 2013/14.

The following tables below show estimated cost savings (000s omitted) for Miscellaneous and Safety Plans in dollar amounts. It is split between the five alternative benefit levels scenarios. For the Miscellaneous plan, the estimated savings are calculated based on both CalPERS and City projected payroll.

Miscellaneous

1. Tier 1 – No Change
Tier 2 – Current Formula with FAE3, No Reporting EPMC

	Savings 2% @ 55 FAE3					
	CalPERS Projected Payroll			City Projected Payroll		
Year	Employer Contribution	Employee Contribution	Total	Employer Contribution	Employer Contribution	Total
2012/13	$ 9	$ -	$ 9	$ 7	$ -	$ 7
2013/14	19	-	19	12	-	12
2014/15	28	-	28	19	-	19
2015/16	39	-	39	25	-	25
2016/17	49	-	49	33	-	33
2017/18	61	-	61	41	-	41
2018/19	72	-	72	48	-	48
2019/20	84	-	84	57	-	57
2020/21	95	-	95	65	-	65
2021/22	107	-	107	74	-	74
2022/23	120	-	120	83	-	83

Miscellaneous

2. Tier 1 - No Change
Tier 2 – Current Formula with FAE3, No EPMC

	Savings 2% @ 55 FAE3					
	CalPERS Projected Payroll			City Projected Payroll		
Year	Employer Contribution	Employee Contribution	Total	Employer Contribution	Employer Contribution	Total
2012/13	$ 9	$ 35	$ 44	$ 7	$ 25	$ 32
2013/14	19	69	88	12	45	57
2014/15	28	104	132	19	68	87
2015/16	39	142	181	25	93	118
2016/17	49	182	231	33	120	153
2017/18	61	223	284	41	149	190
2018/19	72	264	336	48	178	226
2019/20	84	307	391	57	210	267
2020/21	95	350	445	65	241	306
2021/22	107	394	501	74	273	347
2022/23	120	440	560	83	306	389

Miscellaneous

3. Tier 1 - No EPMC
Tier 2 – Current Formula with FAE3, No EPMC

	Savings 2% @ 55 FAE3					
	CalPERS Projected Payroll			City Projected Payroll		
Year	Employer Contribution	Employee Contribution	Total	Employer Contribution	Employer Contribution	Total
2012/13	$ 79	$ 555	$ 634	$ 58	$ 407	$ 465
2013/14	85	573	658	61	415	476
2014/15	91	591	682	65	426	491
2015/16	98	611	709	69	436	505
2016/17	105	630	735	74	450	524
2017/18	112	651	763	79	463	542
2018/19	119	672	791	84	478	562
2019/20	127	694	821	89	494	583
2020/21	134	716	850	95	510	605
2021/22	142	740	882	100	526	626
2022/23	151	764	915	106	543	649

Miscellaneous

4. Tier 1 – Phase into No EPMC in Two years

Tier 2 – Current Formula with FAE3, No EPMC

	Savings 2% @ 55 FAE3					
	CalPERS Projected Payroll			City Projected Payroll		
Year	Employer Contribution	Employee Contribution	Total	Employer Contribution	Employer Contribution	Total
2012/13	$ 53	$ 301	$ 354	$ 39	$ 221	$ 260
2013/14	101	573	674	73	415	488
2014/15	108	591	699	77	426	503
2015/16	115	611	726	82	436	518
2016/17	123	630	753	87	450	537
2017/18	131	651	782	92	463	555
2018/19	139	672	811	98	478	576
2019/20	147	694	841	104	494	598
2020/21	155	716	871	110	510	620
2021/22	164	740	904	116	526	642
2022/23	173	764	937	122	543	665

Miscellaneous

5. Tier 1 – No Change
Tier 2 – 2%@60 with FAE3, No Reporting EPMC

	Savings 2% @ 60 FAE3					
	CalPERS Projected Payroll			City Projected Payroll		
Year	Employer Contribution	Employee Contribution	Total	Employer Contribution	Employer Contribution	Total
2012/13	$ 17	$ -	$ 17	$ 13	$ -	$ 13
2013/14	34	-	34	22	-	22
2014/15	52	-	52	34	-	34
2015/16	70	-	70	46	-	46
2016/17	90	-	90	59	-	59
2017/18	110	-	110	74	-	74
2018/19	130	-	130	88	-	88
2019/20	152	-	152	104	-	104
2020/21	173	-	173	119	-	119
2021/22	195	-	195	135	-	135
2022/23	218	-	218	151	-	151

Safety

1. Tier 1 – No Change
Tier 2 – Current Formula with FAE3, No Reporting EPMC

	Savings 3% @ 55 FAE3		
Year	**Employer Contribution**	**Employee Contribution**	**Total**
2012/13	$ 9	$ -	$ 9
2013/14	20	-	20
2014/15	31	-	31
2015/16	43	-	43
2016/17	55	-	55
2017/18	69	-	69
2018/19	83	-	83
2019/20	97	-	97
2020/21	112	-	112
2021/22	128	-	128
2022/23	143	-	143

2. Tier 1 - No Change
Tier 2 – Current Formula with FAE3, No EPMC

	Savings, 3% @ 55 FAE3		
Year	**Employer Contribution**	**Employee Contribution**	**Total**
2012/13	$ 9	$ 21	$ 30
2013/14	20	46	66
2014/15	31	71	102
2015/16	43	98	141
2016/17	55	126	181
2017/18	69	157	226
2018/19	83	189	272
2019/20	97	222	319
2020/21	112	256	368
2021/22	128	292	420
2022/23	143	327	470

Safety

3. Tier 1 - No EPMC
Tier 2 – Current Formula with FAE3, No EPMC

	Savings 3% @ 55 FAE3		
Year	Employer Contribution	Employee Contribution	Total
2012/13	$ 125	$ 433	$ 558
2013/14	133	447	580
2014/15	141	462	603
2015/16	150	477	627
2016/17	158	492	650
2017/18	168	508	676
2018/19	177	525	702
2019/20	187	542	729
2020/21	198	559	757
2021/22	208	578	786
2022/23	219	596	815

4. Tier 1 – Phase into No EPMC in Two years
Tier 2 – Current Formula with FAE3, No EPMC

	Savings 3% @ 55 FAE3		
Year	Employer Contribution	Employee Contribution	Total
2012/13	$ 53	$ 175	$ 228
2013/14	102	338	440
2014/15	141	462	603
2015/16	150	477	627
2016/17	158	492	650
2017/18	168	508	676
2018/19	177	525	702
2019/20	187	542	729
2020/21	198	559	757
2021/22	208	578	786
2022/23	219	596	815

Safety

5. Tier 1 – No Change
Tier 2 – 2%@50 with FAE3, No Reporting EPMC

	Savings 2% @ 50 FAE3		
Year	**Employer Contribution**	**Employee Contribution**	**Total**
2012/13	$ 9	$ 21	$ 30
2013/14	19	46	65
2014/15	29	71	100
2015/16	41	98	139
2016/17	52	126	178
2017/18	65	157	222
2018/19	78	189	267
2019/20	92	222	314
2020/21	106	256	362
2021/22	120	292	412
2022/23	135	327	462

The above savings are based on the following payroll projections shown separately for current (Tier 1) participants and future (Tier 2) participants (000s omitted). CalPERS projected total payroll is expected to grow annually at 3.25% each year. A slower payroll growth results in lower cost savings while a more rapid payroll growth results in greater cost savings.

Miscellaneous

1, 2 & 5. Tier 1 with EPMC, Tier 2 without EPMC

	CalPERS Projected Payroll			City Projected Payroll		
Year	**Tier 1**	**Tier 2**	**Total**	**Tier 1**	**Tier 2**	**Total**
2012/13	$ 10,923	$ 690	$ 11,612	$ 8,020	$ 507	$ 8,527
2013/14	10,587	1,370	11,957	7,774	904	8,678
2014/15	10,229	2,083	12,312	7,511	1,362	8,873
2015/16	9,831	2,847	12,678	7,218	1,854	9,072
2016/17	9,418	3,636	13,055	6,916	2,404	9,319
2017/18	8,981	4,463	13,444	6,594	2,979	9,574
2018/19	8,576	5,272	13,847	6,297	3,564	9,861
2019/20	8,113	6,149	14,262	5,957	4,198	10,155
2020/21	7,691	7,002	14,693	5,647	4,814	10,461
2021/22	7,252	7,885	15,138	5,325	5,452	10,777
2022/23	6,801	8,796	15,597	4,993	6,110	11,103

Miscellaneous

3. Tier 1 and Tier 2 without EPMC

	CalPERS Projected Payroll			City Projected Payroll		
Year	**Tier 1**	**Tier 2**	**Total**	**Tier 1**	**Tier 2**	**Total**
2012/13	$ 10,402	$ 690	$ 11,092	$ 7,638	$ 507	$ 8,145
2013/14	10,083	1,370	11,453	7,404	904	8,308
2014/15	9,742	2,083	11,825	7,153	1,362	8,515
2015/16	9,363	2,847	12,209	6,875	1,854	8,728
2016/17	8,970	3,636	12,606	6,586	2,404	8,990
2017/18	8,553	4,463	13,016	6,280	2,979	9,260

2018/19	8,167	5,272	13,439	5,997	3,564	9,561
2019/20	7,726	6,149	13,876	5,673	4,198	9,871
2020/21	7,324	7,002	14,327	5,378	4,814	10,192
2021/22	6,907	7,885	14,792	5,071	5,452	10,524
2022/23	6,477	8,796	15,273	4,756	6,110	10,866

Miscellaneous

4. Tier 1 Phase into no EPMC, Tier 2 without EPMC

	CalPERS Projected Payroll			City Projected Payroll		
Year	**Tier 1**	**Tier 2**	**Total**	**Tier 1**	**Tier 2**	**Total**
2012/13	$ 10,656	$ 690	$ 11,346	$ 7,824	$ 507	$ 8,331
2013/14	10,083	1,370	11,453	7,404	904	8,308
2014/15	9,742	2,083	11,825	7,153	1,362	8,515
2015/16	9,363	2,847	12,209	6,875	1,854	8,728
2016/17	8,970	3,636	12,606	6,586	2,404	8,990
2017/18	8,553	4,463	13,016	6,280	2,979	9,260
2018/19	8,167	5,272	13,439	5,997	3,564	9,561
2019/20	7,726	6,149	13,876	5,673	4,198	9,871
2020/21	7,324	7,002	14,327	5,378	4,814	10,192
2021/22	6,907	7,885	14,792	5,071	5,452	10,524
2022/23	6,477	8,796	15,273	4,756	6,110	10,866

Safety
CalPERS Projected Payroll
1, 2 & 5. Tier 1 with EPMC, Tier 2 without EPMC

Year	Tier 1	Tier 2	Total
2012/13	$ 6,298	$ 301	$ 6,621
2013/14	6,129	661	6,836
2014/15	5,975	1,012	7,058
2015/16	5,783	1,406	7,287
2016/17	5,596	1,802	7,524
2017/18	5,368	2,244	7,769
2018/19	5,135	2,697	8,021
2019/20	4,886	3,174	8,282
2020/21	4,631	3,664	8,551
2021/22	4,373	4,165	8,829
2022/23	4,120	4,669	9,116

3. Tier 1 and Tier 2 without EPMC

Year	Tier 1	Tier 2	Total
2012/13	$ 5,886	$ 301	$ 6,187
2013/14	5,728	661	6,389
2014/15	5,584	1,012	6,596
2015/16	5,405	1,406	6,811
2016/17	5,230	1,802	7,032
2017/18	5,016	2,244	7,260
2018/19	4,799	2,697	7,496
2019/20	4,566	3,174	7,740
2020/21	4,328	3,664	7,992
2021/22	4,087	4,165	8,251
2022/23	3,851	4,669	8,519

Safety
CalPERS Projected Payroll
4. Tier 1 Phase into no EPMC, Tier 2 without EPMC

Year	Tier 1	Tier 2	Total
2012/13	$ 6,145	$ 301	$ 6,446
2013/14	5,837	661	6,498
2014/15	5,584	1,012	6,596
2015/16	5,405	1,406	6,811
2016/17	5,230	1,802	7,032
2017/18	5,016	2,244	7,260
2018/19	4,799	2,697	7,496
2019/20	4,566	3,174	7,740
2020/21	4,328	3,664	7,992
2021/22	4,087	4,165	8,251
2022/23	3,851	4,669	8,519

Pension Obligation Bonds

The City issued a Series A-1 and A-2 bond in June 2006.

Purpose

The City issued bonds totally $15,520,000. The amount allocated to the Miscellaneous Plan was $6,803,279 and the Safety Plan was $8,716,721. The purpose of the bonds was to pay of off the unfunded liability for the Miscellaneous Plan and the Side Fund for the Safety Plan. By paying off the unfunded liability and Side Fund, the City's contribution rates have been reduced. The Bonds are financed at between 5.67% and 6.12% whereas the unfunded liability and Side Fund are amortized at 7.75%

Debt Service

The table below shows Debt Service paid by the City.

Date	Total	Miscellaneous	Safety
6/1/2007	877,880	384,824	493,056
6/1/2008	917,681	402,271	515,410
6/1/2009	947,681	415,421	532,260
6/1/2010	985,974	432,207	553,767
6/1/2011	1,021,991	447,995	573,996
6/1/2012	1,065,732	467,170	598,562
6/1/2013	1,106,388	484,991	621,397
6/1/2014	1,149,124	503,725	645,399
6/1/2015	1,193,648	523,242	670,406
6/1/2016	1,239,668	543,415	696,253
6/1/2017	1,286,892	564,116	722,776
6/1/2018	1,334,752	585,096	749,656
6/1/2019	1,388,187	608,520	779,667
6/1/2020	1,436,607	629,745	806,862
6/1/2021	1,490,012	653,155	836,857
6/1/2022	1,542,812	676,300	866,512
6/1/2023	1,604,442	703,316	901,126
6/1/2024	1,664,253	729,534	934,718
6/1/2025	1,721,947	754,825	967,122
6/1/2026	1,787,229	783,442	1,003,787
6/1/2027	1,849,209	810,611	1,038,598
6/1/2028	1,917,591	840,587	1,077,004
6/1/2029	1,991,484	872,978	1,118,506

PENSION OBLIGATION BOND

The table below shows the POB balance.

Date	Total POB Balance	Miscellaneous	Safety
6/1/2007	15,520,000	6,803,279	8,716,721
6/1/2008	15,520,000	6,803,279	8,716,721
6/1/2009	15,490,000	6,790,128	8,699,872
6/1/2010	15,420,000	6,759,443	8,660,557
6/1/2011	15,310,000	6,711,224	8,598,776
6/1/2012	15,150,000	6,641,087	8,508,913
6/1/2013	14,940,000	6,549,032	8,390,968
6/1/2014	14,675,000	6,432,868	8,242,132
6/1/2015	14,350,000	6,290,403	8,059,597
6/1/2016	13,960,000	6,119,444	7,840,556
6/1/2017	13,500,000	5,917,800	7,582,200
6/1/2018	12,965,000	5,683,280	7,281,720
6/1/2019	12,345,000	5,411,500	6,933,500
6/1/2020	11,640,000	5,102,459	6,537,541
6/1/2021	10,840,000	4,751,775	6,088,225
6/1/2022	9,940,000	4,357,255	5,582,745
6/1/2023	8,925,000	3,912,324	5,012,676
6/1/2024	7,790,000	3,414,790	4,375,210
6/1/2025	6,530,000	2,862,462	3,667,538
6/1/2026	5,130,000	2,248,764	2,881,236
6/1/2027	3,585,000	1,571,505	2,013,495
6/1/2028	1,880,000	824,109	1,055,891

BASIC DEFINITIONS

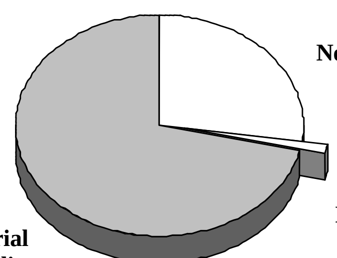
Understanding these terms makes it easier to understand the City's CalPERS actuarial information.

Present Value of Benefits: When CalPERS (or any actuary) prepares a pension valuation, they first gather participant data (including active employees, former employees not in payment status, participants and beneficiaries in payment status) at the valuation date (for example June 30, 2010). Using this data and some actuarial assumptions, they project future benefit payments. (The assumptions predict, among other things, when people will retire, terminate, die or become disabled, as well as what salary increases, inflation and investment return might be.) Those future benefit payments are discounted, using expected future investment return, back to the valuation date. This discounted present value is the plan's present value of benefits. It represents the amount the plan needs as of the valuation date to pay all future benefits – if all assumptions are met and no future contributions (employee or employer) are made.

Actuarial Liability: This represents the portion of the present value of benefits that participants have earned (on an actuarial, not actual, basis) through the valuation date.

Current Employer Normal Cost: The total normal cost represents the portion of the present value of benefits expected to be earned (on an actuarial, not actual, basis) in the coming year. The current employer normal cost represents the employer's portion of the total normal cost – that is, the total normal cost offset by employee contributions.

Present Value of Benefits



The above chart shows the Present Value of Benefits as the sum of Actuarial Liability, Current Normal Cost, and Future Normal Costs. Once these amounts are calculated, the actuary compares actuarial assets to the Actuarial Liability. When assets equal liabilities, a plan is considered on track for funding. When assets are greater than liabilities, the plan has excess assets; when assets are less than liabilities, the plan has an unfunded liability.

Contribution Rate: CalPERS does not require an agency to make up any shortfall (unfunded liability) immediately, nor do they allow an immediate credit for any excess assets. Instead, the difference is amortized over time. An agency's contribution rate is nothing more complicated than the current employer normal cost, plus the amortized unfunded liability or less the amortized excess assets. Simply put, this contribution is the value of employer benefits earned during the year plus something to move the plan toward being on track for funding. There is a two-year delay from the valuation date to the contribution effective date. For example, the June 30, 2010 valuation generates an agency's 2012/13 fiscal year contribution. CalPERS instituted this delay a few years ago to ensure public agencies would have contribution rates as they begin their budgeting process for each fiscal year.

Fresh Start: When CalPERS prepares a valuation and determines an agency's contribution rate, it's usually in layers, such as gains/losses or plan changes, with each layer (base) adding up to the contribution rate. But if that calculation results in a zero contribution rate, CalPERS combines it into one base and tells the agency it will have a zero contribution for a fixed period. That combination is called a "fresh start." An agency with a fresh start will know it; the actuarial report will show a single base (labeled *fresh start*).

Super-Funded: A plan is super-funded when actuarial assets are greater than the present value of benefits. Referring to the above circle chart a plan has excess assets when assets exceed the Actuarial Liability and a super-surplus when asset exceed the Present Value of Benefit. When a plan is Super-Funded, the super-surplus (actuarial assets over present value of benefits) may be used to pay employee contributions. However, any super-surplus use must occur in the fiscal year for which the valuation report's contribution rate was calculated. For example, a plan super-funded in the June 30, 2010 valuation can use super-surplus to pay 2012/13 fiscal year employee contributions.

Employer Paid Member Contribution (EPMC): Each employee contributes towards his or her retirement based on the retirement formula. If employer chooses to pick up a portion or entire contribution for employees, the portion of member contribution that paid by employer is called Employer Paid Member Contribution.