662

SUBMITTAL TO THE BOARD OF SUPERVISORS
COUNTY OF RIVERSIDE, STATE OF CALIFORNIA

FROM: Executive Office

SUBMITTAL DATE:
April 29, 2010

SUBJECT: Pension Advisory Review Committee Annual Report

RECOMMENDED MOTION: That the Board (1) Receive and File the attached FY 2009/10 Annual Report, (2) Approve transfer of $6.2 million in the Liability Management Fund to California Public Employee Retirement System to reduce County's liability, (3) Approve partial pre-payment of the County's FY 2010/11 pension cost, (4) direct staff to engage the debate on pension reform directly and through CSAC and other advocacy organizations, and (4) Prior to making any changes to the pension plan, conduct a RFI to engage a third-party actuary, outside legal counsel and/or other benefit consultant(s) for advice: (a) Cost Savings and benefit adequacy of various Pension Plan design, (b) Examination of legal constraints, and (c) Impact on employee recruitment and retention for specific plan design options.

BACKGROUND: Board Policy B-25 (Pension Management Policy) requires the Pension Advisory Review Committee (PARC) to file an annual report on the County's pension plan status. The attached report fulfills that requirement.
(Continued)

Ed Corser
Ed Corser, County Finance Director

FINANCIAL DATA	**Current F.Y. Total Cost:**	$ N/A	**In Current Year Budget:**	N/A
	Current F.Y. Net County Cost:	$ N/A	**Budget Adjustment:**	N/A
	Annual Net County Cost:	$ N/A	**For Fiscal Year:**	N/A

SOURCE OF FUNDS: N/A

Positions To Be Deleted Per A-30 ☐

Requires 4/5 Vote ☐

C.E.O. RECOMMENDATION: APPROVE

BY: Jay E. Orr
Jay E. Orr

County Executive Office Signature

ATTACHMENTS FILED WITH THE CLERK OF THE BOARD

Departmental Concurrence

☐ Consent ☒ Policy

☐ Consent ☒ Policy

Dep't Recomm.:

Per Exec. Ofc.:

Prev. Agn. Ref.: | **District:** ALL | **Agenda Number:** 3.13

Report Summary

The County's Pension Plan funding status has deteriorated due to recent investment performance, but is still favorable on an actuarial basis. The projected June 30, 2010 gross funding status is approximately 92.6 percent for the County's Safety and Miscellaneous Plans. That represents an unfunded liability of $426 million. On a net basis, taking into account the outstanding Pension Obligation Bonds (POB) liability of $375 million, the ratio is 86.1 percent, representing an increase in net funding of 1.8 percent since June 2005. The projected total unfunded liability is $800 million. High unfunded actuarial liabilities will magnify contribution volatility, as more contributions and/or higher investment returns will be required.

Pension costs for the County's Safety and Miscellaneous Plans combined are projected to increase from 13.5 percent of payroll in FY 2010 to 14.3 percent of payroll in FY 2012. The dollar cost will increase by $20 million, from the FY 2010 cost of $155 million. This required contribution is calculated under the new California Public Employee Retirement System's (CalPERS) smoothing method, which was adopted to spread the impact of FY 2009 investment losses. Under the unmodified smoothing method, cost as a percentage of payroll would have increased to 17.9 percent, a dollar cost increase of $65 million, rather than the $20 million modified increase. It may be prudent to contribute more than is required due the expensive implied cost of 7.75 percent. According to Bartel Associates, pension costs in FY 2016 are projected to be around 17.0 percent. The dollar cost will be determined by future investment returns and the general level of the County's payroll.

Moving to a two-tier pension system, one that offers a lower Defined Benefit Plan formula to new employees would result in savings in the long run. For the Miscellaneous Plan, going from the current formula of three percent at 60 to two percent at 60, would generate $98 million in savings on a present value basis, assuming a four percent discount rate by 2020. For the Safety Plan, going from the current formula of three percent at 50 to two percent at 50, would generate $22 million in savings on a present value basis, assuming a four percent discount rate by 2020. Cost savings will be dependent on the new tier plan design.

Liability Management Fund

Board Policy B-25 requires the capturing of a portion of the projected savings associated with issuance of the County's Pension Obligation Bonds and used to retire pension bond debt and/or transferred to CalPERS to reduce any unfunded liability. Policy B-25 also requires the PARC to recommend annually to the Board of Supervisors the use of these funds. The PARC recommends transferring the balance of the Liability Management fund, estimated at $6.2 million, be sent to CalPERS to pay down the County's unfunded liability.

Annual Prepayment:

Many pension systems, including CalPERS, offer early payment discounts in lieu of periodic payments coinciding with payroll disbursements. PARC first recommended seizing this opportunity in 2004 and continues to do so. Last year's prepayment is generated roughly at $2 million in cash-flow benefit savings to date totaling $13.4 million. The PARC is therefore recommending that the County prepay its FY 2010/11 pension costs.

2010

Pension Advisory Review Committee

COUNTY OF RIVERSIDE
KEY COUNTY OF
SOUTHERN CALIFORNIA
MAY 9, 1893

2010 Annual Pension Report

Table of Contents

Executive Summary 3

Pension Funding Status 7

Pension Plan Benefit 13

Recruitment and Retention 18

Pension Cost 24

Pension Reform Landscape 28

Alternative Options 30

Framework for Analysis 35

Financing Status 38

Appendices

1. Bartel Associates: CalPERS Actuarial Issues 6/30/08 and alternatives Formula Options

2. Fieldman, Rolapp & Associates: 2004 Review of Issues and Policy Relating to Pension Obligations

Executive Summary

The County's Pension Advisory Review Committee (PARC) was established in the fall of 2003 to develop an institutional framework to help guide policy decisions about retirement benefits.

A key responsibility of the Committee is to produce an annual report. The report informs the Board and the public about important developments affecting County retirement benefit plans and provides information about projected costs and funding status. This report provides the annual update on the status of the County's pension plan and acts on Board direction to provide analysis of alternatives to the County's current pension plan benefits.

Pension Plan Status:

Funding status has deteriorated due to recent investment performance, but is still favorable on an actuarial basis. The projected June 30, 2010 gross funding status is approximately 92.6 percent for the County's Safety and Miscellaneous Plans. That represents an unfunded liability of $426 million. On a net basis, taking into account the outstanding Pension Obligation Bonds (POB) liability of $375 million, the ratio is 86.1 percent, representing an increase in net funding of 1.8 percent since June 2005. The projected total unfunded liability is $800 million. High unfunded actuarial liabilities will magnify contribution volatility, as more contributions and/or higher investment returns will be required.

Investment performance over the previous four years prior to the middle of FY 2008 was strong and exceeded the system's assumed actuarial rate of return. Performance since the middle of FY 2008 has been devastatingly poor as a result of the turmoil in the global financial markets. Investment return for FY 2009 was negative 24.8 percent. For the three years prior to FY 2009 investment returns averaged 8.53 percent, compared to negative 3.17 percent from 2001 to 2004. Bartel Associates' estimates, based on recent performance, that CalPERS will have an investment gain of 14.5 percent for FY 2010.

Pension costs for the County's Safety and Miscellaneous Plans combined are projected by Bartel Associates to increase from 13.5 percent of payroll in FY 2010 to 14.3 percent of payroll in FY 2012. The dollar cost will increase by $20 million, from the FY 2010 cost of $155 million. This required contribution is calculated under the new CalPERS' smoothing method, which was adopted to spread the impact of FY 2009 investment losses. Under the unmodified smoothing method, cost as a percentage of payroll would have increased to 17.9 percent, a dollar cost increase of $65 million, rather than the $20 million modified increase. It may be prudent to contribute more than is required due the expensive implied cost of 7.75 percent.[1] According to Bartel Associates, pension costs in FY 2016 are projected to be around 17.0 percent. The dollar cost will be determined by future investment returns and the general level of the County's payroll.

Pension Plan Review:

The topic of pension reform is being debated throughout the state. State developments will likely influence pension reform options available to the County as it stands now. The County offers the most generous pension benefit formula option available in the CalPERS menu of benefit formulas. Those pension benefits are as, or more generous than benefits being offered in most of our surrounding counties.

[1] Implied cost of 7.75 percent is CalPERS actuarial assumed rate of return.

Pension benefits are just one component of the total compensation that is offered to attract and retain employees. Base pay, insurance, vacation, leave and other intangibles are the other components.

Pension cost increases can be attributed to FY 2009 CalPERS' pension performance and other factors such as changing demographics, benefit enhancement and changes in actuarial assumptions. Medical science advances and increasing standards of living are leading to longer life expectancy. As life expectancy for current and future retirees increases, the cost of the promised pension benefits will rise beyond expected levels. Many investment professionals worry that investment returns in the aftermath of the Great Recession will offer lower investment returns. A reduction on the rate of return will cause a fundamental shift in pension funding dynamics.

Pension Reform:

In California, attempts to reduce pension benefits have focused on the creation of two-tier plans (cutting benefits for new hires). Most second-tier alternatives are often structured as Defined Benefits Pensions with lower benefit formulas, but can include a Defined Contribution component or be wholly Defined Contribution Benefits. Benefit cuts to current employees are prevented by contract law under both the U.S. and California Constitution. Pension changes must provide an equivalent or comparable benefit to current employees in order to be legally sustainable. Any changes to pension benefits must be negotiated with the unions.

The two–tier alternative has moved to the forefront with the proposed initiative by former Assemblyman Keith Richman and a renewed call for change by the Governor, as well as discussions in many jurisdictions about the need for pension reform.

According to Bartel & Associates, moving to a two-tier pension system, one that offers a lower Defined Benefit Plan formula to new employees would result in savings in the long run. For the Miscellaneous Plan, going from the current formula of three percent at 60 to two percent at 60, would generate $98 million in savings on a present value basis, assuming a four percent discount rate by 2020. For the Safety Plan, going from the current formula of three percent at 50 to two percent at 50, would generate $22 million in savings on a present value basis, assuming a four percent discount rate by 2020. Cost savings will be dependent on the new tier plan design.

In the short run there would be very little savings associated with a new Defined Benefit Plan tier of benefits, as the proportion of new employees receiving the lower benefits would be small and thus have a limited impact on cost. Budgetary cuts that limit hiring will further limit short-term benefits associated with a two-tier benefit system.

Defined Contribution Plan benefits as a second tier option would reduce the County's exposure to market volatility and increase budgetary certainty. Defined Contribution Plan benefits are less valuable to major segments of the County's work force.

Pension reform in the County is needed to confront the impact of these trends on future pension costs. The County's decision to increase benefits in 2001 and 2002 highlights the need for analysis with a long-term horizon. According to Fieldman, Rolapp & Associates in FY 2004, 32 percent of the unfunded liability was attributed to the decision to increase benefits and contribution patterns. The State pension reform debate and the complexity posed by stakeholder interests requires an independent third-party evaluation as the next step. Key factors to consider are:

1. Fiscal sustainability of current benefits.
2. Cost savings and benefit adequacy of various plan designs.
3. Impact on employee recruitment and retention for specific plan design options.
4. Thorough examination of legal issues.

Some agencies have negotiated with their bargaining units and achieved some cost sharing arrangements by providing an offsetting benefit. Further legal review is required to determine the risk associated with cost sharing options. There are three approaches to cost sharing that have been identified by CalPERS. They are the following:

1. Reduce the employer pick up contributions.
2. Make employees pay for the cost of previous benefit enhancements.
3. Collectively bargain to cap Employer Contributions.

Sharing the responsibility of increasing pension costs will create immediate cost savings and be subject to negotiations with the unions; there is, however, the potential of legal challenges even with the union agreement.

Financing Status Report:

In 2005 the County issued $400 million in pension bonds, as it was projected to save $161.8 million over the life of the bonds. By refinancing a portion of its unfunded pension liability from a funding cost of 7.75 percent (the long-term expected CalPERS' rate of return) to 4.9 percent (the interest cost of the pension bonds.)

For FY 2010, the analysis of independent actuary John Bartel estimates that the County will have a loss of $54.0 million due to the historic losses in equity and real estate markets. It is worth noting that FY 2007 analysis showed $130 million in savings. If the rate of investment return average is over 4.91 percent for the life of the bonds, the County will achieve savings over the life of the POBs. Given the recent negative returns, the breakeven rate is higher from this point forward.

Annual Prepayment:

Many pension systems, including CalPERS, offer early payment discounts in lieu of periodic payments coinciding with payroll disbursements. PARC first recommended seizing this opportunity in 2004 and continues to do so. Last year's prepayment is generated roughly at $2 million in cash-flow benefit savings to date totaling $13.4 million.

Recommendations:

1. Receive and file the FY 2009/10 PARC Report.
2. Adopt the recommendation to use money in the Liability Management Fund to reduce the County's CalPERS' liability by transferring the funds to CalPERS. The amount available for transfer is estimated to be $6.2 million for FY 2010/11. (See page 38)

3. Adopt the recommendation to pre-pay the County's FY 2010/11 pension cost. (See page 39)

4. Engage the debate on pension reform directly and through CSAC and other advocacy organizations.

5. Prior to making any changes to the pension plan, conduct a RFI to engage a third-party actuary outside legal counsel and/or other benefit consultant(s) for advice.

   a. Cost Savings and benefit adequacy of various Pension Plan design.

   b. Examination of legal constraints.

   c. Impact on employee recruitment and retention for specific plan design options.

Pension Funding Status

Funding status (the value of assets versus benefits payable) has decreased due to the deterioration in investment returns and the difference in the expected demographic assumptions versus actual demographic trends.

Funding Status:

Bartel & Associates forecast that as of June 30, 2010, the County will have an actuarial unfunded liability of $313 million for the Miscellaneous Plan and $113 million for the Safety Plan. The most recent CalPERS' report has a valuation date of June 30, 2008, thus the need to forecast. (See Appendix 1)

The projected June 30, 2010 CalPERS' funding status for the Miscellaneous and Safety Plans are 92.2 percent and 93.5 percent, respectively. On a net basis (including the outstanding POB liability of $375 million) the funding levels are 86.1 percent for the Miscellaneous Plan and 89 percent for the Safety Plan. Many experts consider a funded ratio based on actuarial asset values of 80 percent or better to be sound for government pensions[2]. The County's Pension Management Policy established 80 percent as the desired minimum funding level for the Miscellaneous and Safety plans.

According to the 2009 Wilshire Report on Retirement Systems: Funding Levels and Asset Allocation, found that 66 percent of the 117 retirement systems were underfunded. The funding ratio for all was equal to 84 percent[3]. One can expect to see lower average funding levels for FY 2009 across all plans, due to the negative equity performance.

A comparison of some surrounding counties is provided below based on information as of February 22, 2010.

County	2008 Funding Ratio[4]	2008 Unfunded Liability (millions)[4]	POB's Outstanding (millions)[5]
Riverside	95.2 %	$ 230	$ 388
San Diego	94.4 %	$ 485	$870
Los Angeles	94.5 %	$ 2,313	$ 236
San Bernardino	93.62 %	$ 432	$648
Orange	74.08 %	$2,549	$0

[2] July 2008, State and Local Government Pension Plans, United States Government Accountability Office.

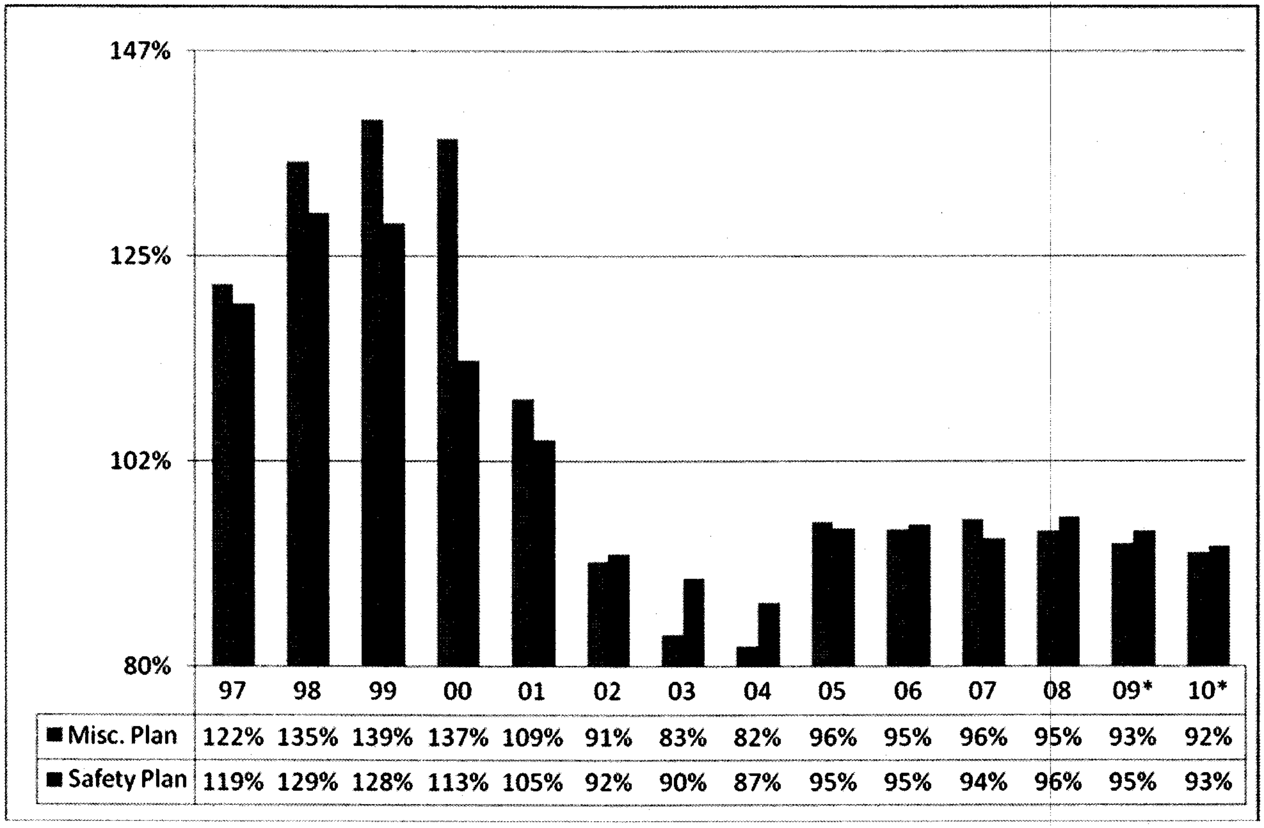
[3] 2009 Report on City & County Retirement Systems: Funding Levels and Asset Allocation.

[4] Data based on June 2009 actuarial valuation reports, except for Orange County. Orange County data based on December 2008 report.

[5] As of February 22, 2010. Source: WebBush Morgan Securities, Inc.

The following graphs show the Miscellaneous and Safety Plans' funded status over the last several years (expressed as a ratio of asset to liability.)

Riverside County Funding Status[6]



	97	98	99	00	01	02	03	04	05	06	07	08	09*	10*
■ Misc. Plan	122%	135%	139%	137%	109%	91%	83%	82%	96%	95%	96%	95%	93%	92%
■ Safety Plan	119%	129%	128%	113%	105%	92%	90%	87%	95%	95%	94%	96%	95%	93%

Basis of Unfunded Actuarial Liability:

In absolute terms, the Miscellaneous and Safety Plans' unfunded liability are projected to increase by $206 million and $55 million, respectively, in FY 2010 from the levels of FY 2005.

The increase of the actuarial unfunded liability in the Miscellaneous and Safety Plans was primarily caused by the cumulative negative investment returns for fiscal year 2009, which were 32.55 percentage points lower than the assumed rate of 7.75 percent.

Actuarial Value versus Market Value of Assets:

While actuarial values are used to determine the unfunded liability and funding status, market value gives a better long-term picture of funded status.

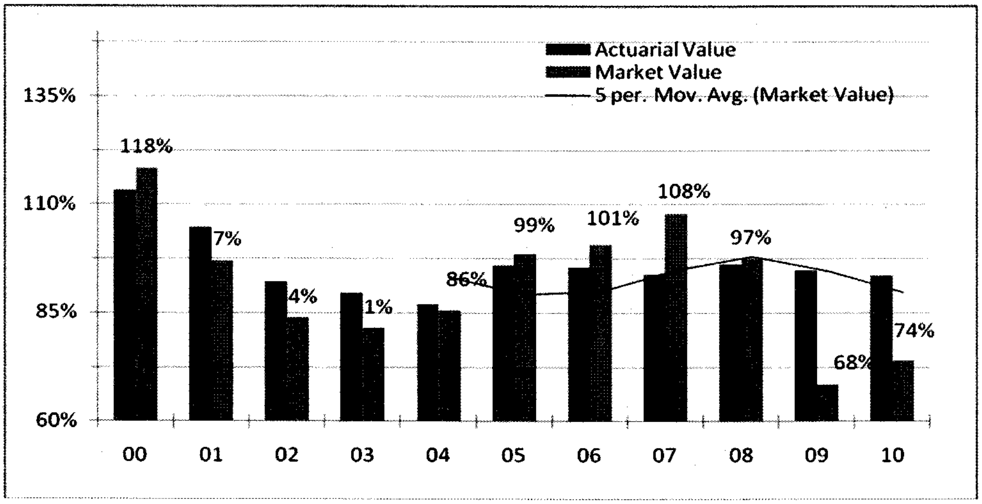
[6] Gross funding only. Accounting for bond liability reduces the net funding levels to 85 percent and 89 percent for the Miscellaneous Plan and the Safety Plan, respectively.

The market value is absent the effect of smoothing and gives an indication of where the actuarial value will be assuming constant returns.

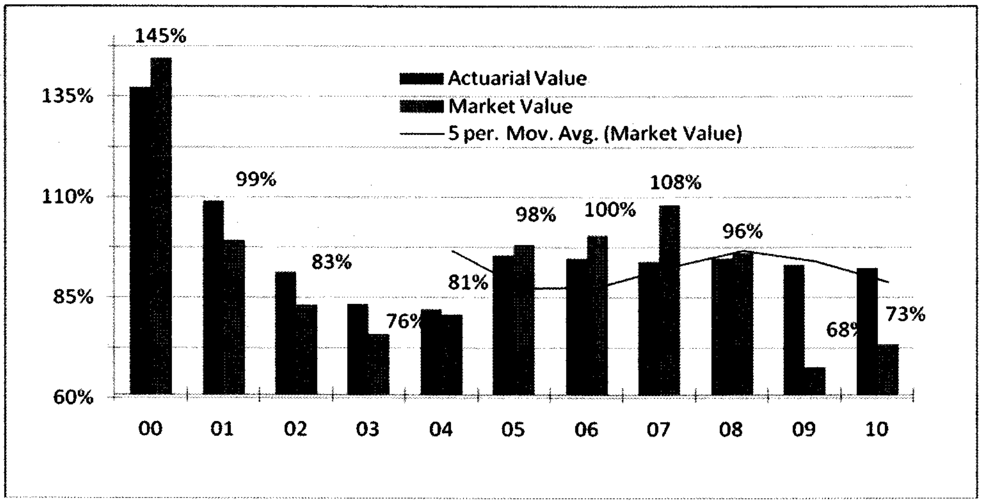
Bartel Associates forecast that as of June 30, 2010 the County will have a market value funding status for the Miscellaneous and Safety Plans of 72.5 percent and 73.1 percent, respectively. On a net basis (including the outstanding POB liability of $375 million) the funding levels are projected as 65.2 percent for the Miscellaneous Plan and 68.5 percent for the Safety Plan. This indicates that the actuarial based funding ratios for the County's pension plans will decline because of the investment returns. CalPERS' values assets on an actuarial basis in order to reduce volatility in its valuations.

In June 2009 CalPERS modified its smoothing method to lessen the impact of the market downturn in FY 2009. The following graphs show the Miscellaneous and Safety Plans' funded status on a market value and actuarial value basis over the last several years (expressed as a ratio of assets to liability):

Actuarial and market value funding status:



Safety Plan



Miscellaneous Plan

Market Summary:

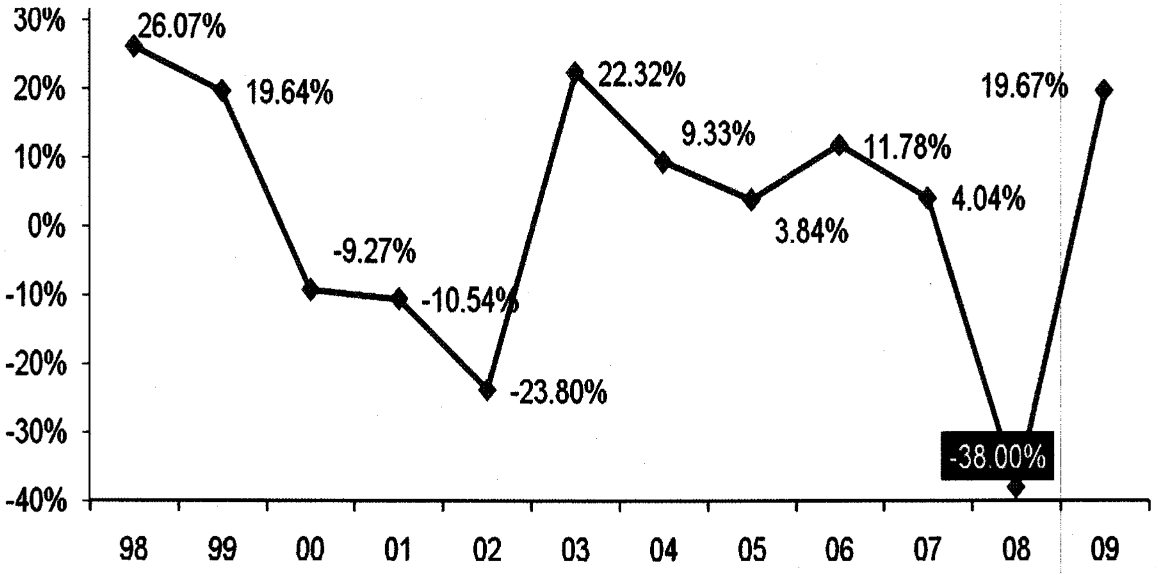
The economy had the sharpest decline in 2008 since World War II. The implosion of the housing bubble led to the demise of major financial institutions and had enormous ramifications for the credit markets, cutting off credit for banks and companies. Gross domestic product fell around 2.5 percent in 2009. One economic forecast projects GDP growth at around 2.5 percent for the first quarter. The unemployment rate in the month of December was 10 percent. The equity markets and real estate markets witnessed a massive destruction of value over the course of 2008/09. Since then market signals have turned positive:

1. The S&P 500 was up approximately 19 percent for calendar year 2009.
2. Fixed income yields changed dramatically during 2009. Three month Treasury Bill rates dropped by two basis points, while the 30-year increased by 196 basis points. The two basis point drop in rates for the three month Treasury Bill represented a change of 28.5 percent.
3. The real estate market has begun to show signs of bottoming out.

CalPERS Returns:

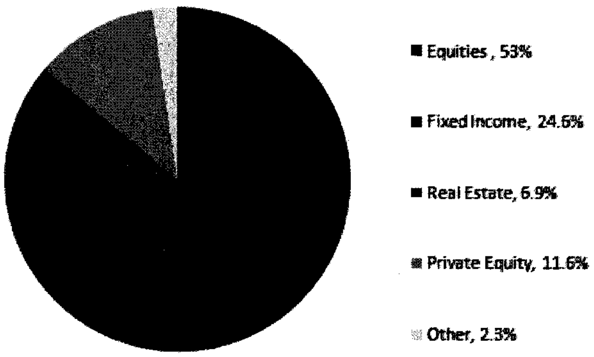
CalPERS began 2009 with $181 billion in assets. It had reached a high of $251 billion in October 2007. As of January 6, 2010 assets rebounded to $205 billion, an increase of 13 percent from the 2009 levels.

S&P 500 Annual Returns



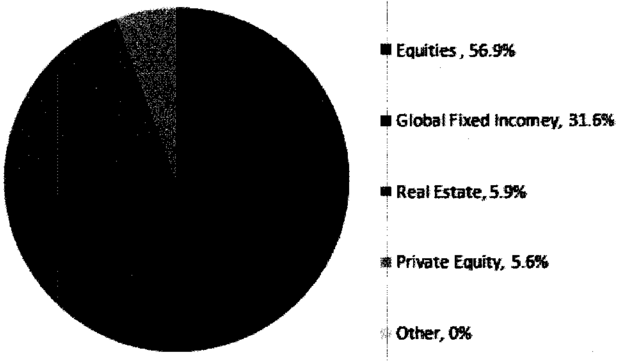
CalPERS' asset allocation and average asset allocation survey results from the "2009 Wilshire Consulting Report on State Retirement Systems: Funding and Asset Allocation."

CalPERS Asset Allocation



Source: CalPERS January 6, 2010.

Average Asset Allocation for City & County



Source: 2009 Wilshire Report on City & County Retirement System: Funding levels and Asst allocation

The primary difference between CalPERS' asset models and the survey group is that CalPERS holds less equities, less fixed income and higher private equity and other assets. It should be noted that substantial changes in valuation have taken place since the survey, so the timing could account for some of the difference.

At this point, CalPERS has indicated that no changes from its currently assumed actuarial rate of return of 7.75 percent are contemplated. Should CalPERS continue to underperform, such a change could become likely. Any reduction in the assumed rate of return would have very significant consequences for the County.

Pension Liabilities:

Currently, unfunded liabilities are amortized over a 30-year period. CalPERS uses certain assumptions as a basis for its actuarial valuation. To the extent that these assumptions are not realized, future contributions and unfunded liability may increase.

CalPERS requires that participating employers contribute an amount sufficient to cover currently accruing benefits on an annual basis. That amount is estimated and based on various actuarial assumptions including payroll trends. In the current financial environment it is likely that pension cost will deviate from CalPERS' estimates due to the likely downward change in the County's payroll levels.

Early Retirement Incentive Program:

On November 18, 2008 the Board of Supervisors authorized the County to offer two years of additional service credit to all eligible County employees in job classifications covered under the Miscellaneous contract (excluding elected officials, Parks, Flood, and Waste Special Districts). In separate actions, the Board also approved the offer to the Special Districts.

To take the incentive, eligible employees must have attained 50 years of age, had five or more years of service with the County and retire within the 90-day retirement window established by the County.

As of March 31, 2009, 651 (19 percent) of eligible employees took advantage of the offer and retired early. Human Resource analysis indicates a net cost of $2 million in the first year and then annual savings of $45 million under a number of assumptions.

The Human Resources Department projects that a second early retirement program will attract 527 (15 percent) of eligible employees. It is projected to cost $6.2 million in the first year and may generate $46 million in savings afterward, under a number of assumptions.

Given a 15 percent assumption on the number of people taking the 2010 Miscellaneous Early Retirement Incentive the employer rate will increase 0.225 percent per year starting July 2013.

The County also offered Safety employees an early retirement incentive in 2009 on two separate occasions. A total of 143 employees have taken that offer. PARC has not performed any financial analysis on the financial impact of the early retirement program.

Projected Actuarial Rate of Return:

Long-term investing is an ongoing challenge for state and local pension systems. The higher the assumed rate, the lower the contribution required today. CalPERS' assumed actuarial rate of return of 7.75 percent is more conservative than many other plans. Many other state pension plans assume an investment rate of 8 percent or higher.

CalPERS reviews the investment return assumptions periodically and changes it as warranted. According to a January 10, 2010 CalPERS news release, CalPERS' 20-year investment history is 7.75 percent and the 2009 investment return was 11.8 percent. Indications are thus for that fiscal year 2010 will be a year of strong investment returns.

Pension Plan Benefit

Public employee retirement systems cover over 14 million state and local government employees with retirement and disability benefits held over $3 trillion in assets and paid out over $150 billion in benefits. The first incarnation of U.S. public pension schemes were intended primarily for the army personnel in the mid-19th century.[7] They were originally intended as forms of social welfare programs.[8] Today they have evolved into an integral incentive to attract and retain workers for the government.

The vast majority of public pension funds are run as defined benefit systems where the employer and sometimes public employees make regular contributions to the funds, which are invested and from which benefits are paid to current retirees.

Retirement including benefits are calculated by a schedule of factors, years of service, final compensation, retirement and age generally updated for cost-of-living adjustment.

CalPERS:

The California Public Employees' Retirement System manages retirement benefits for more than 1.6 million California public employees, retirees, and their families. As of June 30, 2009, they provided pension benefits to 1,134,397 active and inactive members and 492,513 retirees, beneficiaries, and survivors.

CalPERS was established by State law in 1932 to provide retirement benefits for State employees. In 1939, public agency and classified school employees were allowed to participate. In 1962, State law authorized CalPERS to provide health benefits to state employees. The health benefits program was expanded in 1967 to include public agency and school employees.

The County contracts with CalPERS to provide defined benefits. Benefits are provided through the Miscellaneous Plan with a three percent at 60 benefit formula and the Safety Plan with a three percent at 50 benefit formula. Prior to July 11, 2002 and June 28, 2001, benefit formulas were two percent at 55 for the Miscellaneous Plan and two percent at 50 for the Safety Plan. A window of either 12 consecutive months or 36 consecutive months is used to set the "Final Compensation." The County calculates Final Compensation using the more generous window of 12 months.

[7] Veterans Benefits and the General Social Welfare Befefits: A Study in Program relationships.(Cambridge, MA: Harvard University), March 1962

[8] Robert L. Clark, Lee A. Craig, Neveen Ahmed, "The Evolution of public Sector Pension Plans in the United States"

CalPERS offers the following benefit formulas[9]:

Miscellaneous Plan	Safety Plan
2.0% @ 55	2.0% @ 50
2.0% @ 60	2.0% @ 55
2.5% @ 55	2.5% @ 55
2.7% @ 55	3.0% @ 50
3.0% @ 60	3.0% @ 55

Retirement plans are normally designed so that a prospective retiree considers all sources of retirement, in an effort to maintain their pre-retirement standard of living into retirement. Replacement ratios measure the portion of pre-retirement income that post retirement benefits replace. They are calculated by dividing gross income after retirement by gross income before retirement. Income after retirement comes from Social Security, individual savings and/or agency provided benefit.

Miscellaneous Plan Benefits:

Miscellaneous employees who retire at the age of 60 receive three percent of their Final Compensation for each year worked. Employees that retire before the age of 60 receive an adjusted benefit for the employee's age at retirement. The earliest an employee can retire is at the age of 50 (if they have at least five years of service) and receive two percent of their final compensation per year of service.

There are 16,322 active plan participants and 5,268 retirees receiving (on average) $17,631 annually in retirement benefits. There are an additional 1,283 participants who are currently receiving disability and/or survivor benefits.[10]

On average, Miscellaneous Pension Plan participants earn a salary of $51,563. An employee earning the average salary who retires at the age of 60 and who has worked at the County for 30 years can expect to receive an annual pension benefit of $46,400, or a replacement ratio of 90 percent. Most Miscellaneous pension members are eligible for Social Security.

Most employees who participate in the Miscellaneous Pension Plan contribute eight percent of their salary for the first five years. After five years, the County makes all contributions. The County makes the eight percent contribution from the date of CalPERS' eligibility for employees covered by the Management Resolution.

Safety Plan Benefits:

Safety employees who retire at the age of 50 receive three percent of their Final Compensation for each year worked. The earliest an employee can retire is at the age of 50 (if they have at least five years of service) and receive three percent of their Final Compensation per year of service. Safety benefits are not to exceed 90 percent of final compensation.

[9] CalPERS also offers the Miscellaneous pension plan formula of 1.5% @ 65.

[10] Based on The 2008 CalPERS Valuation

There are 3,467 active plan participants and 985 retirees receiving (on average) a retirement benefit of $34,389. There are an additional 632 participants who are currently receiving disability or survivor benefits.

On average, Safety Pension Plan participants earn a salary of $69,439. An employee earning the average salary who retires at age 55 and who has worked at the County for 30 years can expect to receive an annual pension benefit of $62,500; a replacement ratio of 90 percent. Most Safety members are not eligible for Social Security.

The County makes the nine percent employee contribution required from the RSA Law Enforcement, LEMU, and Riverside Sheriffs' Association Public Safety. Riverside Sheriffs' Association (RSA) Law Enforcement employees contribute nine percent of their salary to the Safety Pension Plan for the first three years of employment with the County; RSA Public Safety employees contribute nine percent of their salary to the Safety Pension Plan for the first five years of employment with the County. The County makes the nine percent employee contribution from the date of CalPERS eligibility for Law Enforcement Management Unit (LEMU) and other management (MLX) employees.

Replacement Ratio Study:

The 2008 Aon Consulting Replacement Ratio Study analyzed the replacement ratio employees need to maintain their pre-retirement standard of living after retirement. It found that, generally, a person needs less gross income after retiring, primarily due to four factors:

1. Income taxes decrease after retirement due to extra deductions that are available for those age 65, and taxable income usually decreases at retirement.
2. Social Security (FICA deductions from wages) and Medicare taxes end completely at retirement.
3. Social Security benefits are partially or fully tax-free. This reduces taxable income and, therefore, the amount of income needed to pay taxes.
4. Saving for retirement is no longer needed.

The study baseline case assumes a family situation in which there is one wage earner who retires at age 65 with a spouse at who retires at age 62. The family unit is eligible for family Social Security benefits, which are 1.375 times the wage earners' benefits. The findings are shown below. (See Appendix 3)

Pre-Retirement Income	Replacement Ratios		
$000	Social Security (%)	Private and Employer Sources (%)	Total (%) of pre-retirement income need
20	69	25	94
30	59	31	90
40	54	31	85
50	51	30	81
60	46	32	78
70	42	35	77
80	39	38	77
90	36	42	78

Aon 2008 Replacement Ratio findings

For example, a person earning $50,000 in pre-retirement income needs $40,500 in post retirement income from all sources (savings, Social Security, if applicable, and pension benefits) in order to maintain their standard of living after retirement.

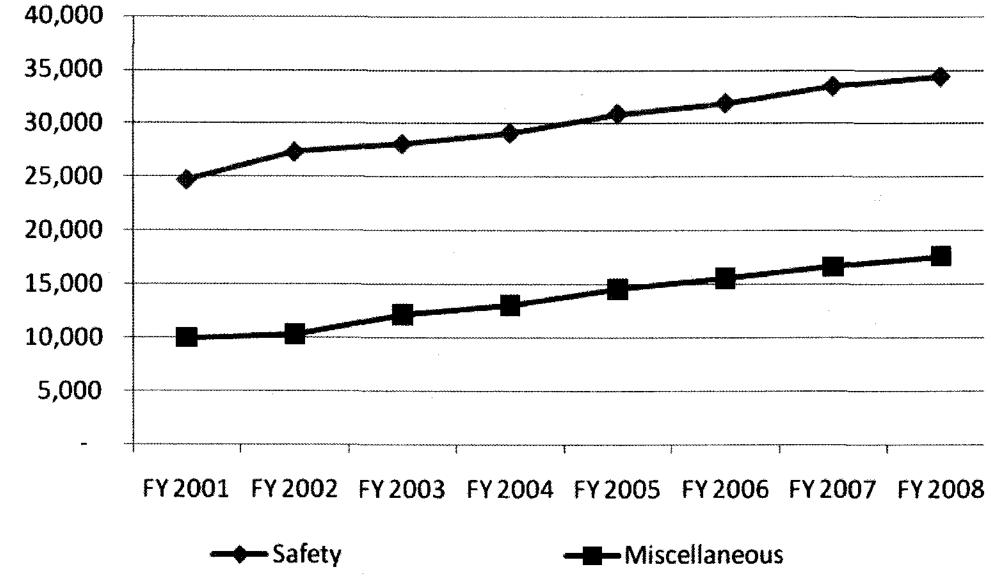
Typically public sector employers have provided career employees a level of retirement benefits sufficient for them to retire with enough income from all sources to maintain their pre-retirement standard of living (Replacement Income.)

Replacement Income is usually framed in the context of a "three-legged stool." The three-legged stool reflects all sources of retirement income: Employer-provided benefits, Social Security and personal savings. At the County Social Security benefits are provided for non-Safety employees.

The County Miscellaneous Plan is designed to provide a 30-year career employee with 90 percent of pre-retirement income at age 60 (employees eligible for Employer Paid Member Contributions, or EPMC, which counts as compensation earnable for CalPERS' purposes retire with 97.2 percent of pre-retirement income). Social Security will add to this benefit when the retiree becomes eligible. The County Safety Plan is designed to provide a 30-year career employee with a maximum of 90 percent of his or her pre-retirement income at age 50. However, in the last year of employment nine percent Employer Paid Member Contribution is counted as compensation and thus increases benefits to 98.1 percent of pre-retirement income. Safety employees are not eligible for Social Security benefits.

A CalPERS' Replacement Ratio study conducted in 2001 found that the three percent @ 60 Miscellaneous formula with Social Security, and the three percent @ 50 Safety formula without Social Security exceeded the target Replacement Ratios at all income levels. The County's CalPERS' benefits are higher than the benefit at most other surrounding counties.

The following graph shows the history of average pension benefits paid out to retirees by both the Miscellaneous and Safety Plan. It should be noted, however, that the average retiree is not a career employee.



Average Annuity Miscellaneous & Safety

Other Benefits:

The County sponsors supplemental pension plans that provide additional benefits to certain employees. In the case of SEIU and LIUNA represented employees, the County participates in funding the pension plans as a contributing employer to union sponsored plans. Below we have listed supplemental plans and briefly summarized:

1. SEIU and LIUNA sponsored plans: The County contributes $0.10 per hour worked for represented employees. The plans are Defined Benefit Plans and provide a dollar amount benefit to employees for each year of service earned ($4.02 per year for SEIU and $2.20 per year for LIUNA.)

2. Supplemental Pension Plan: The County contributes for eligible employees (Unrepresented, Management and Confidential, LEMU, DDAA), normally $25. The plan is a Defined Contribution Plan.

3. Deferred Compensation Plan: The Deferred Compensation Plan is a Defined Contribution IRS 457 Plan in which employees can make voluntary tax deferred contributions up to the IRS permitted annual limits.

Recruitment and Retention

The base pay which employees receive is only a portion of their total compensation. Many employees identify benefits such as insurance, retirement, vacation, leave and other intangibles as top reasons why they are attracted to stay with the County.

Studies show that the promise of a secure and stable pension benefit can be a powerful recruitment and retention tool for organizations. Watson Wyatt, a recognized benefits consulting firm conducted a Retirement Attitude Survey to learn about how employees feel about their Defined Contribution Retirement Plans and how these benefits affect employees' workforce decisions. The survey focuses on private sector employers and the results were published in a report titled "Watson Wyatt Trends in Pensions-2005."

The survey found that most employees highly value their pension plans, both Defined Contribution Plans and Defined Benefit Plans. Employees who value their pension benefit, were three times more likely to stay with the current employer than those that did not value pension benefits. The survey also found that while retirement benefits are more important to workers over the age of 45, these workers are more likely to remain with their employer regardless of their feelings toward retirement benefits. Commitment to stay with their employer is higher still for those who are satisfied with their retirement benefits and consider them valuable. Watson Wyatt reports that while turnover is typically higher among younger employees, employees younger than 35 who value their plans more highly and are satisfied with them are more likely to remain with their current employer than other young employees. Moreover, "younger workers who rate their Defined Benefit Plan as highly important are nearly twice as committed to their organization as comparable employees with a Defined Contribution Plan."

The County attracted and retains a work force of over 18,000 employees which deliver services to a population of 2 million residents. Workers on average had 7.8 years of service, with an average age of 41.8 years and were drawn mainly from the County and surrounding counties.

Most public sector employers provide traditional Defined Benefit Plans. Private sector employers have shifted away from Defined Benefit Plans to less Defined Contribution Plans. Today less than 40 percent of all major employers continue to offer Defined Benefit Plans.

The shift from Defined Benefit Plans are primarily due to three reasons:

1. Increased workforce mobility. Defined Contribution Plans are better suited for a mobile workforce. Defined Benefit Plans suit career employees; today employees typically change employers five times in a career.

2. Pressure to limit cost and risk. Defined Contribution Plans limit the employer's risk; employers bear the risk with Defined Benefit Plans. Traditional Defined Benefit Plans cost employers more.

3. Increased regulation. Regulations have made the administration of Defined Benefit Plans complex and expensive relative to Defined Contribution Plans.

The table below illustrates key considerations and compares Defined Benefit Plan to Defined Contribution Plans.

Defined Benefit Plan versus Defined Contribution Plan

Strategic Considerations	Defined Benefit Plans	Defined Contribution Plans
Employee Retention	Attracts longer tenured/older employees	Attracts shorter tenured/younger employees
Financial Liabilities	Placed on employer	Placed on the participant
Responsibility placed on Employee	Very little	Significant – voluntary contributions, necessary investment decisions
Responsibility placed on Employer	Significant – investment decisions, financial liability	Less significant
Employer Fiduciary Responsibility	Significant	Significant
Investment Results	Average returns are higher/narrower distribution of returns	Average returns are lower/broader distribution of returns
Economic Savings	Significantly increases savings rate and the available pool of national savings	Less significantly increases savings rate and the available pool of national savings
Personal Retirement Savings	Maximizes savings for retirement	Allows withdrawals and loans before retirement, depleting retirement savings
Fees	Lower overall fees	Higher overall fees
Administrative Complexity	Generally high	Generally high
Portability	Not typical	Yes

County Comparison:

Comparing retirement benefits across public sector employers can be difficult because plan provisions are complicated. Many public sector employers do not participate in Social Security, and the retirement benefit is the sole source of income at retirement, other than personal savings. At the County Miscellaneous employees participate in Social Security, but Safety members do not. Riverside County also contracts with CalPERS to provide ancillary benefits such as Survivor Continuance, up to two percent Annual Cost-of-Living Adjustments, Reciprocity, and a Purchasing Power Protection Allowance that other agencies may not offer (Appendix B provides a description of these benefits.)

Pension benefits provided by the County for non-Safety employees are on average more generous than that provided by the surrounding counties (See tables in the following pages.)

When we compare the County's retirement benefits to those of the five nearby Counties (Los Angeles, Orange, San Diego, Ventura and San Bernardino), only San Diego has a non-Safety three percent @ 60 formula. However, San Diego County implemented a lower Defined Benefit Plan tier for its Safety and non-Safety new employees effective August 28, 2009. New non-Safety employees will receive 2.6 percent @ 62, and new Safety employees will receive a three percent @ 55 benefit (from 3 percent @ 50). Orange County is also implementing pension reform. The Orange County Board of Supervisors has approved a two-tiered hybrid pension plan for its new employees.

All new employees will have the option to choose the current pension benefit of 2.7 percent @ 55 (and pay for it) or the hybrid pension plan which includes a reduced defined benefit of 1.62 percent @ 65 and a Defined Contribution Plan with a matching contribution.

Below we summarize the Non-Safety and Safety benefit formulas and ancillary benefits for the County of Riverside and five nearby counties (prior to reform at Orange County.)

Non Safety Comparison

County	Formula Non-Safety	Compensation	EPMC Converted to Comp	Member Contribution	Social Security	Survivor Continuance	COLA
Riverside	3% @ 60	Single Highest Year	Yes – based on MOU	EE Rate = 8% Paid by ER after five years, except Unrepresented immediate pickup	Yes	25% of the unmodified allowance is paid in addition to the basic beneficiary allowance. The beneficiary allowance is dependant on the benefit payout option and age.	**2% Max**
Los Angeles	Plan D: 2% @ 61 Plan E: 2% @ 65 With 10 years of service	Plan D: Average Highest 12 consecutive months Plan E: Average Highest 3 years of service	No	Plan D: 7% Plan E: 0% (Paid by ER)	No	Plan D: 65% of Unmodified amount Plan E: 55% of unmodified amount	**2% Max**
Orange	Plan A 1.77% @ 55 Plan B 1.49% @ 55 Plan G 2.5% @ 55 Plan H 2.5% @ 55 Plan I 2.7% @ 55 Plan J 2.7% @ 55 Plan M 2.0% @ 55 Plan N 2.0% @ 55 With 10 years of service	Plans A, G, I and M = Highest consecutive 12 months Plans B, H, J and N = Highest consecutive 36 months	No	Member rate varies based on plan. Employer pays almost 100% but is not credited to EE account. Average =12.12%	No	60% of the Unmodified option	**3% Max**
San Bernardino	2% @ 55 With 10 years of service	Single Highest Year	No	Average = 9.20% ER pays 2.5% to 7% varies by job class.	No	60% of the Unmodified option	**2% Max**
San Diego	Tier A: 3% @ 60 Tier B: 2.6@ 62 with 10 years of service (effective 8/28/2009)	Single Highest Year	No	Average = 9.18% ER pays based on years of service (5 or less = 3.5% then 7%)	Yes	60% of the Unmodified option	**3% Max**
Ventura	Tier I: 1.24% @ 50 Tier II: 1.18% @ 50 With 10 years of service	Tier 1: Highest 12 months. Tier II: Highest 36 months.	No	Tier I: 8.39% Tier II: 5.48% ER pays portion	Yes	60% on Unmodified option	**Tier I: 3% Max.** **Tier II: 2% Max**

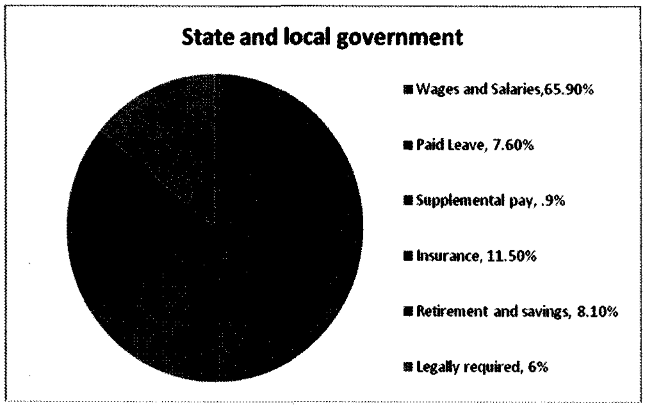
Safety

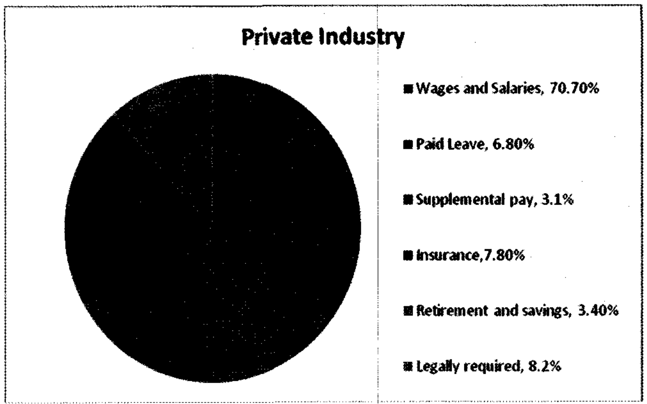
County	Formula Safety	Compensation	EPMC Converted to Comp	Member Contribution	Survivor Continuance	COLA
Riverside	3% @ 50	Single Highest Year	Yes	Rate = 9% ER pays based on MOU RSA =3 years, PSU =5, LEMU and MLX = DOH	50% on the unmodified allowance	**2% Max**
Los Angeles	2% @ 50 With 10 years of service.	Highest Consecutive 12 months	No	Plan A: Based on entry age ranges from 7.44% to 11.67% Plan B: Ranges from 6.42% to 12.23% No ER payment	65% on unmodified option	**Plan A is 3% Max** **Plan B is 2.0% Max**
Orange	3% @ 50 With 10 years of service.	Plan E: Highest consecutive 12 months Plan F: Highest consecutive 36 months	No	Range from 7.84% to 17.93% based on Entry Age. ER pays almost 100% % but is not credited to EE account.	60% on unmodified option	**3% Max**
San Bernardino	3% @ 50 With 10 years of service.	Single Highest Year	No	Rate varies by age ranging from 9.95% to 15.65% ER pays based on job classification	60% on unmodified option	**2% Max**
San Diego	Tier A: 3% @ 50 Tier B: 3% @ 55 with 10 years of service (effective 8/28/2009)	Single Highest Year	No	Rate = 10.76% ER pays 9.5%	60% on Unmodified option	**3% Max**
Ventura	2% @ 50 With 10 years of service	Single Highest Year.	No	Rate = 11.5% ER pays 11.5%	60% on Unmodified option	**3% Max**

Private Sector Comparison:

For many years, conventional wisdom has held that public sector wages were lower than private sector wages, and thus more generous retirement benefits were needed in order to attract and retain skilled workers in the public sector. Recent data from the U.S. Bureau of Labor Statistics suggest that total compensation averages in the public sector are more generous than private sector compensation averages.

Below is a breakdown of total compensation for both the private and public sector derived from the U.S. Bureau of Labor Statistics.





According to Greg Philipatis, the Assistant Regional Commissioner of the Chicago U.S. Bureau of Labor Statistics, numerous caveats should be considered before drawing any conclusions from the data.

- The employer survey is voluntary, with 15 percent to 20 percent of the private sector employers refusing to participate and only four percent to five percent of the public sector employees refusing to participate.
- More than 40 percent of public sector workers are represented by a union, while fewer than 10 percent of private sector workers are. When the data are controlled for union participation, the difference in the average compensation levels in the public and private sectors narrows. Union workers are typically better compensated than non-union workers.
- Average employee tenure is twice as long in the public sector.
- The occupational mix of each sector is different: Roughly two-thirds of public sector jobs are professional and administrative, while 51 of private sector jobs are retail sales and food service jobs. Relatively low-paid and often part-time positions represent 20 percent of private sector jobs, but only two percent of public sector jobs.

According to the Employee Benefit Research Institute (EBRI), public sector employees on average earn more per hour than private sector employees; see summary which (excludes bonuses and stock options.)

Below is a snapshot of the salary/wages survey results:

	Public Sector	% of Total	Private Sector	% of Total
Total Compensation	$39.50	100%	$26.09	**100%**
Wages and Salaries	$26.26	66.5%	$18.42	**70.6%**
Retirement benefits	$3.04	7.7%	$0.91	**3.6%**
Health benefits	$4.35	11.0%	$1.85	**7.1%**
Other	**$5.85**	**14.80%**	**$4.81**	**18.71%**

Keith A. Bender, Associate Professor of Economics, University of Wisconsin-Milwaukee, finds that in low-skilled jobs, public sector wages exceed private sector wages, but in high-skilled jobs, public sector wages significantly lag private sector wages. State and local governments employ 14 percent of American workers outside of agriculture.

Pension Cost

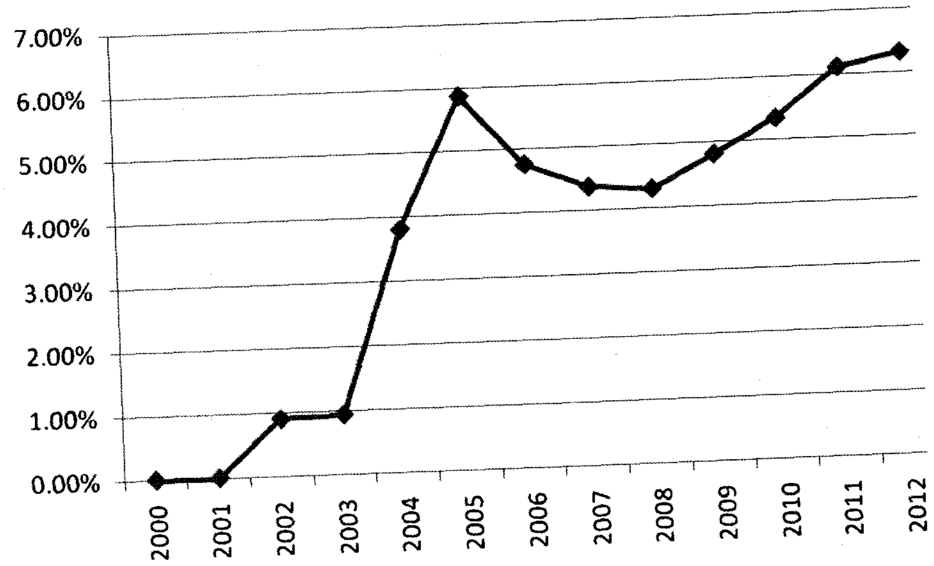
Government is service-oriented and labor intensive, making benefit costs a major expense. Pension benefit costs in the County for FY 2008 accounted for 4.31 percent of total expenditures. While pension costs are going up, the County, like most other municipalities, is experiencing a severe drop in tax revenues.

At the national level the recession appears to have ended during the summer. For state and local governments the end of the downturn does not alleviate its financial problems.

State and local sales tax revenues tend to lag behind the downturns as well as the upturns in the economy because of the time it takes for collections to catch up with depressed store sales and diminished incomes. Counties rely heavily on property tax revenue to support many general government services. Revenues for FY 2010 are being impacted by the 10 percent drop in the County's assessed valuation and declining sales taxes. The County Assessor's early projection is for a further 4.5 to 5 percent erosion of assessed values in the new year.

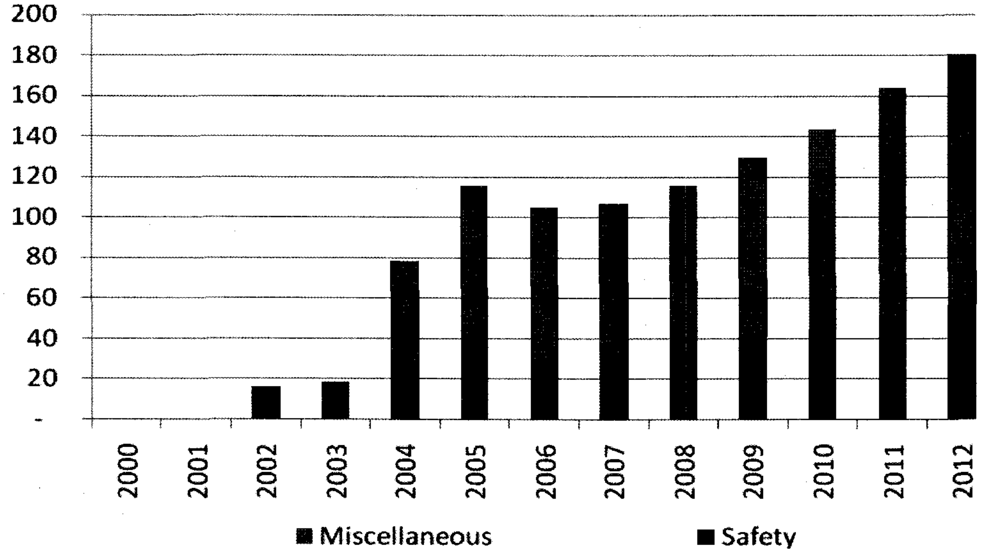
The graph below shows the cost of providing pension benefits as a percentage of total general government expenditure as reported in the CAFR. General government expenditure for FY 2010 through FY 2012 is projected to remain fixed at the FY 2009 level. It is possible that total County expenditures will fall given current economic conditions.

Riverside County Pension ARC as a Percentage of Total Government Expenditures



Source: CAFR

Below is a 10-year history of ARC payments as reported in the CAFR; and the expected FY 2011 and FY 2012 ARC payments. (Pension Obligation Bond [POB] debt service not included.)



Over the longer run, ARC rates as a percentage of payroll are projected to increase. The magnitude of the increase will depend on CalPERS' investment performance benefit changes, and changes in actuarial assumptions. If CalPERS were to continue to underperform for a sustained period, the impact upon rates would be negative, but that impact would be delayed by CalPERS' rate smoothing. The size of the County's PERSable payroll will determine the dollar cost impact. A smaller payroll will cap the dollar cost increase associated with higher ARC rates. It is important to note that the new smoothing method spreads the investment loss over a longer period of time, and thus it is financed over a longer period at CalPERS' assumed rate of return of 7.75 percent. The following information does not include the cost associated with POB and the early retirement program.

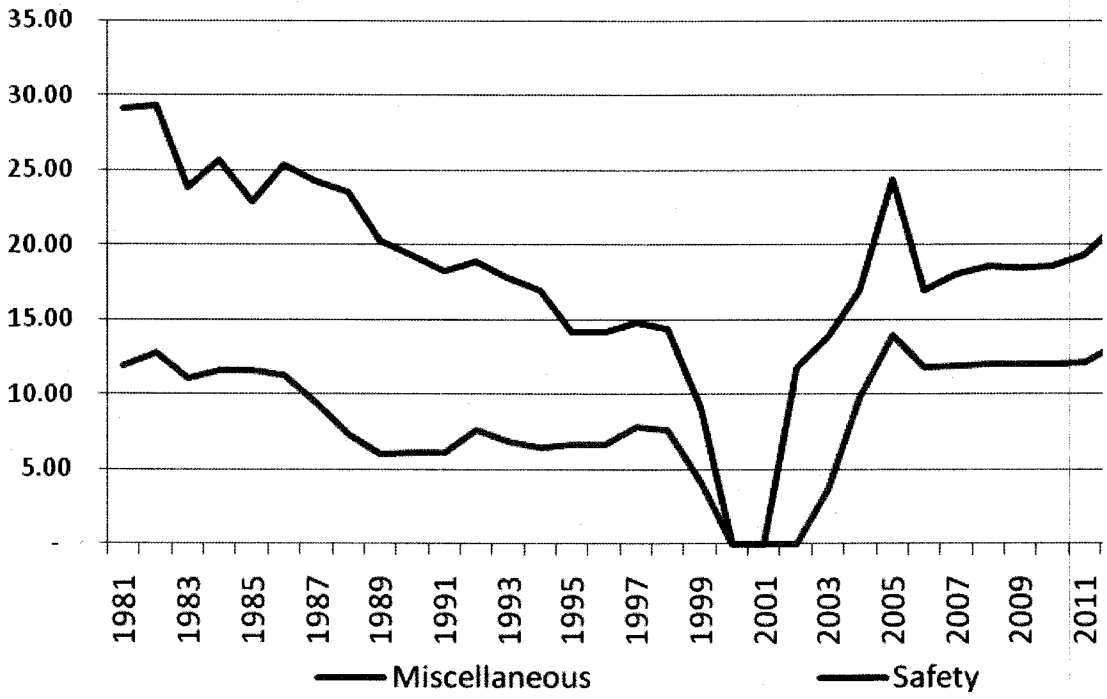
- **Investment Rate of Return scenario of 7.75 percent.** If an average rate of return of 7.75 percent is achieved, the ARC rates as a percentage of total payroll for the Miscellaneous and the Safety Plans are projected to increase to 15.0 percent and 24.0 percent, respectively by FY 2016.

- **Investment Rate of Return scenario of 4.3 percent.** If an average rate of return of between 0.4 percent and 3.6 percent is achieved, the ARC rates as a percentage of total payroll for the Miscellaneous and the Safety Plans are projected to increase to 19.1 and 30.4 percent, respectively by FY 2016, if an average rate of return of between 0.4 percent and 3.6 percent is achieved.

Below is a 28-year history and two-year projection of ARC payments expressed as a percentage of payroll.

The committee will monitor CalPERS' investment performance and the County's funding needs annually and might recommend making higher payments than CalPERS requires to mitigate the impact of sustained under performance in such a case. Riverside County's annual pension cost includes employer contributions and POB debt service. There will be $375 million in POB's outstanding as of June 30, 2010.

Riverside County Pension ARC Payments as a Percentage of Payroll



Pension Reform Landscape

Most public sector employers in California are faced with a difficult choice. Rising pension costs at a time of unprecedented budget constraints are forcing policy makers to re-evaluate pension offerings.

The stock market performance of the 1990's, contributed to the belief that more generous retirement benefits could be provided at little or no additional cost.

The adoption of Senate Bill 400 (SB 400) in 1999 led to the implementation of more generous retirement benefits for state employees.[11] In response, local agencies began to improve their retirement benefits to keep up with their neighbors. The County increased benefits for both the Safety and Miscellaneous Plans.

In California, attempts to reduce pension benefits have focused on the creation of two-tier plans (cutting benefits for new hires.) Benefit cuts to current employees are prevented by contract law under both the U.S. and the State's Constitutions. Pensions bargained under labor contracts are said to be protected by court decisions, which allow cuts only if something of equal value is provided.

Last June, Governor Schwarzenegger and, more recently, CalPERS' actuary Ron Seeling, have called current benefits "unsustainable." Some believe investment returns will be lower in the post-recession economy and others see higher pension costs in the future as a result of life science and improved standards of living, which are leading to longer life expectancy.

Four years ago, Governor Arnold Schwarzenegger briefly backed an initiative proposed by former Assemblyman Keith Richman, R-Northridge, that would have changed all new state and local government hires to a 401(k) style plan.

Many have proposed that pensions for new hires be rolled back to the formulas used before CalPERS' sponsored legislation SB 400.

A League of Cities task force proposed rolling back benefits for new hires. It recommends that "pensions should be fiscally sustainable and politically defensible."[12]

In July 2009 the Orange County Board of Supervisors approved a change to their pension plans. The change was also agreed to by the Orange County Employees Association. Under the new plan, new employees starting April 23, 2010 will receive a combination of 1.65 percent @ 65 defined with an additional two percent match to a defined contribution plan. Orange County also recently negotiated a two-tier plan with its deputy sheriffs.

The city and County of San Diego have both adopted "two-tier" pension systems, giving new hires lower benefits. But it's a long-term plan not expected to produce significant savings for several decades.

Members first hired on or after August 28, 2009 are classified as Tier B. The benefit formula per year of service credit is approximately 2.6 percent @ 62 for the General, Tier B members, and three percent @ 55 for Safety, Tier B members.[13]

[11] Ed Mendel, "From CalPensions: CalPERS actuary says pension costs are not sustainable" August 12, 2009

[12] Pension Reform in California, League of Cities, March 1, 2005

[13] San Diego County Employees Retirement Association, Retirement Plan Summary.

The Foundation for Fiscal Responsibility attempted to put a pension reform initiative on the November 2010 ballot that would mandate a much less generous second tier system across the State (as of yet, Governor Arnold Schwarzenegger has not endorsed the effort).

The plan proposes the following two-tier formulas: for peace officers or firefighters—2.3 percent @ 58; for other public safety employees—1.8 percent @ 60; for any other public agency employees that do not require Social Security contributions—1.65 percent at defined United States Social Security Old Age and Survivors Insurance Program (65-67), for any other public agency employee that does require Social Security contributions—1.25 percent at defined United States Social Security Old Age and Survivors Insurance Program (65-67).

Alternative Options

Benefits are provided through the Miscellaneous Plan with a three percent at 60 benefit formula and the Safety plan with a three percent at 50 benefit formula. The formula is applied to the highest consecutive 12-month compensation. CalPERS offers several other formulas and ancillary benefits established under the Public Employees' Retirement Law (PERL). Any changes to the benefit formula would only apply to new employees.

Pension reform has been framed as a spectrum of choices from which policy makers can determine courses of action. The menu below presents a range of options with increasing levels of change.

I. Cost Sharing:

Negotiate with unions for shared responsibility with employees for cost increases and/or increased pension contributions by County in lieu of employee pay raises.

All benefit changes including cost-sharing arrangements can be negotiated with unions. There are three approaches to cost-sharing that have been identified:

1. The County has obtained legal opinion that the PERL does allow for the reduction or elimination of the Employer Paid Member Contribution (EPMC) under section 20691 available to certain Miscellaneous employees without breaching employees' Vested Rights.

2. The PERL allows the County to share with employees the cost of prior benefit enhancements from the inception of the contract to date.

3. Independent of the above two items, the County may negotiate with unions for employees to pay a portion of the Employer Contribution. If this approach is taken, CalPERS will not be able to credit employees with the portion of the Employer Contribution they have paid, and most likely the contributions will be paid on an after-tax basis. Further legal review is required to determine the feasibility of this option. The County should anticipate that there may be legal challenges to cost sharing, in particular option 3. Bartel Associates estimates that reducing the employer-paid employee contributions by two percentage points may save the County $14.5 million for the Miscellaneous Plan and $6.6 million for the Safety Plan in fiscal year 2011. That translates to a reduction of approximately 1.6 percent of payroll for the miscellaneous and 2.5 percent of payroll for the Safety Plan for fiscal year 2010/11.

According to the State's Legislative Analyst Office (LAO) in regards to the Governor's proposal to shift the employer paid benefit to an employee-required contribution:

"There are serious concerns about the legal viability of the Governor's proposed five percent shift in pension contributions from the State employee, particularly if the shift is accomplished through the legislative process, instead of through collective bargaining. Courts have repeatedly negated attempts to create substantial savings from altering pension payments for current employees without offering comparable offsetting benefits in exchange."

II. CalPERS Two-Tier Plan:

Select a lower tier and for new employees from the menu of CalPERS Defined Benefit Plans.

Pensions bargained under labor contracts are said to be protected by court decisions, which allow cuts only if something of equal value is provided. Under a two-tier system all current employees continue to accrue benefits at the same level. New employees accrue benefits at a lower rate.

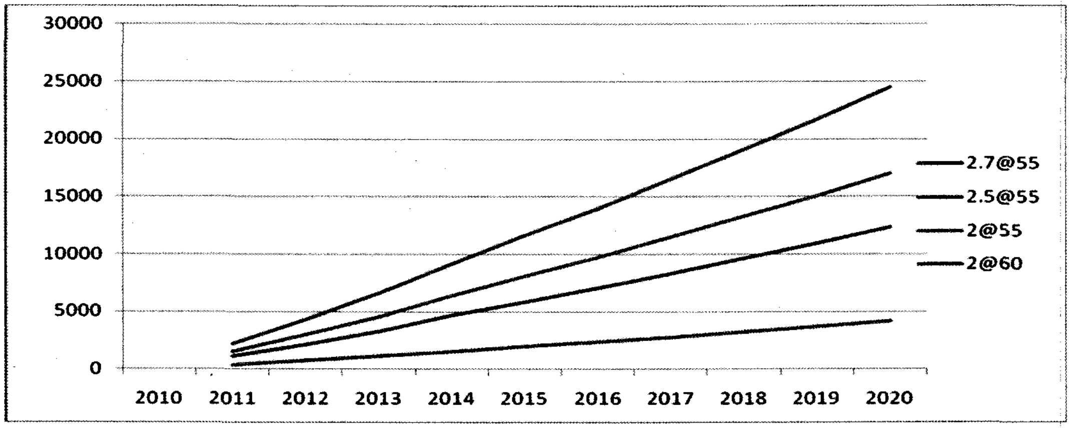
According to Bartel & Associates, moving to a two-tier Defined Benefit Pension system that offered lower benefits to new employees would result in savings in the long run. In the short run there would be very little savings associated with a new defined benefit tier as the proportion of new employees receiving the lower benefits would be proportionally small and thus have a limited impact on cost. Budgetary cuts will further limit short term benefits associated with a two-tier benefit system.

CalPERS offers the following benefit alternatives[14]:

Miscellaneous Plan	Safety Plan
2.0% @ 55	2.0% @ 50
2.0% @ 60	2.0% @ 55
2.5% @ 55	2.5% @ 55
2.7% @ 55	3.0% @ 50
3.0% @ 60	3.0% @ 55

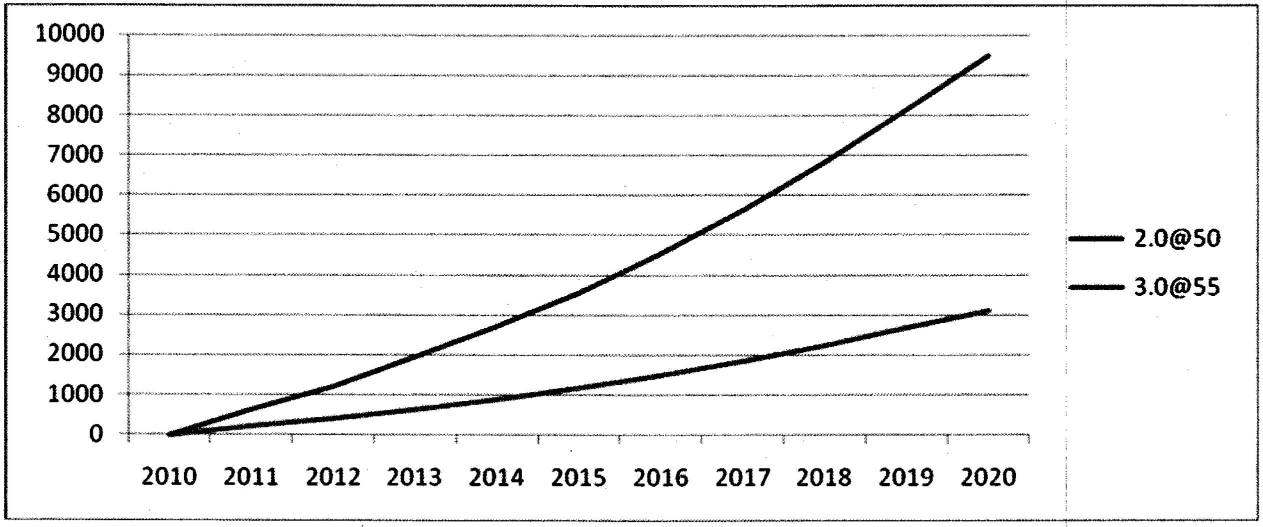
For the Miscellaneous Plan, going from the current formula of three percent at 60 to two percent at 60, would generate $98 million in savings on a present value basis, assuming a four percent discount rate by 2020. For the Safety Plan, going from the current formula of three percent at 50 to two percent at 50, would generate $22 million in savings on a present value basis, assuming a four percent discount rate by 2020. Cost savings will be dependent on the new tier plan design.

Miscellaneous Annual Savings by Benefit Formula (millions)



[14] CalPERS offers benefit alternatives

Safety Annual Savings by Benefit Formula (millions)



PERL does not allow participants to have current employees participate in CalPERS and new employees participate in a different mandatory pension plan system. All new employees must participate in CalPERS.

Contracting with CalPERS offers the County several advantages. As a CalPERS' participating agency the County is part of one of the largest pension plans in the world with huge economies of scale. The County receives the stability, track record and management resources of a $200 billion dollar plan.

However, participating in CalPERS' limits the County's flexibility in setting benefit levels and changing demographic assumptions. The inflexibility is problematic in crafting the optimal compensation package. Different employee subgroups value compensation differently. Younger employees place a higher value on wages and portable benefits, while older workers tend to place a higher value on the security offered by a Defined Benefit Plan.

If the County wishes to provide a lower second tier of benefits by either a lower defined benefit formula or a Defined Contribution Plan not offered by CalPERS; lobbying Sacramento for additional flexibility or leaving CalPERS would be the options available to the County.

Given the financial distress in the State and the growing tide for pension reform, should the County decide to remain with CalPERS, the County should pursue the most cost-effective and clearest path for changing benefits by leveraging its political assets in Sacramento so that CalPERS can introduce new benefit formulas.

The County can choose to leave CalPERS and establish its own pension system under the Counties Employees Law of 1937, commonly referred to as the "1937 Act" or join an existing pension system with much greater flexibility. A move out of CalPERS may result in a large termination fee and significant start up costs. The termination fee may require a large lump sum payment or ongoing payments for the accrued benefits of current participants. More information is needed from CalPERS to quantify the financial impact of a move out of CalPERS.

III. Non CalPERS Defined Benefit Two-Tier Plan:

Create a lower tier, Tier II for new employees' Defined Benefit Plan designed by the County. Tier II will contain features that produce additional savings (compared to CalPERS' plans) while still meeting a desired Replacement Ratio.

Establishing an independent system or a 1937 Act Plan would offer much more flexibility in designing pension benefits than CalPERS. The 1937 Act provides two methods by which a county may establish a 1937 Act retirement system: 1) an affirmative vote by a majority of the electors voting on the proposition at a general or special election; or, 2) by a four-fifths vote of the Board of Supervisors. Once a county elects to come under the 1937 Act, the Act's provisions become operative on either the following January 1, or July 1, but not sooner than 60 days after the appropriate election. A system established pursuant to the 1937 Act supersedes any previously established county retirement system. A 1937 Act plan would require establishment of a board with:

1. The authority to invest plan assets and select actuarial methods and assumptions.
2. Selection of one of several formulas and ancillary benefits established under the 1937 Act.
3. Responsibility for most administrative functions.

Article XI section 4 and 6 of the State Constitution authorizes Charter Counties to establish independent retirement systems if their charter so provides. San Luis Obispo County and San Francisco County have established such systems.

Under this option the County could potentially use the same retirement formula as currently used for TAP employees (two percent of eligible career compensation), although this may impact our ability to recruit top talent.

This option may require termination of the County's CalPERS' Contract. Defined Benefit Plans (like CalPERS) generally provides the most efficient allocation of employer dollars towards providing employees secure retirement income and provides higher relative benefit accruals at older ages. However, one major drawback is that, employer contributions can be volatile. CalPERS' smoothing methods mitigate this but cannot eliminate volatility. Defined Contribution Plans, on the other hand, generally provide higher benefit accruals in the early years of service thus potentially appealing to short-term, younger employees. In addition, they also appeal to employees who want more direct control over their retirement savings. Furthermore, employer contributions are very predictable.

Defined Benefit Plans typically also provide an efficient method of providing ancillary benefits (for example, disability and pre-retirement death benefits.)

IV. Defined Contribution Two-Tier Plan:

Create Tier II comprised either entirely of a defined contribution retirement benefit or apportioned benefits between a Defined Benefit Plan and Defined Contribution Plan thereby giving employees a safety net while allowing them to share in investment returns. Select a Defined Benefit Plan that provides a "base level" benefit. The County could potentially use the same retirement formula as currently used for TAP employees (two percent of eligible career compensation.)

This option may require termination of the County's CalPERS' Contract.

Defined Contribution Plans are usually established by agreement with bargaining groups with administration, investment and legal work handled by a third party administrator (TPA).

Defined Contribution Plan (DC): Promises a designated contribution to a retirement savings plan. Employers typically contribute a percentage of employee pay to an individual account plan. Employees often have the opportunity to defer a portion of their pay. The retirement benefit is determined in part by contributions to the plan, but also in large part by plan asset performance. Employees often are responsible for investment elections and always bear the risk of investment outcome. An advantage to DC plans is portability. Benefits can be paid in installments or as a lump sum.

A new Defined Contribution Tier, or Hybrid Tier, may produce greater cost savings in the near term in that once the County makes a contribution to the plan its obligation ends. Investment returns will not change the County's liability.

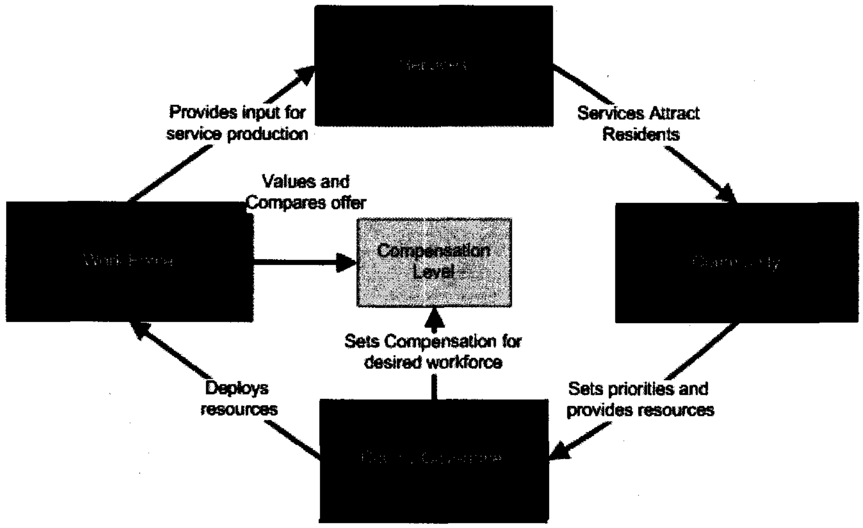
Over the last decade some public sector employers have introduced DC plans. However, according to a January 2008 Issue Brief published by the Center for State and Local Government Excellence, those participating in DC plans as their primary pension represent less than 4.0 percent of the state and local workforce and less than 1.0 percent of total state and local pension assets.

Framework for Analysis

Falling government revenues and rising pension costs are shrinking the budget and stressing the County's ability to provide services at a time when there is increased need for many services in the community.

The decision by an employer to offer a pension plan depends on employee preferences for current compensation relative to deferred compensation, the cost of providing a dollar of future income compared to providing a dollar today; and how the pension might influence worker turnover and retirement rates.

Compensation Level Setting Dynamics


Services
Provides input for service production
Services Attract Residents
Values and Compares offer
Work Force
Compensation Level
Community
Sets Compensation for desired workforce
Deploys resources
Sets priorities and provides resources

Any benefit plan policy changes will be subject to stakeholder legal, contractual, and cost constraints. Stakeholders with vested interest in public pension funds include: 1) former public employees drawing benefits; 2) fund beneficiaries (current government employees have a stake in both their future retirement benefits and current contribution obligations); 3) CalPERS; and, 4) County residents.

Vested Rights: Under the contract clause of both the United States and the California Constitution, public employees earn vested rights to their pension benefits for performance of service with a governmental employer. Benefits of existing pension members, including the right to accrue future benefits from future service and compensation, cannot be reduced for current members without an offsetting benefit.

Collective Bargaining: Changes to employees' total compensation, including pension benefits, must be collectively bargained with the unions for represented employees. County employees are represented by various unions, and the County must bargain for change in pension benefits with each union.

CalPERS: As a contracting local agency with CalPERS the County is bound by the Public Employees' Retirement Law (PERL). PERL requires that all employees of a contracting agency (with limited exceptions) be members of CalPERS PERL does not allow the County to create a benefit plan for new employees outside of CalPERS while maintaining current benefits for existing employees at CalPERS.

Community: The decision of the employer to set the level of pension benefit depends on the employer's financial position and its need to attract and retain the optimal workforce that will maximize the delivery of services to the community.

Pension plan analysis requires a long-term horizon. Contribution and market volatility can lead to decisions with unintended consequences. Benefit level decisions should be based on a long-term assessment of what is financially feasible and labor/capital needs in the context of the local labor market.

The investment performance of the late 1990's lead to overfunded pension plans and low pension costs in the County. The County increased future benefit commitments by adopting more generous pension formulas. It was anticipated that the investment performance of the late 1990's would continue and no contribution increases would be required. The investment performance of the late 1990's was proven to be an aberration.

According to Fieldman, Rollap & Associates, 32 percent of the unfunded liability in FY 2004 could be attributed to increased pension benefits and other action taken by the County. (See Appendix 2)

In the aftermath of the Great Recession, the County is facing rising pension costs and a declining pension plan funding status as a result of devastating investment returns of FY 2009. Given the potential impact of any decision, independent third party analysis is needed.

Beyond the need for budgetary relief in this economic environment, the County needs to reform its pension plans to ensure that County pension plans are sustainable.

Improvements in the standard of living have increased the life expectancy of retirees. Consequently, public employers have seen pension plan costs rise as retirees are receiving benefits for longer periods than had been expected when benefits where granted.

Many investment professionals worry that investment returns in this economy, which is emerging from the aftermath of the largest economic contraction since World War II, will offer lower investment returns. A reduction in the rate of return will cause a fundamental shift in pension funding dynamics.

Recent poor investment performance has magnified the rise in cost. The cost of providing the current pension benefit levels was $123.4 million (POB debt not included) in FY 2008, representing 4.3 percent of total expenditures.

These trends require that the County evaluate what benefit levels are sustainable, and what impact any changes will have on recruitment and retention.

According to a Los Angeles Times article, one of every four dollars collected by the City of Los Angeles general fund may go towards retirement benefits in the City by 2013. That would negatively impact basic services such as police, parks and libraries.[15]

[15] Los Angeles Times, "Los Angeles officials consider a ballot measure to scale back pensions" January 6, 2010

The popular options for dealing with rising pension costs are rolling back benefits by changing to a two-tier pension system and utilizing Defined Contribution Plan features.

Third Party Analysis:

Prior to moving aggressively to restructure the County's employee compensation regime, the County should conduct a thorough analysis to determine how its compensation package stacks up against competing employers. That analysis would provide the public and the Board with the data necessary to push for changes to the current system. Having an independent third party produce that information will give it a higher degree of credibility with employee groups.

PARC Composition:

As pension issues have become more complex and as the composition of the committee has changed, a number of Committee members have suggested that the Board expand its membership. Additional members would increase institutional knowledge of pension issues and bring additional perspective to the discussion.

The Committee will recommend that the balance in the Liability Management fund, now estimated at $6.2 million, be sent to CalPERS to pay down the County's unfunded liability.

CalPERS Annual Prepayment:

One of the first steps PARC initiated was the annual prepayment program. CalPERS offers participants a discount for prepaying its projected annual employer's pension cost in a lump sum at the beginning of the fiscal year. The discount amounts to 50 percent of CalPERS' assumed actuarial return.

Since FY 2004 the General Fund has had a savings of approximately $13.4 million by executing the CalPERS' prepayment program, which takes advantage of the prepayment discount and associated internal cash flows.

For FY 2011 the County is obligated to pay $163 million, which is the employer's projected contribution amount for pension costs.

The Committee recommends that 40 percent, and 80 percent of the projected annual pension cost for the Miscellaneous and Safety Plan.

Summary Prepayment Savings (millions)

	FY 2006	FY 2007	FY 2008	FY 2009
Total Normal Cost	$97.74	$107.05	$113.20	$143.5
Normal Cost Prepaid	$87.96	$71.37	$75.46	$86.31
PERS discount	$3.22	$2.61	$2.76	$3.16
Interest earned	$1.59	$2.09	$1.80	$0.52
Net Borrowing cost	$(3.31)	$(2.46)	$(2.69)	$(.623)
Savings	**$1.50**	**$2.39**	**$1.87**	**$2.96**

Recommendations:

1. Receive and file the FY 2009/10 PARC Report.
2. Adopt the recommendation to use money in the Liability Management Fund to reduce the County's CalPERS' liability by transferring the funds to CalPERS. The amount available for transfer is estimated to be $6.2 million for FY 2010/11. (See page 38)
3. Adopt the recommendation to pre-pay the County's FY 2010/11 pension cost. (See page 39)
4. Engage the debate on pension reform directly and through CSAC and other advocacy organizations.
5. Prior to making any changes to the pension plan, conduct a RFI to engage a third-party actuary outside legal counsel and/or other benefit consultant(s) for advice.
    a. Cost Savings and benefit adequacy of various Pension Plan design.
    b. Examination of legal constraints.
    c. Impact on employee recruitment and retention for specific plan design options.

Appendix 1

Report from Independent Actuary

County of Riverside

BARTEL ASSOCIATES, LLC

CalPERS Actuarial Issues 6/30/08 Valuation and Alternative Formula Options

March 30, 2010

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COUNTY OF RIVERSIDE
CALPERS ACTUARIAL ISSUES 6/30/08 VALUATION AND ALTERNATIVE FORMULA BENEFITS

Table of Contents

Section		Page
1	**Introduction**	1
2	**CalPERS Investment Return Impact of Current Plans**	1
3	**Employer Contribution Rate Projections**	3
4	**Employee Cost Sharing**	6
	Appendix A - Retirement Plan Alternatives	7
	Defined Benefit, Defined Contribution and Hybrid Plans	7
	California Vested rights	10
	Retirement Replacement Ratios	10
	Appendix B - Implications of a Second Pension Tier	15
	Miscellaneous	16
	Safety	17
	Appendix C – CalPERS Actuarial Issues – 6/30/2008 Miscellaneous and Safety Plans	20

COUNTY OF RIVERSIDE
CALPERS ACTUARIAL ISSUES 6/30/08 VALUATION AND ALTERNATIVE FORMULA BENEFITS

Introduction

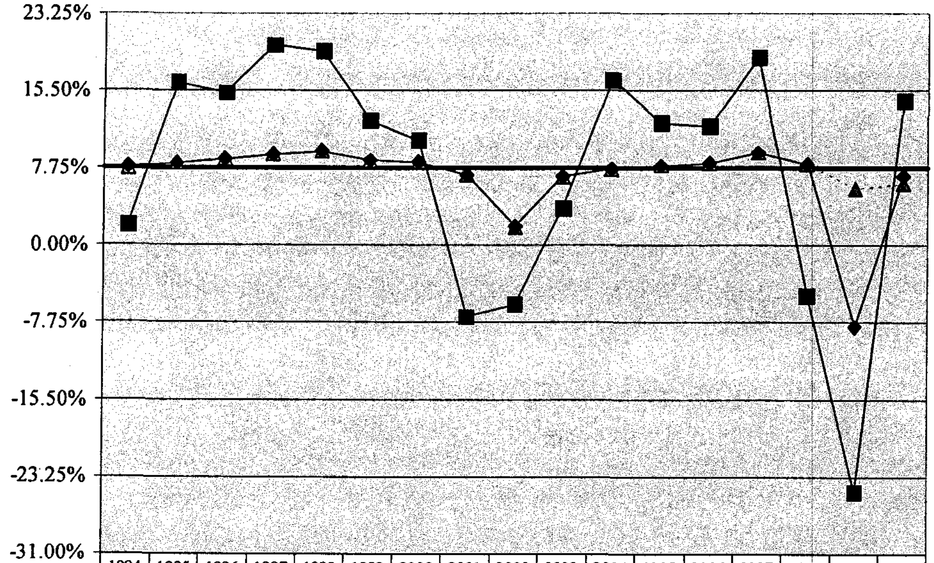
This Executive Summary provides the County analysis of their CalPERS Safety and Miscellaneous pension plans and the impact new pension tiers will have on the County's future contribution rates. The analysis is designed to assist the County in evaluating their current funding situation as well as understanding future contributions.

The financial market has had a significant impact on CalPERS investment return. This will dramatically change each plan's market value funded status. However, CalPERS has instituted changes to asset smoothing which will significantly mitigate the short term contribution impact. Recognizing that the asset smoothing changes will delay contribution increases but not eliminate them, the County is looking at alternatives and what, if any, these alternatives can have on short and long term pension costs.

CalPERS regularly reviews actuarial assumptions and has started that process. Preliminary indications from CalPERS indicates actuarial staff may recommend changes, principally to mortality rates. We expect these changes will increase liabilities and contribution rates. However, we are not yet certain of the magnitude and when the changes will be adopted.

CalPERS Investment Return Impact on Current Plans

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



	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
··▲·· AVA Modified	7.7%	8.2%	8.7%	9.1%	9.4%	8.5%	8.3%	7.1%	1.8%	6.8%	7.6%	8.0%	8.2%	9.3%	8.1%	5.7%	6.1%
—■— MVA Rate	2.0%	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%	-24.8	14.5%
—◆— AVA Unmodified	7.9%	8.2%	8.7%	9.1%	9.4%	8.5%	8.3%	7.1%	1.8%	6.8%	7.6%	8.0%	8.2%	9.3%	8.1%	-8.2%	6.9%

The chart shows three lines, AVA Modified (Actuarial Value of Assets based on CalPERS newly adopted smoothing method), MVA (Market Value of Assets) Rate and AVA

Unmodified (Actuarial Value of Assets based prior to CalPERS newly adopted smoothing method). June 30, 2009 is the first valuation where the modified smoothing will take effect. 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 actuarial value of asset investment return directly affects County contribution rates. June 30, 2010 rates are estimated based on CalPERS actual published rates at October 31, 2009, CalPERS' fund value at February 1, 2010 and assumes CalPERS' market value return for the rest of the fiscal year will equal their assumed rate of return, 7.75% on an annualized basis.

The chart indicates a -24.8% investment return for the June 30, 2009 year end. The -24.8% is estimated based on CalPERS 6/30/09 published rate of return or -23.5%, adjusted by published 6/30/09 values for real estates and AIM. This compares to an expected return of +7.75%, for a net loss of almost 32.6%. This loss would have a significant impact on the County's 2011/12 Miscellaneous and Safety contribution rates were it not for CalPERS asset smoothing. Normally CalPERS recognizes 1/15th of the difference between actual and expect investment return. However, CalPERS policy is to never let the actuarial value be greater than 120% nor less than 80% of the market value.

To ease the impact of asset losses on employer rates, CalPERS adopted at their June 17, 2009 Board meeting the following asset smoothing method changes:

- Temporarily increase the actuarial value of assets corridor limits from 80%-120% to 80%-140% of market value for the June 30, 2009 actuarial valuation[1].
- Temporarily increase the actuarial value of assets corridor limits from 80%-120% to 80%-130% of market value for the June 30, 2010 actuarial valuation[2].
- Retain the current actuarial value of assets corridor limits of 80%-120% of market value for the June 30, 2011 actuarial valuation and thereafter.
- Isolate and amortize asset gains and losses reflected in the June 30, 2009, June 30, 2010 and June 30, 2011 actuarial valuations over fixed and declining 30 year periods (as compared to the current rolling 30 year amortization method).

Based on the estimated -24.8% 6/30/09 investment return, the projected 2011/12 County contribution rates, under the modified and unmodified asset smoothing methods are:

- Modified Smoothing Methods
  - Safety: 20.1%
  - Miscellaneous: 12.6%
- Unmodified Smoothing Methods
  - Safety: 25.2%
  - Miscellaneous: 15.8%

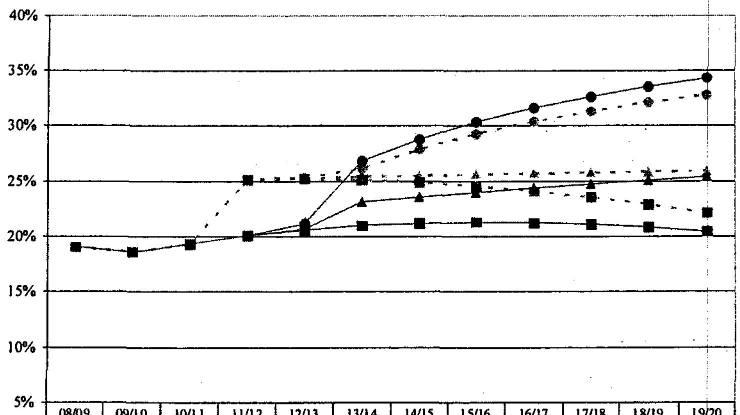
[1] The June 30, 2009 actuarial valuation determines 2011/12 County contribution rates.

[2] The June 30, 2010 actuarial valuation determines 2012/13 County contribution rates.

The County's 2009/10 contribution rates are 12.0% for Miscellaneous and 18.6% for Safety. To provide perspective, in 2011/12, an increase of 1 percentage point results in an estimated $8.8 million budget impact for Miscellaneous and $2.5 million for Safety.

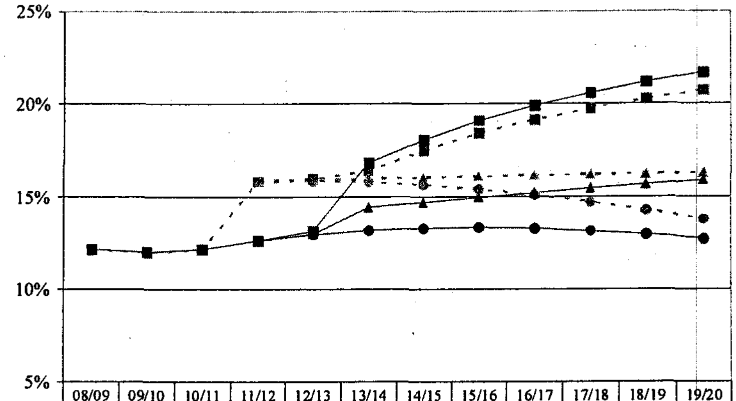
The following graphs show the County contribution rates projected over the next 10 years for both modified (solid black lines) and unmodified (gray dotted lines) asset smoothing methods under various investment scenarios ("50th" assumes CalPERS Market Value returns will be 7.75%, "75th" assumes returns will be approximately 0-4% and "25th" assumes returns will be approximately 12-15% for CalPERS fiscal years ending from June 30, 2010 through June 30, 2017).

Safety Plan
Investment Return Varies



	08/09	09/10	10/11	11/12	12/13	13/14	14/15	15/16	16/17	17/18	18/19	19/20
- ● - Unmodified AVA - 75th	19.0%	18.6%	19.3%	25.2%	25.3%	26.1%	27.9%	29.3%	30.4%	31.3%	32.1%	32.8%
- ▲ - Unmodified AVA - 50th	19.0%	18.6%	19.3%	25.2%	25.3%	25.4%	25.5%	25.6%	25.7%	25.8%	25.8%	25.9%
- ■ - Unmodified AVA - 25th	19.0%	18.6%	19.3%	25.2%	25.2%	25.1%	24.9%	24.5%	24.1%	23.5%	22.9%	22.1%
—●— Modified AVA - 75th	19.0%	18.6%	19.3%	20.1%	21.2%	26.8%	28.7%	30.4%	31.6%	32.6%	33.6%	34.4%
—▲— Modified AVA - 50th	19.0%	18.6%	19.3%	20.1%	20.7%	23.1%	23.5%	24.0%	24.4%	24.7%	25.1%	25.4%
—■— Modified AVA - 25th	19.0%	18.6%	19.3%	20.1%	20.6%	21.0%	21.2%	21.3%	21.2%	21.1%	20.8%	20.4%

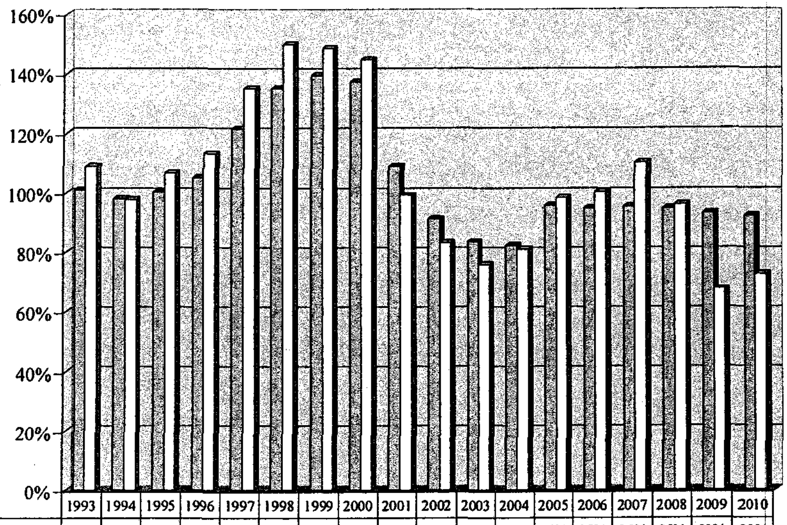
Miscellaneous Plan
Investment Return Varies



	08/09	09/10	10/11	11/12	12/13	13/14	14/15	15/16	16/17	17/18	18/19	19/20
- ■ - Unmodified AVA - 75th	12.2%	12.0%	12.2%	15.8%	15.9%	16.4%	17.5%	18.4%	19.2%	19.7%	20.3%	20.7%
- ✶ - Unmodified AVA - 50th	12.2%	12.0%	12.2%	15.8%	15.9%	16.0%	16.0%	16.1%	16.1%	16.2%	16.2%	16.3%
- ● - Unmodified AVA - 25th	12.2%	12.0%	12.2%	15.8%	15.9%	15.8%	15.6%	15.4%	15.1%	14.7%	14.3%	13.8%
—■— Modified AVA - 75th	12.2%	12.0%	12.2%	12.6%	13.2%	16.8%	18.1%	19.1%	19.9%	20.6%	21.2%	21.7%
—▲— Modified AVA - 50th	12.2%	12.0%	12.2%	12.6%	13.0%	14.4%	14.7%	15.0%	15.2%	15.4%	15.7%	15.9%
—●— Modified AVA - 25th	12.2%	12.0%	12.2%	12.6%	13.0%	13.2%	13.3%	13.3%	13.3%	13.2%	13.0%	12.7%

Of course these increases do not fully reflect the anticipated June 30, 2009 asset losses. To get a better indication of the impact of the anticipated investment losses for each plan, the following charts show each plan's funded status over the past several years, including the anticipated impact of June 30, 2009 investment losses.

Miscellaneous Plan

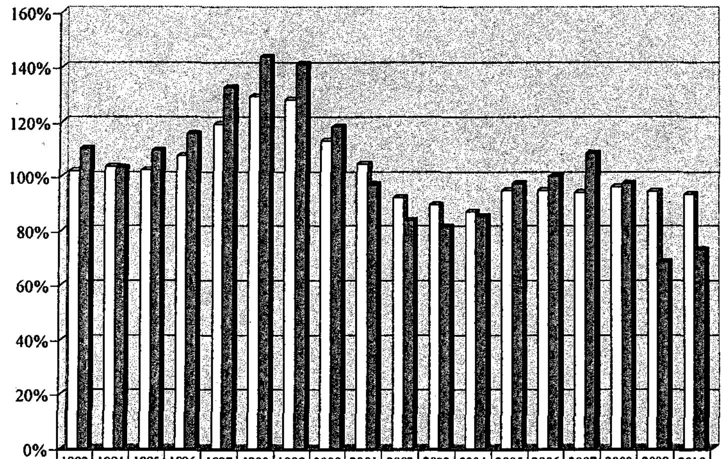


	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
▨ Funded Ratio - AVA	101%	98%	100%	105%	122%	135%	139%	137%	109%	91%	83%	82%	96%	95%	96%	95%	93%	92%
□ Funded Ratio - MVA	109%	98%	107%	113%	135%	150%	149%	145%	99%	83%	76%	81%	98%	100%	110%	96%	68%	73%

The chart shows the Miscellaneous plan's actuarial value of assets funded status is expected to decrease slightly from approximately 95% in 2008 to approximately 93% in 2009 and

92% in 2010, while the market value of assets funded status is expected to decrease from approximately 96% in 2008 to approximately 68% in 2009 and increase to 73% in 2010.

Safety Plan



	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
□ Funded Ratio - AVA	102%	104%	102%	107%	119%	129%	128%	113%	105%	92%	90%	87%	95%	95%	94%	96%	95%	93%
▨ Funded Ratio - MVA	110%	103%	109%	116%	133%	144%	141%	118%	97%	84%	81%	86%	97%	100%	109%	97%	68%	73%

The chart shows the Safety Plan's actuarial value of assets funded status is expected to decrease slightly from approximately 96% in 2008 to approximately 95% in 2009 and 93% in 2010, while the market value of assets funded status is expected to decrease from approximately 97% in 2008 to approximately 68% in 2009 and increase to 73% in 2010.

If CalPERS had not changed their asset smoothing method, the 2009 actuarial value of assets funded status would have decreased to approximately 84% for the Miscellaneous Plan and 83% for Safety.

Having assets equal to Actuarial Liability should be viewed as a target. While this is an appropriate measuring stick, it should be expected that the Market Value of assets will vary significantly from one year to the next. 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.

(B-1)

Employee Cost Sharing

Except for Miscellaneous employee during their first five years of employment, the County currently pays all employee contributions. As demonstrated in Appendix B, establishing a second (lower) benefit tier takes several years to result in any significant cash flow savings. However, the County (subject to legal review) could negotiate that employees pay more of their employee contributions. A variation of this is to have employees pay a portion of the cost of benefit improvements (for example the increase in County contributions from 2%@50 to 3%@50 for Safety, approximately 10.8%%, and from 2%@55 to 3%@60 for Miscellaneous, approximately 8.6%). This alternative must, of course, be considered in conjunction with any pay raise(s) employees gave up (that has not been recovered) when negotiating these benefits.

Retirement Plan Alternatives

When designing retirement plans, California public agencies have several options:

- ■ Plan Type: Establish a defined benefit, a defined contribution pension plan or a hybrid plan.
- ■ Defined Benefit: There are three defined benefit plan alternatives in California:
  - ● Participate in CalPERS:
    - □ Must select one of several formulas and ancillary benefits established under the California Public Employees Retirement Law (PERL).
    - □ Proposition 162, passed by the voters in 1992 provides the CalPERS Board plenary authority to invest plan assets and select actuarial methods & assumptions.
    - □ CalPERS handles most administrative functions.
    - □ CalPERS rules requires that:
      - ○ All new employees participate in CalPERS. In other words it's not possible to have current employees participate in CalPERS and new employees not participate.
      - ○ Benefit improvements include both past and future service.
  - ● Establish a 1937 Act Plan
    - □ Must select one of several formulas and ancillary benefits established under the 1937 Act (formulas and other elements are different from CalPERS).
    - □ Proposition 162 provides the retirement system's Board plenary authority to invest plan assets and select actuarial methods & assumptions.
    - □ The retirement system Board handles most administrative functions.
    - □ 1937 Act rules are much more flexible than CalPERS rules.
  - ● Establish a Local System Plan
    - □ Plan design is typically determined by negotiation with benefits ratified by plan changes.
    - □ Proposition 162 provides the retirement system's Board plenary authority to invest plan assets and select actuarial methods & assumptions.
    - □ The retirement system Board handles most administrative functions.
    - □ Local system plan rules are even more flexible than CalPERS and 1937 Act rules.
- ■ Defined Contribution: Defined contribution plans are usually established by agreement with bargaining groups with administration, investment and legal work handled by a third party administrator (TPS).
- ■ Hybrid: Hybrid plans usually fall under one of two types:
  - ● Defined contribution plans that look like defined benefit plans and
  - ● Defined benefit plans that look like defined contribution plans.

Defined Benefit, Defined Contribution and Other (Hybrid) Options

Defined benefit plans (like CalPERS) generally provide the most efficient allocation of employer dollars towards providing employee's secure retirement income and provide higher relative benefit accruals at older ages. However, one major drawback is that, employer contributions can be volatile. CalPERS smoothing methods mitigate this but can't eliminate volatility. Defined contribution plans, on the other hand, generally provide higher benefit accruals in the early years of service thus potentially appealing to short-term, younger employees. In addition, they also appeal to employees who wish more direct control over their retirement savings. Furthermore, employer contributions are very predictable. Allowing employees the choice between defined benefit and defined contribution plans may increase employer contributions in the aggregate if employees elect the choice most beneficial to them in terms of accrual pattern.

Defined benefit plans typically also provide an efficient method of providing ancillary benefits (for example disability and pre-retirement death benefits). This is important for all members, but it's particularly important for safety members.

The following table summarizes the basic differences between defined benefit and defined contribution plans:

Defined Contribution Pension Plan		**CalPERS Defined Benefit Plan**
	Nature of Promise	
Contribution made each year into employee's account.		Benefit, based on formula, beginning at retirement, payable for as long as employee lives.
	Contribution Level	
Typically a fixed percentage (e.g. 5%) of pay each year	**Employee**	Based on benefit formula (7% - 9%) County currently pays employee contribution
Typically a fixed percentage (e.g. 10%) of pay each year	**Employer**	Varies from one year to the next – "Whatever is Necessary"
	Portability	
Very Portable Employee takes vested account balance with them when leaving the City. Significant tax disadvantage for amounts distributed and not "rolled over" < age 59-1/2.	**Retirement**	Generally Very Portable Employee chooses between 1. deferred retirement benefit (benefit earned while at City, protected by "salary" inflation if working for most CA public agencies) or 2. accumulated employee contributions with interest @ 6%

Defined Contribution Pension Plan		CalPERS Defined Benefit Plan
	Other Benefits	
Same as retirement, except employer contributions become 100% vested at disability	**Disability**	Pension benefit provided with higher benefits for in-service disability than for non-service disability
Same as retirement, except employer contributions become 100% vested at death	**Death**	Pre-retirement – Employee contribution with interest at 8.25% Post-retirement – The default is that survivor benefits are provided automatically. However, employee can elect lower benefit to provide a higher survivor continuance or they could elect a higher benefit and provide no survivor continuance.
	Who Accepts Risk & Reward	
Employee	**Inflation**	Employer
Employee	**Mortality**	Employer
Employee	**Investment Return**	Employer
Employee	**Retirement**	Employer
Employee	**Disability**	Employer

The following table summarizes which members, in general, benefit from a defined benefit as compared to a defined contribution plan:

Defined Contribution Pension Plan	Which Members Benefit the Most?	CalPERS Defined Benefit Plan
Younger (< 40)	**Age**	Older (> 45)
Short term(< 10 years) (low service)	**County Service**	Long term (>15 years) (high service)
Non-career public sector employees	**Public Agency Service**	Career public sector employees

Defined Contribution Pension Plan	Which Members Benefit the Most?	CalPERS Defined Benefit Plan
Very risk tolerant	**Risk Tolerance**	Very risk adverse
Members who are very savvy	**Investment Knowledge**	Members who are very "challenged"
Higher Returns (> 9%)	**Investment History**	Lower Returns (< 7%)
Later (>62)	**Retirement Age**	Younger (≤ 60)
Relatives don't live to older ages (< 80)	**Family History**	Relatives live to older ages (> 80)

There are several variations of traditional defined benefit and defined contribution plans. These alternatives are referred to as "hybrid" plans. Examples of these are:

Cash Balance Plans: Plans that meet the criteria of a defined benefit plan but, to plan participants, they look like defined contribution plans.

Target Benefit Plans: Plans the meet the criteria of a defined contribution plan but have contributions that are designed so the, if all assumptions are met, the initial contribution gets to a target benefit at retirement. However, contributions are rarely changed when initial assumptions are not met.

California Vested Rights

California is referred to as a "Vested Rights" state. This means the California Supreme Court has indicated that, unlike the private sector, the offered to employees at hire can not be reduced to a lower level, unless employees are compensated with something of equal or greater value[3]. Furthermore, this right is generally viewed as applying to each individual and can not be bargained away. Consequently the County has two options for addressing the expected budget impact of CalPERS investment losses, negotiate that employees pay a higher percentage of employee contributions and establish a new benefit tier for employees hired after a certain date.

Replacement Ratios

Retirement plans are normally designed so that a retiree is, when considering all sources of retirement, able to maintain their pre-retirement standard of living into retirement. Replacement ratios measure the portion of pre-retirement income that post retirement benefits replace. They are usually calculated by dividing gross income after retirement by gross income before retirement. Income after retirement can come from Social Security, individual savings and/or any agency provided benefit.

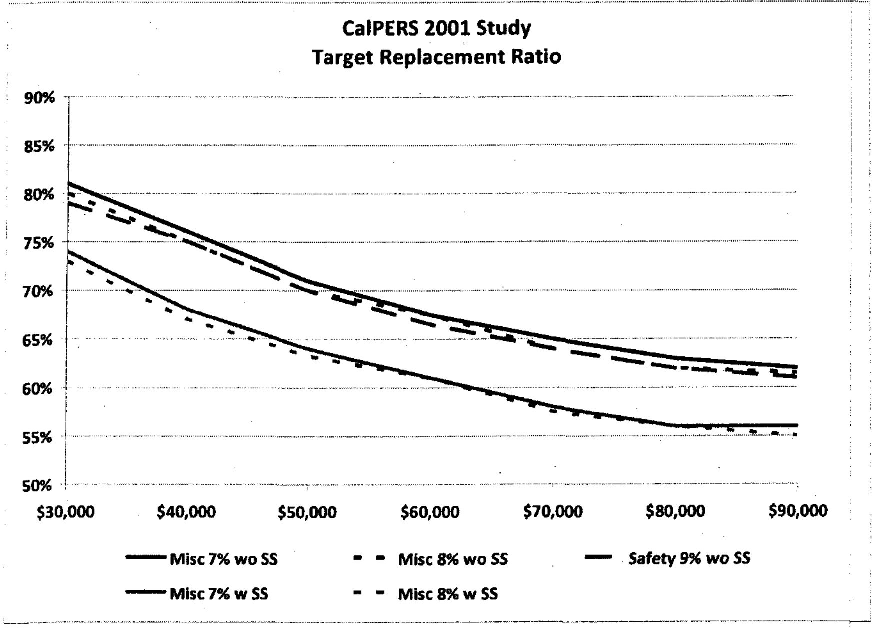
[3] The County should consult with County Counsel or outside legal counsel to determine the extent of vested rights. This statement is not meant to construe legal advice.

To measure how much of the pre-retirement income the CalPERS formulas replace, they prepared a January 2001 study. This study looked at service retirement only and included the following criteria/assumption:

- 30 years service at retirement
- Normal Retirement Age:
  - Miscellaneous: 63
  - Safety: 55
- Target Replacement Benefit defined as:
  - Gross Pre-retirement Salary
  - *Less* Social Security Payroll Tax if applicable
  - *Less* Income Tax
  - *Less* EE Retirement Contribution
  - *Less* Personal Savings
  - *Less* Age/Work Related Adjustments
- Target Replacement Ratio =
  Target Replacement Benefit ÷ Gross Income Before Retirement

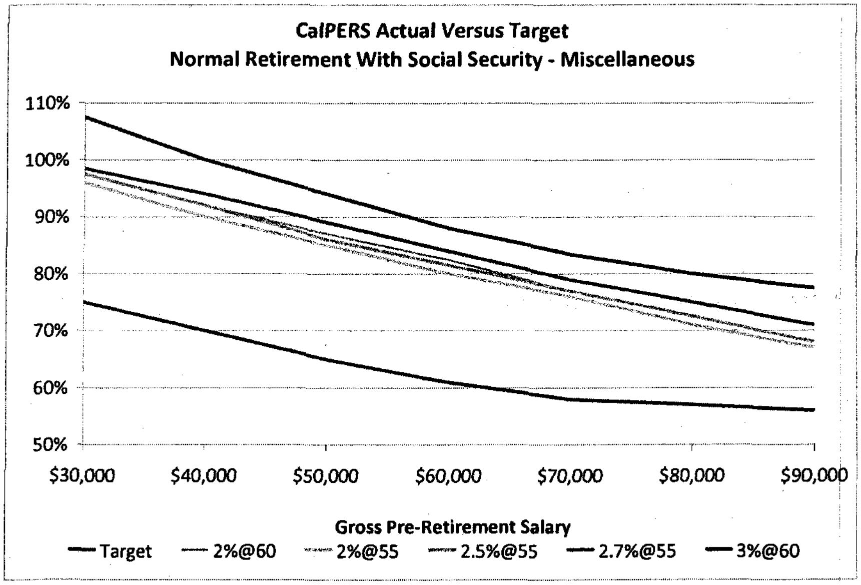
The following graph illustrates target replacement ratios from the CalPERS study under five scenarios:

- Miscellaneous 7% employee contribution without Social Security (——)
- Miscellaneous 8% employee contribution without Social Security (……)
- Safety 9% employee contribution without Social Security (— —)
- Miscellaneous 7% employee contribution with Social Security (——)
- Miscellaneous 8% employee contribution with Social Security (……)

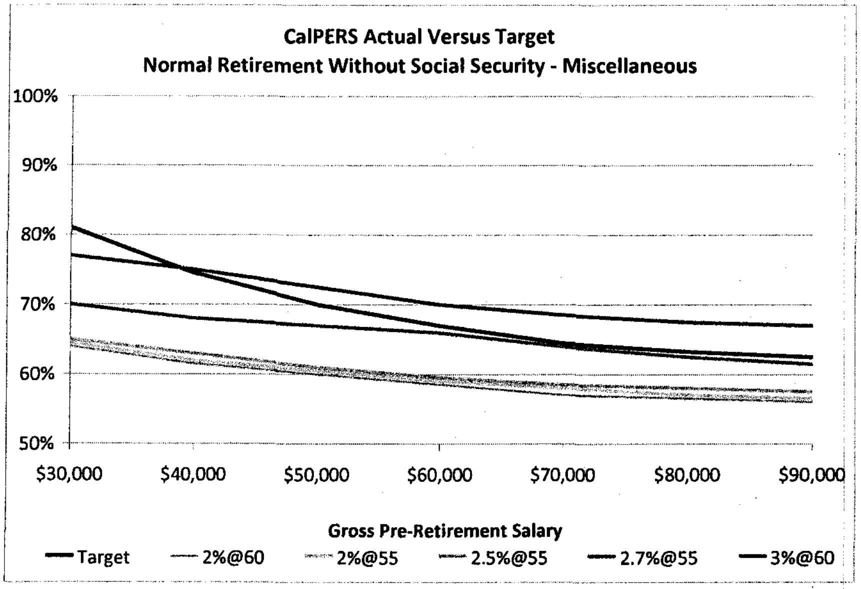


For example the above indicates a Miscellaneous member paying 8% employee contributions, not eligible for Social Security and making $50,000 at retirement needs approximately 71% of their pre-retirement income at retirement to maintain their (pre-retirement) standard of living. In contrast the same member eligible for Social Security needs approximately 63%of their pre-retirement income at retirement.

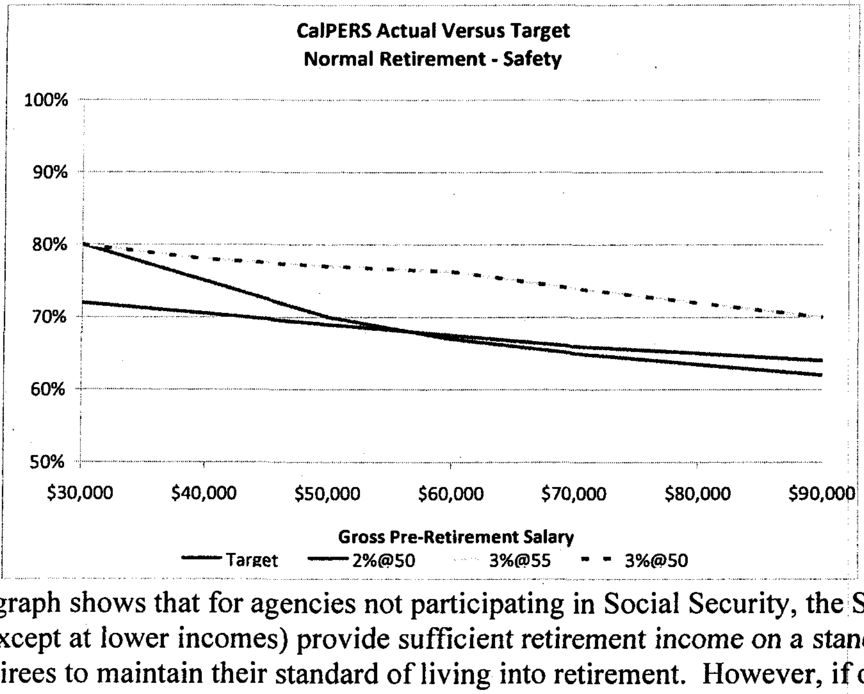
The following three graphs show the level of benefit replaced by the various CalPERS formulas for Miscellaneous with and without Social Security and for Safety without Social Security. The graphs show results for a career public sector employee, retiring with 30 years of service at age 63 for Miscellaneous employees and age 55 for Safety employees. Each graph also shows the target replacement ratio.



The above graph shows that for agencies participating in Social Security, all CalPERS formulas provide substantially more retirement income than is needed to maintain an individual's standard of living into retirement. The above assumes no other retirement income.



The above graph shows that for agencies not participating in Social Security, only the 3%@60 and 2.7%@55 formulas provide sufficient retirement income on a stand alone basis for retirees to maintain their standard of living into retirement. However, if other retirement income sources were available (for example 457 Plan or other savings), then all CalPERS formulas would provide sufficient retirement income needed to maintain an individual's standard of living into retirement.



The above graph shows that for agencies not participating in Social Security, the Safety formulas (except at lower incomes) provide sufficient retirement income on a stand alone basis for retirees to maintain their standard of living into retirement. However, if other retirement income sources were available (for example 457 Plan or other savings), then all

CalPERS formulas would provide sufficient retirement income needed to maintain an individual's standard of living into retirement.

As mentioned above, it is important to note the CalPERS study does not include personal savings. Including personal savings would increase the actual replacement ratios under all scenarios.

Implication of a Second Benefit Tier

For purposes of this report we have assumed employees hired on and after July 1, 2010 would be placed into a second tier (Tier II) providing lower pension benefits. For current employees (Tier I), benefits would remain the same. Contribution calculations would be then 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 II as it is for Tier I, but the Normal Cost component of the contribution rate would be lower. As Tier II grows, and Tier I is closed, the cost for Tier I will decrease (as a dollar amount) and the replacement cost of the new Tier II participants would be less than if they had been in the current Tier I plan. This results in deceasing County contributiosn as a percent of payroll.

The County's current formulas are summarized in the table below:

	Miscellaneous	Safety
● Benefit Formula	3% @ 60	3% @ 50
● Final Average Earnings (FAE)[4]	Highest Year	Highest Year
● Post Retirement Survivor Allowance (PRSA)[5]	Yes	Yes
● Cost of Living Allowance (COLA)[6]	2%	2%
● Employer Paid Member Contributions (EPMC)[7]	By Resolution	By Contract Amendment
● Social Security	Yes	No

[4] There are two FAE options, highest year and average of the three consecutive highest years.

[5] Yes indicates the County (rather than employees) pays for continuation of benefits to a qualified survivor.

[6] Optional annual COLAs, limited based general inflation, are 2%, 3%, 4% and 5%.

[7] EPMC indicates that employer paid member contributions are included in FAE. There are two ways to provide EPMC, contract amendment and by resolution. Under the resolution method EPMC are reported to CalPERS as paid, while under the contract amendment method, EPMC are included in FAE in the last year as benefits are calculated.

The County's 2009/10 contribution rates are:

	Miscellaneous	Safety
● 2009/10 ER Contribution		
➢ Normal Cost	11.1%	16.6%
➢ Amortizations	0.9	2.0
➢ Subtotal	12.0	18.6
● Pension Obligation Bond Debt Service	1.7	2.5
● Member contributions paid by County	8.0[8]	9.0
● Total	9.7	11.5

Miscellaneous Alternate Formulas

Miscellaneous alternative Tier II benefits are 2.7@55, 2.5@55, 2.0@55, 2.0@60 and 1.5%@65. Each of these produces a cost savings for the County. For our analysis we h ve not included the impact of a 1.5%@65 benefit formula because we are not aware that any California agency has implemented this benefit level. The table below shows the Employer Normal Cost and net savings for the reduced Tier II benefits.

Formula	Miscellaneous Normal Cost[9]	
	Total	Savings
● 2.7@55	10.4%	0.7%
● 2.5@55	9.0	2.1
● 2.0@55	8.3	2.8
● 2.0@60	7.0	4.1

The table below shows estimated cost savings (000s omitted) for the Miscellaneous Plan in dollar amounts. It is split between the four alternative benefit levels for Tier II participants:

Year	2.7@55	2.5@55	2@55	2@60
2009/10	$ -	$ -	$ -	$ -
2010/11	374	1,118	1,532	2,208
2011/12	727	2,175	2,980	4,296
2012/13	1,117	3,342	4,579	6,599
2013/14	1,562	4,671	6,400	9,223
2014/15	1,970	5,891	8,071	11,632

[8] For Miscellaneous employees, most members pay all of their contribution during the first five years of employment.

[9] Assumes only benefit formula is changed and that ancillary benefits remain the same.

Year	2.7@55	2.5@55	2@55	2@60
2015/16	2,370	7,089	9,713	13,998
2016/17	2,799	8,371	11,470	16,531
2017/18	3,236	9,677	13,259	19,110
2018/19	3,671	10,980	15,044	21,682
2019/20	4,141	12,384	16,968	24,454

The above savings are based on the following Miscellaneous payroll projections shown separately for current (Tier I) participants and future (Tier II) participants (000s omitted):

Year	Tier I	Tier II	Total
2009/10	$ 830,060	$ -	$ 830,060
2010/11	803,146	53,891	857,037
2011/12	780,059	104,832	884,891
2012/13	752,594	161,055	913,650
2013/14	718,251	225,092	943,343
2014/15	690,128	283,874	974,002
2015/16	664,038	341,619	1,005,657
2016/17	634,910	403,431	1,038,341
2017/18	605,724	466,363	1,072,087
2018/19	577,795	529,135	1,106,930
2019/20	546,110	596,795	1,142,905

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.

Safety Alternative Formulas

Safety alternative Tier II benefits could be 3.0@55, 2.0@50 and 2.0@55. Each of these produces a cost savings for the County. For our analysis we have not included the impact of a 2.0@55 benefit level because we are not aware of any agency of significant size that offers that benefit level to Safety members. The table below shows the Employer Normal Cost and net savings for the reduced Tier II benefits.

Formula	Safety Normal Cost[10]	
	Total	Savings
● 3.0@55	14.6%	2.0%
● 2.0@50	12.5	4.1

[10] Assumes only benefit formula is changed and that ancillary benefits remain the same.

The table below shows estimated cost savings (000s omitted) for the Safety Plan in dollar amounts. It is split between the two alternative benefit levels for Tier II participants.

Year	3.0@55	2.0@50
2009/10	$ -	$ -
2010/11	205	419
2011/12	400	819
2012/13	634	1,300
2013/14	892	1,827
2014/15	1,170	2,397
2015/16	1,486	3,045
2016/17	1,847	3,784
2017/18	2,243	4,596
2018/19	2,670	5,470
2019/20	3,109	6,371

The estimated cost savings and contributions amounts (000s omitted) are based on the following payroll projections.

Year	Tier I	Tier II	Total
2009/10	$ 236,249	$ -	$ 236,249
2010/11	233,867	10,059	243,927
2011/12	232,185	19,669	251,854
2012/13	228,839	31,201	260,040
2013/14	224,617	43,874	268,491
2014/15	219,672	57,545	277,217
2015/16	213,128	73,099	286,226
2016/17	204,688	90,840	295,529
2017/18	194,784	110,349	305,133
2018/19	183,741	131,309	315,050
2019/20	172,341	152,948	325,289

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.

B-1

In addition to establishing a second benefit tier, the County could provide lower ancillary benefits as well. Alternative ancillary benefits include:

	Current	**Alternatives**
● Final Average Earnings (FAE)	Highest Year	Average of Highest Three Years
● Post Retirement Survivor Allowance (PRSA)	County (rather than employees) pays for continuation of benefits to a qualified survivor.	Employees (rather than County) pay for continuation of benefits to a qualified survivor.

County of Riverside
CalPERS Actuarial Issues – 6/30/08 valuation
Safety and Miscellaneous Plan

COUNTY OF RIVERSIDE
MAY 9, 1893

SAFETY & MISCELLANEOUS PLANS

CalPERS Actuarial Issues – 6/30/08 Valuation

JOHN E. BARTEL

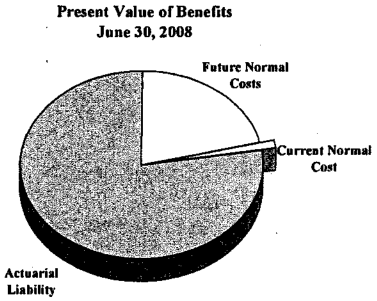
BARTEL ASSOCIATES, LLC

February 10, 2010

Agenda

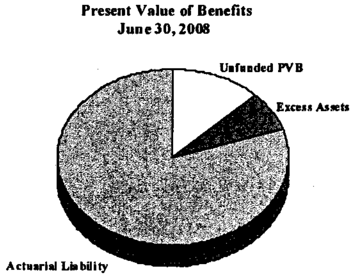
Topic	Page
Definitions	1
Safety Plan	
Plan Funded Status	3
Demographic Information	5
Plan Assets	13
Actuarial Obligations	17
Contribution Rates	19
Contribution Projections	21
Misc Plan	
Plan Funded Status	25
Demographic Information	27
Plan Assets	35
Actuarial Obligations	39
Contribution Rates	41
Contribution Projections	43
Contribution Policy	45
POB	55
CalPERS Rate Smoothing	64

Definitions



- **PVB - Present Value of all Projected Benefits:**
  - Discounted value (at valuation date - 6/30/08), 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

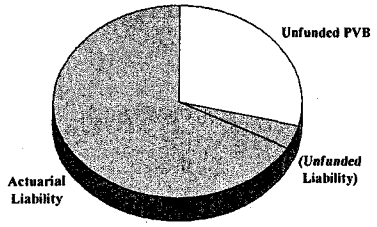


- **Target-** Have money in the bank to cover Actuarial Liability (past service)
- **Unfunded Liability** - Money short of target at valuation date
- **Excess Assets / Surplus:**
  - Money over and above target at that point in time.
  - Doesn't mean you're done contributing.
- **Super Funded:**
  - Assets cover whole pie (PVB)

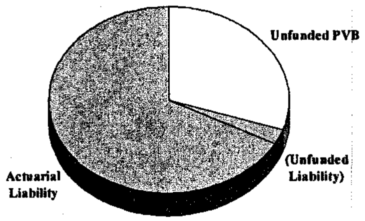
If everything goes exactly like PERS calculated, you'll never have to put another (employer or employee) dime in.

Plan Funded Status
Safety

Present Value of Benefits
June 30, 2007



Present Value of Benefits
June 30, 2008



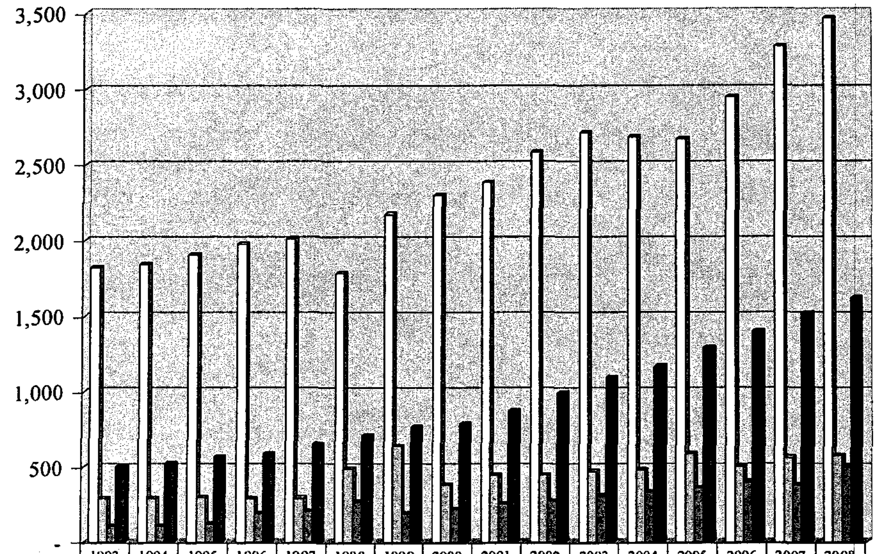
June 30, 2007		**June 30, 2008**
$ 588,100,000	**Unfunded PVB**	$ 658,300,000
(78,100,000)	**(Unfunded Liability)**	(55,300,000)
1,369,500,000	**Actuarial Liability**	1,469,400,000
1,879,500,000	**PVB**	2,072,400,000

Plan Funded Status
Safety

■ What happened between 6/30/07 and 6/30/08?

- ● Asset gain/(loss): ≈ 1.3 million
- ● Actuarial gain/(loss): ≈ 16.1 million
  - □ Average Salary $65,400 → $69,400
  - □ Number of Actives 3,282 → 3,467
  - □ Number of Inactives 943 → 1,070
  - □ Number of Retirees 1,521 → 1,619
- ● Contribution gain/(loss): ≈ 4.1 million
  - □ Expected ≈ (66.4)
  - □ Actual ≈ 70.5
- ● Expected UAL Decrease/(Increase): ≈ 1.4 million

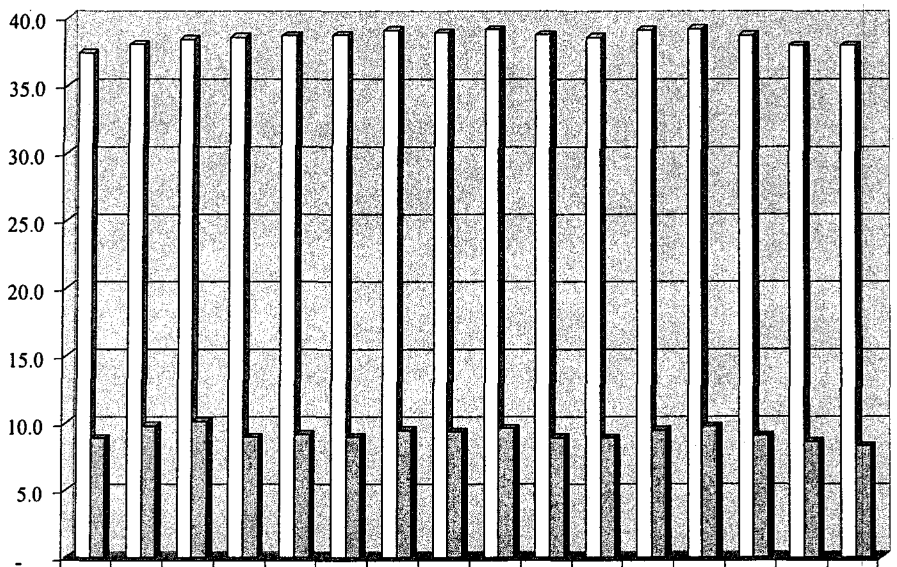
Members Included in Valuation
Safety



	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
□ Active	1,820	1,839	1,906	1,976	2,010	1,782	2,172	2,296	2,385	2,581	2,708	2,684	2,670	2,947	3,282	3,467
▨ Transfers	288	289	294	289	292	485	636	378	444	444	470	479	584	502	563	574
▩ Vested Terminations	103	100	119	185	205	269	189	217	254	274	306	332	360	399	380	496
■ Receiving Payments	501	520	567	586	651	711	767	785	872	993	1,090	1,168	1,292	1,398	1,521	1,619

B4

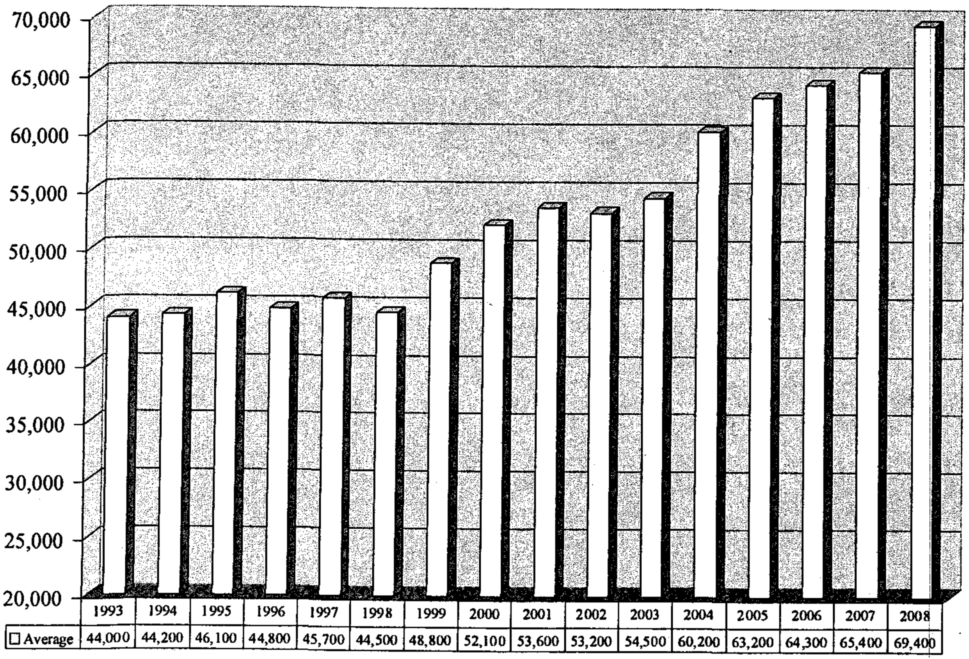
Average Age/Service
Safety



	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
□ Average Age	37.4	38.1	38.4	38.6	38.7	38.8	39.1	39.0	39.2	38.8	38.6	39.1	39.2	38.7	38.0	38.0
▨ Average Service	8.9	9.8	10.1	9.0	9.2	9.0	9.5	9.4	9.6	8.9	8.9	9.5	9.8	9.1	8.6	8.3

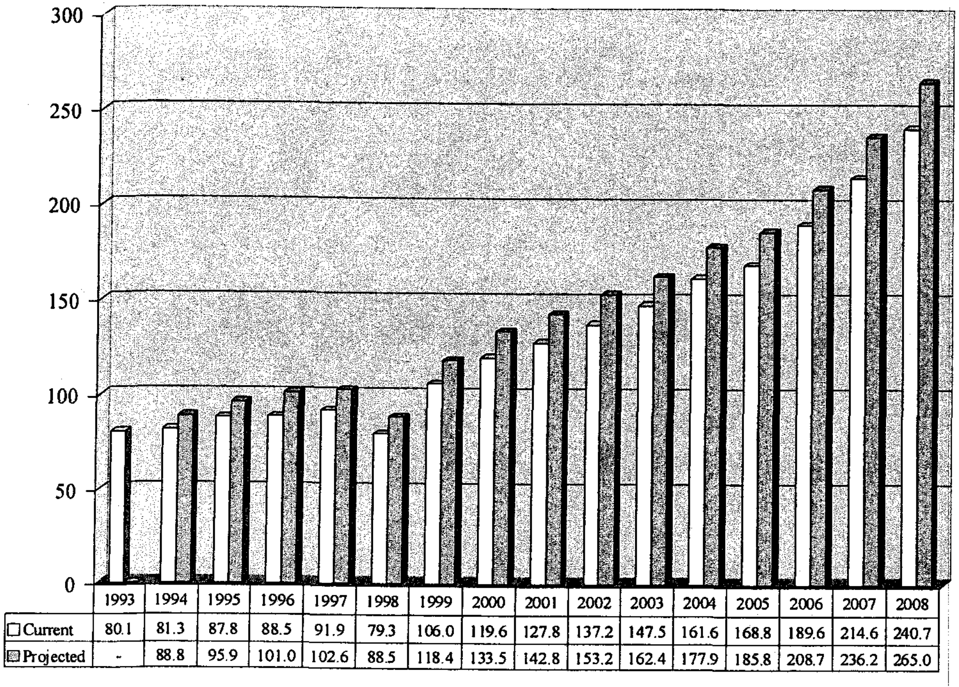
B4

Average PERSable Wages
Safety



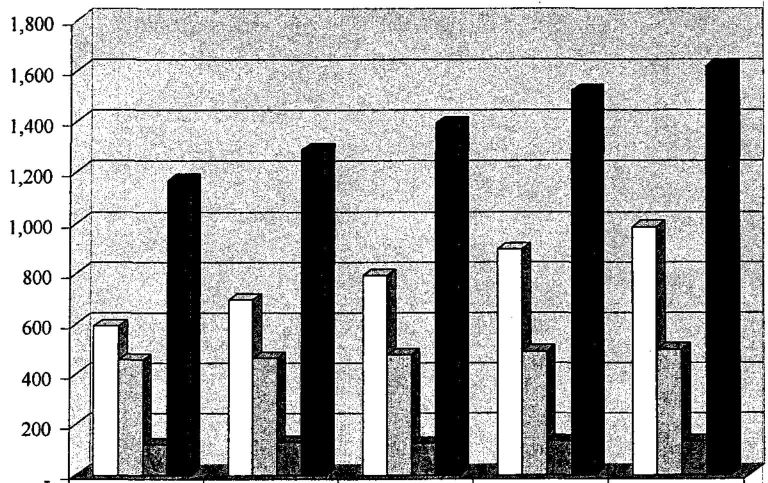
	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
□ Average	44,000	44,200	46,100	44,800	45,700	44,500	48,800	52,100	53,600	53,200	54,500	60,200	63,200	64,300	65,400	69,400

Total Annual PERSable Wages (Millions)
Safety



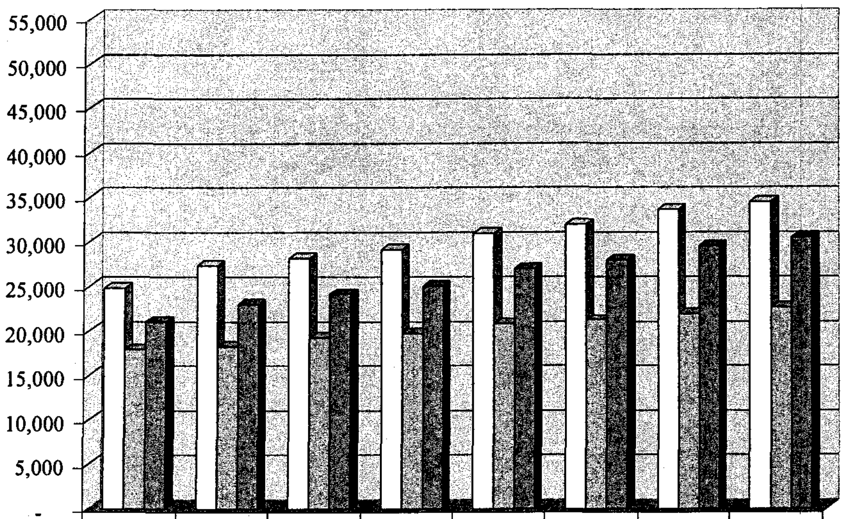
	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
□ Current	80.1	81.3	87.8	88.5	91.9	79.3	106.0	119.6	127.8	137.2	147.5	161.6	168.8	189.6	214.6	240.7
▨ Projected	-	88.8	95.9	101.0	102.6	88.5	118.4	133.5	142.8	153.2	162.4	177.9	185.8	208.7	236.2	265.0

Members Receiving Payments
Safety



	2004	2005	2006	2007	2008
□ Service Retirement	592	696	791	895	985
▨ Disability Retirement	455	464	477	490	498
▦ Beneficiaries	120	129	125	134	134
■ Total Retirements	1,167	1,289	1,393	1,519	1,617

Average Annuity
Safety



	2001	2002	2003	2004	2005	2006	2007	2008
□ Average Service Ret	24,700	27,300	28,100	29,100	30,900	31,900	33,500	34,400
▨ Average Disabled Ret	17,900	18,300	19,200	19,700	20,800	21,200	21,900	22,600
▦ Average Ret Annuity	21,000	23,000	24,100	25,000	26,900	27,900	29,400	30,400

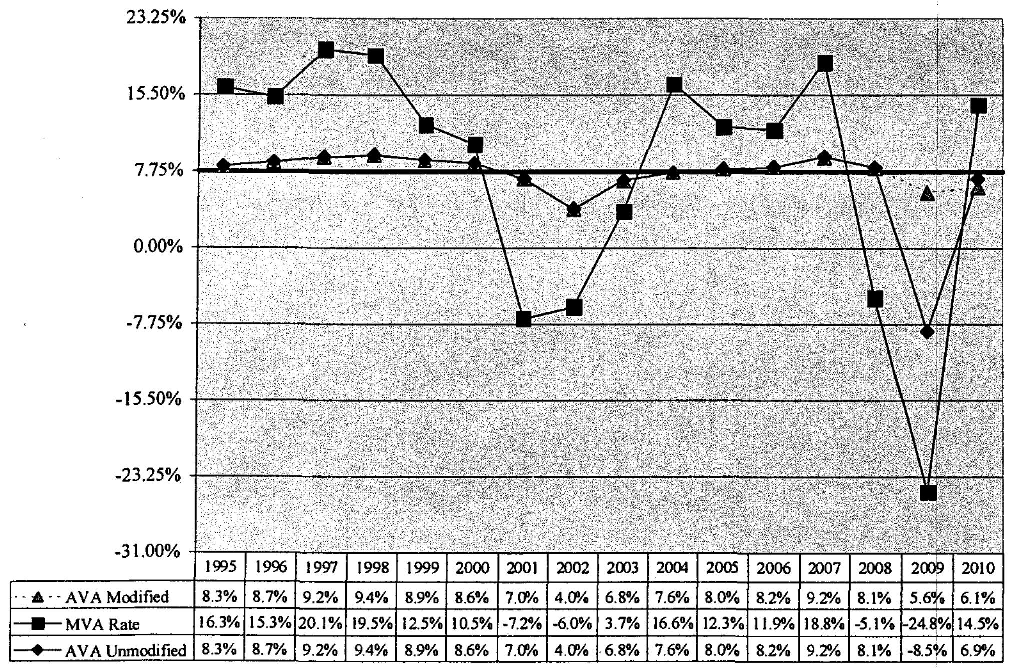
Average Annuity
Safety

Years Retired	Service Retirement Retirees' Benefit							
	2001	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**
Under 5	$ 25,410	$ 28,618	$ 29,840	$ 31,179	$ 33,743	$ 34,479	$ 35,472	$ 36,745
5~9	26,844	28,779	27,501	27,368	27,163	28,123	33,159	32,663
10~14	26,808	26,587	29,249	29,933	30,681	30,133	29,406	32,464
15-19	21,763	27,324	27,928	29,250	26,964	29,224	30,587	31,357
20-24	13,781	14,519	12,651	11,994	19,537	20,399	25,112	29,849
25-29	10,288	11,069	13,487	15,318	19,288	20,385	20,993	21,005
Over 30	15,207	15,511	10,162	16,455	30,776	31,920	28,299	27,267
All Years	24,718	27,306	28,111	29,141	30,929	31,915	33,481	34,389

Average Annuity
Safety

Attained Age	Service Retirement Retirees' Benefit							
	2001	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**
50-54	$ 20,025	$ 25,957	$ 28,252	$ 26,541	$ 32,567	$ 33,130	$ 35,650	$ 35,300
55-59	30,032	31,824	31,929	34,435	34,387	35,298	36,108	36,764
60-64	29,058	30,745	29,848	31,148	32,237	33,440	34,861	36,194
65-69	24,112	24,239	26,224	25,829	28,826	28,986	29,985	32,552
70-74	21,428	23,823	24,635	25,451	24,448	24,980	28,068	27,947
75-79	15,609	16,445	20,918	21,740	23,092	23,810	26,745	28,006
80-84	8,264	13,491	10,934	14,589	19,692	21,258	19,489	25,344
85 & over	6,621	5,589	6,758	8,475	13,285	13,803	19,099	15,185
All Ages	24,718	27,306	28,111	29,141	30,929	31,915	33,481	34,389

Actuarial Investment Return
Safety



	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
▲ AVA Modified	8.3%	8.7%	9.2%	9.4%	8.9%	8.6%	7.0%	4.0%	6.8%	7.6%	8.0%	8.2%	9.2%	8.1%	5.6%	6.1%
■ 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%	-24.8%	14.5%
◆ AVA Unmodified	8.3%	8.7%	9.2%	9.4%	8.9%	8.6%	7.0%	4.0%	6.8%	7.6%	8.0%	8.2%	9.2%	8.1%	-8.5%	6.9%

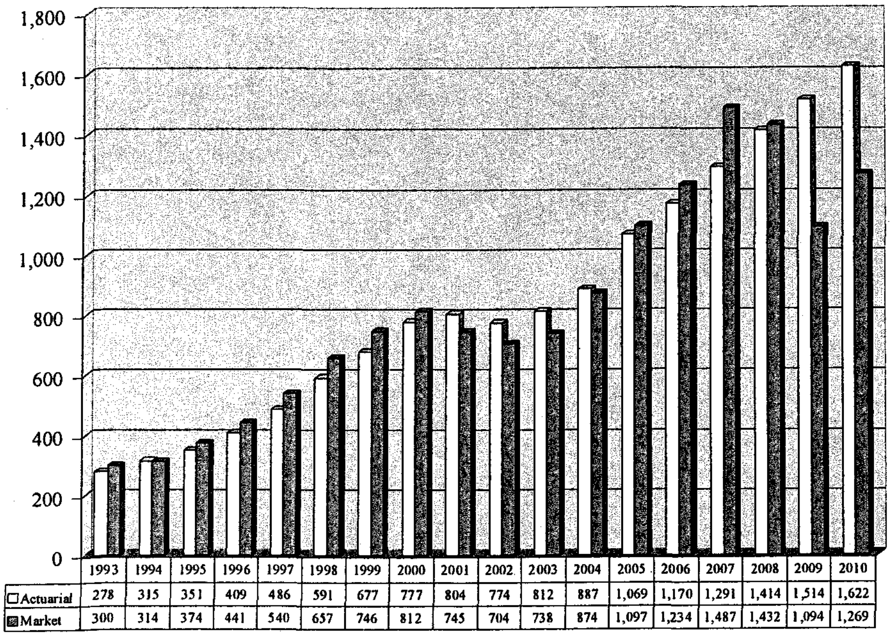
Actuarial Investment Return
Safety

- Above assumes contributions, payments, etc. received evenly throughout year.
- 6/30/08:
  - ● Market Value return ≈ (5.1)%
  - ● Actuarial Value return ≈ 8.1%
- 6/30/09:
  - ● Market Value return ≈ (24.8)%[1]
  - ● Actuarial Value return
    - □ Modified ≈ 5.6%
    - □ Unmodified ≈ (8.5)%
- 6/30/10:
  - ● Market Value return through 10/31/09 ≈ 7.9%
  - ● Estimated Annualized MVA Return[2] ≈ 14.5%
  - ● Est. Annualized Modified AVA Return ≈ 6.1%

[1] Estimated based on CalPERS 6/30/09 published rate of return or -23.5%, adjusted by published 6/30/09 values for real estates and AIM.

[2] Estimate based on CalPERS 10/31/09 published rate of return of 7.9%, an additional gain of 2.9% through 02/01/10 based on CalPERS market value from the website and 7.75% thereafter.

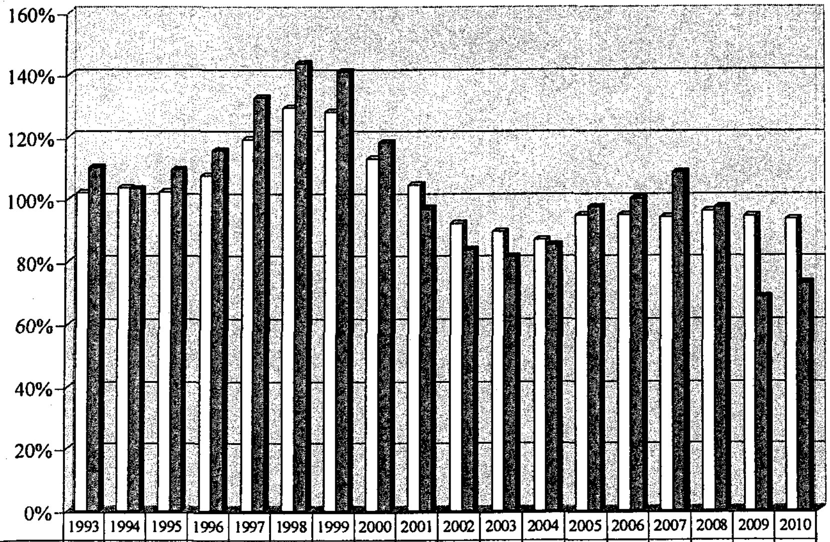
Asset Values (Millions)
Safety



	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
□Actuarial	278	315	351	409	486	591	677	777	804	774	812	887	1,069	1,170	1,291	1,414	1,514	1,622
▨Market	300	314	374	441	540	657	746	812	745	704	738	874	1,097	1,234	1,487	1,432	1,094	1,269

6/30/09 & 6/30/10 asset values estimated

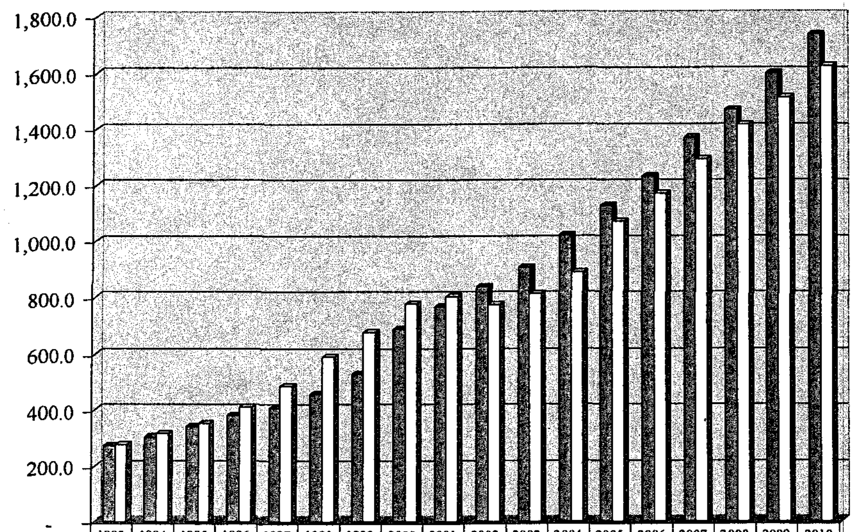
Funded Status
Safety



	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
□Funded Ratio - AVA	102%	104%	102%	107%	119%	129%	128%	113%	105%	92%	90%	87%	95%	95%	94%	96%	95%	93%
▨Funded Ratio - MVA	110%	103%	109%	116%	133%	144%	141%	118%	97%	84%	81%	86%	97%	100%	109%	97%	68%	73%

6/30/09 & 6/30/10 funded status estimated

Funded Status (Millions)
Safety



	1993	1994	1995	1996	1997	1998	1999	2000	2001
▨ Actuarial Liability	272.5	303.2	342.4	380.7	407.3	457.3	528.8	686.4	768.1
□ Actuarial Asset Value	278.2	314.6	351.0	408.8	486.0	591.0	677.5	777.1	803.9

	2002	2003	2004	2005	2006	2007	2008	2009	2010
▨ Actuarial Liability	839.8	906.5	1,021.	1,127.	1,232.	1,369.	1,469.	1,598.	1,735.
□ Actuarial Asset Value	774.0	812.0	887.4	1,069.	1,170.	1,291.	1,414.	1,513.	1,622.

6/30/09 & 6/30/10 asset values estimated

Funded Status
Safety

- Investment gains/(losses) – Impact on funded status:
  - Actuarial asset "reserve" at 6/30/08 — 1.3%
  - 6/30/09 [-24.8% compared to 7.75%] — -32.6%
  - 6/30/10 [+14.5%[3] compared to 7.75%] — 6.7%
  - Total estimated % loss through 6/30/10 — -24.6%
  - Total estimated unrecognized gain [-24.6% x $ 1,432] — $ -351.8 million

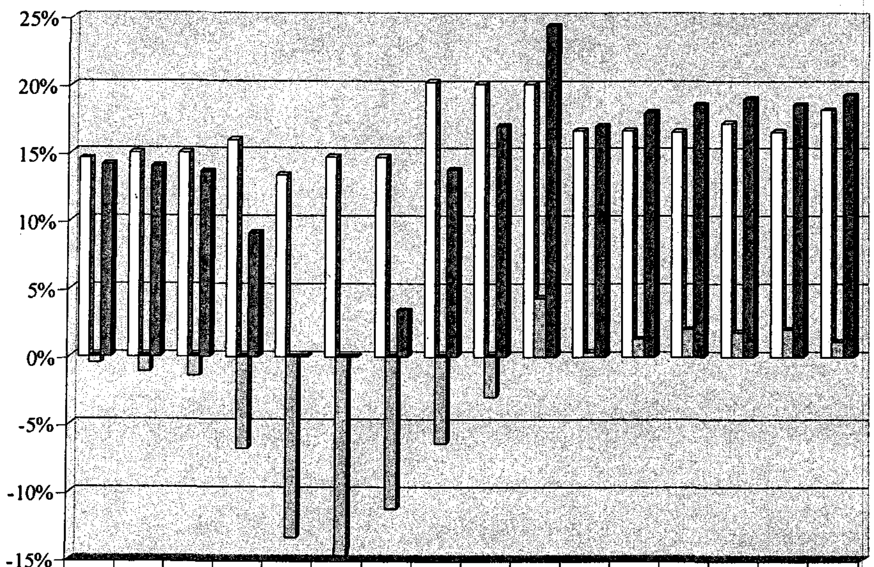
	6/30/07	6/30/08	Projected 6/30/10	Projected 6/30/40
■ UAL[4] (millions)	$ 78.1	$ 55.3	$ 49.2	$ 77.3
■ Investment losses[5]			351.8	457.3
■ Total			**401.0**	**534.6**

[3] Estimate based on CalPERS 10/31/09 published rate of return of 7.9%, an additional gain of 2.9% through 02/01/10 based on CalPERS market value from the website and 7.75% thereafter.

[4] Does not include asset gains or losses after June 30, 2008.

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

Contribution Rates
Safety



	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
□ Normal Cost	14.6%	15.0%	15.0%	16.0%	13.4%	14.7%	14.7%	20.3%	20.1%	20.1%	16.7%	16.7%	16.6%	17.2%	16.6%	18.2%
▨ UAL Amort	-0.5%	-1.1%	-1.4%	-6.8%	-13.4%	-14.7%	-11.3%	-6.4%	-3.0%	4.3%	0.3%	1.3%	2.0%	1.8%	2.0%	1.1%
■ Total	14.2%	14.0%	13.6%	9.1%	0.0%	0.0%	3.4%	13.8%	17.0%	24.4%	17.0%	18.0%	18.6%	19.0%	18.6%	19.3%

Contribution Rates
Safety

	6/30/07 2009/2010	6/30/08 2010/2011
■ Normal cost	**16.6%**	**18.2%**
■ Amortization bases:		
● (Gain)/Loss	2.1%	1.2%
● Fresh Start	-0.1%	-0.1%
Sub-total	2.0%	1.1%
● **Total:**	**18.6%**	**19.3%**
● Amortization period	30 years	30 years

- What Happened from 6/30/07 to 6/30/08:

● 2009/10 Rate	18.6%
● (Gains)/Losses	0.7
● 2010/11 Rate	19.3%

Contribution Projections
Safety

- Market Value Investment Return:
  - June 30, 2009 -24.8%[6]
  - Estimated June 30, 2010[7] 11.2% (75th), 14.5% (50th), 17.8% (25th)
  - June 30, 2011 - 2013
    75% Confidence Limit[8]: ≈ **0.4% - 3.6%**
    50% Confidence Limit: ≈ **7.75%**
    25% Confidence Limit: ≈ **11.8% - 15.3%**
- Fresh Starts:
  - **No Fresh Starts for 10/11**
  - 15 Year +0.6% 20 Year +0.3% 25 Year +0.1%
- No Other:
  - Gains or Losses
  - Method or Assumption Changes
  - Benefit Improvements
- Estimated $351.8 million market value loss:
  - Results in 5.8% 2011/12 contribution rate increase (≈ $ 16.4 million)
  - 30 year amortization would be 7.5% rate increase (≈ $ 21.1 million)

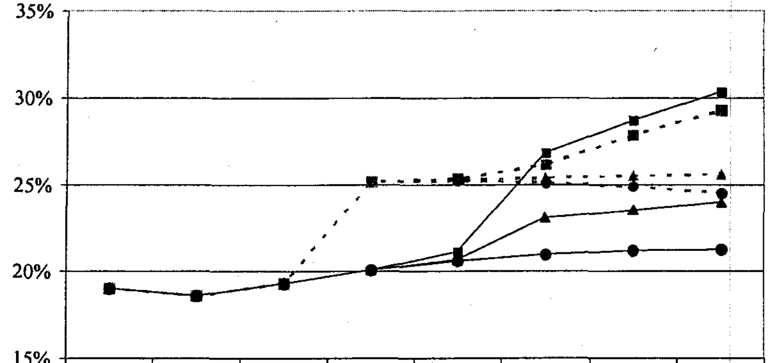
[6] Estimated based on CalPERS 6/30/09 published rate of return or -23.5%, adjusted by published 6/30/09 values for real estates and AIM.

[7] Estimate based on CalPERS 10/31/09 published rate of return of 7.9%, an additional gain of 2.9% through 02/01/10 based on CalPERS market value from the website and 0.4% (75th), 7.75% (50th) and 15.3% (25th) thereafter.

[8] Confidence Limits – Actual Return will exceed the given rate with indicated probabilities, rates vary by year.

Contribution Projections
Safety

Investment Return Varies and No Fresh Start 10/11



	08/09	09/10	10/11	11/12	12/13	13/14	14/15	15/16
- ■ - Unmodified AVA - 75th	19.0%	18.6%	19.3%	25.2%	25.3%	26.1%	27.9%	29.3%
- ▲ - Unmodified AVA - 50th	19.0%	18.6%	19.3%	25.2%	25.3%	25.4%	25.5%	25.6%
- ● - Unmodified AVA - 25th	19.0%	18.6%	19.3%	25.2%	25.2%	25.1%	24.9%	24.5%
—■— Modified AVA - 75th	19.0%	18.6%	19.3%	20.1%	21.2%	26.8%	28.7%	30.4%
—▲— Modified AVA - 50th	19.0%	18.6%	19.3%	20.1%	20.7%	23.1%	23.5%	24.0%
—●— Modified AVA - 25th	19.0%	18.6%	19.3%	20.1%	20.6%	21.0%	21.2%	21.3%

Contribution Projections
Safety

Payroll Growth Assumptions

	2009/10	2010/11	2011/12	2012/13
County #1	-10.00%	-10.00%	-10.00%	3.25%
County #2	-5.00%	-5.00%	-5.00%	3.25%
County #3	-5.00%	0.00%	+5.00%	13.50%
CalPERS	3.25%	3.25%	3.25%	3.25%

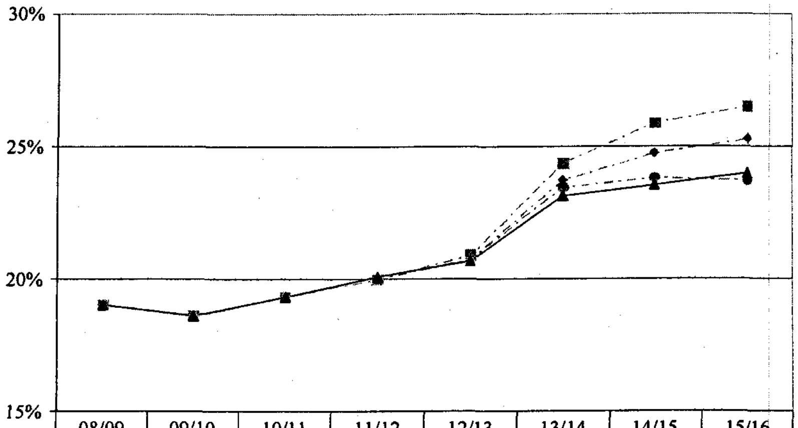
Projected PERSable Wages
('000)

	2008/09[9]	2009/10	2010/11	2011/12	2012/13
County #1	$ 260,969	$ 234,872	$ 211,385	$ 190,247	$ 196,430
County #2	260,969	247,921	235,525	223,749	231,021
County #3	260,969	247,921	247,921	260,317	295,460
CalPERS	248,571	256,649	264,990	273,602	282,494

[9] Provided by County

Contribution Projections
Safety

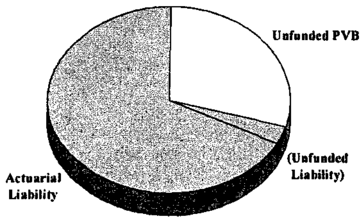
Modified AVA - 50th Percentile



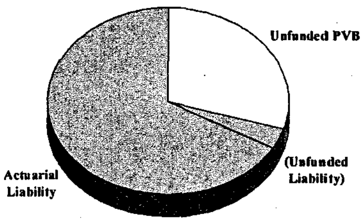
	08/09	09/10	10/11	11/12	12/13	13/14	14/15	15/16
County Payoll #1	19.0%	18.6%	19.3%	20.0%	20.9%	24.3%	25.9%	26.5%
County Payoll #2	19.0%	18.6%	19.3%	20.0%	20.8%	23.7%	24.7%	25.2%
County Payoll #3	19.0%	18.6%	19.3%	20.0%	20.8%	23.4%	23.8%	23.7%
CalPERS '08 Val	19.0%	18.6%	19.3%	20.1%	20.7%	23.1%	23.5%	24.0%

Plan Funded Status
Miscellaneous

Present Value of Benefits
June 30, 2007



Present Value of Benefits
June 30, 2008

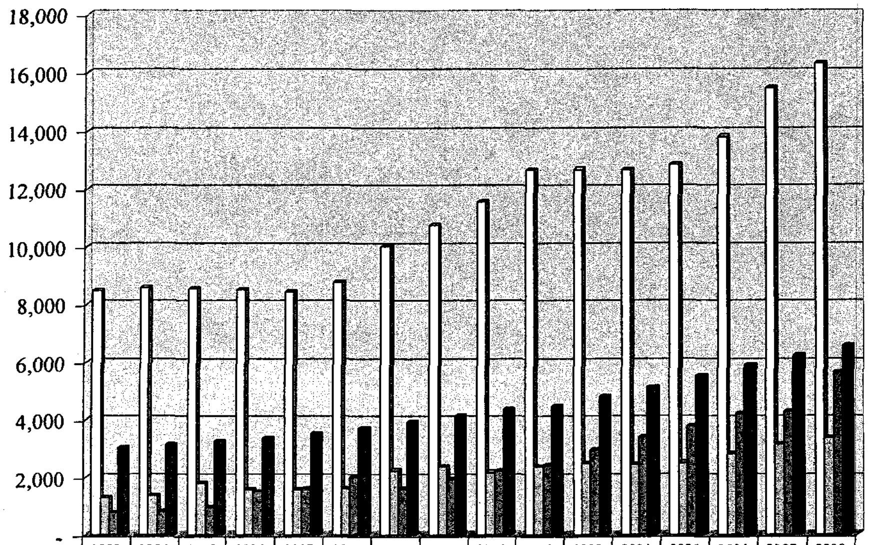


June 30, 2007		June 30, 2008
$ 1,323,300,000	**Unfunded PVB**	$ 1,499,500,000
(135,200,000)	**(Unfunded Liability)**	(175,200,000)
3,029,400,000	**Actuarial Liability**	3,350,200,000
4,217,400,000	**PVB**	4,674,500,000

Plan Funded Status
Miscellaneous

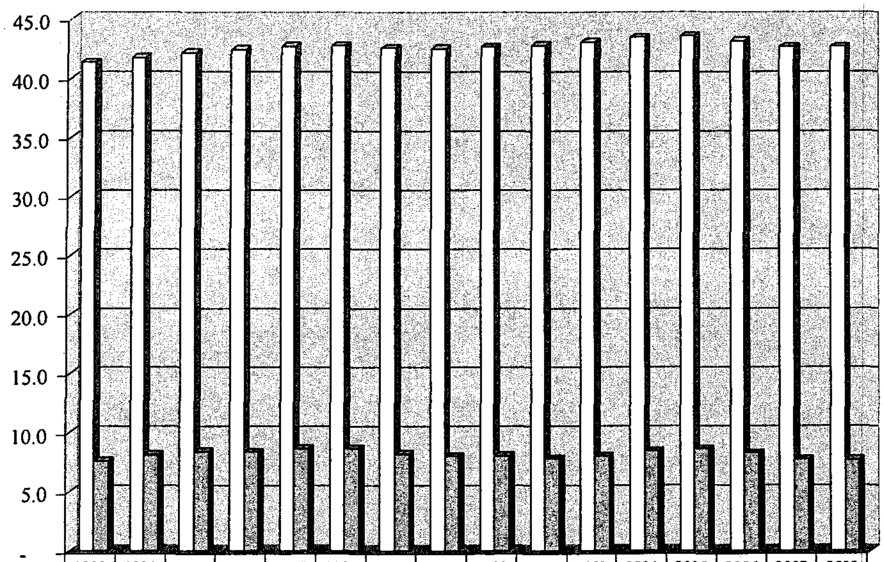
- What happened between 6/30/07 and 6/30/08?
  - Asset gain/(loss): ≈ 3.4 million
  - Actuarial gain/(loss): ≈ (44.1) million
    - □ Average Salary $48,700 → $51,563
    - □ Number of Actives 15,474 → 16,322
    - □ Number of Inactives 7,450 → 9,049
    - □ Number of Retirees 6,239 → 6,554
  - Contribution gain/(loss): ≈ (9.9) million
    - □ Expected ≈ (173.2)
    - □ Actual ≈ 163.3
  - Expected UAL Decrease/(Increase): ≈ 10.6 million

Members Included in Valuation
Miscellaneous



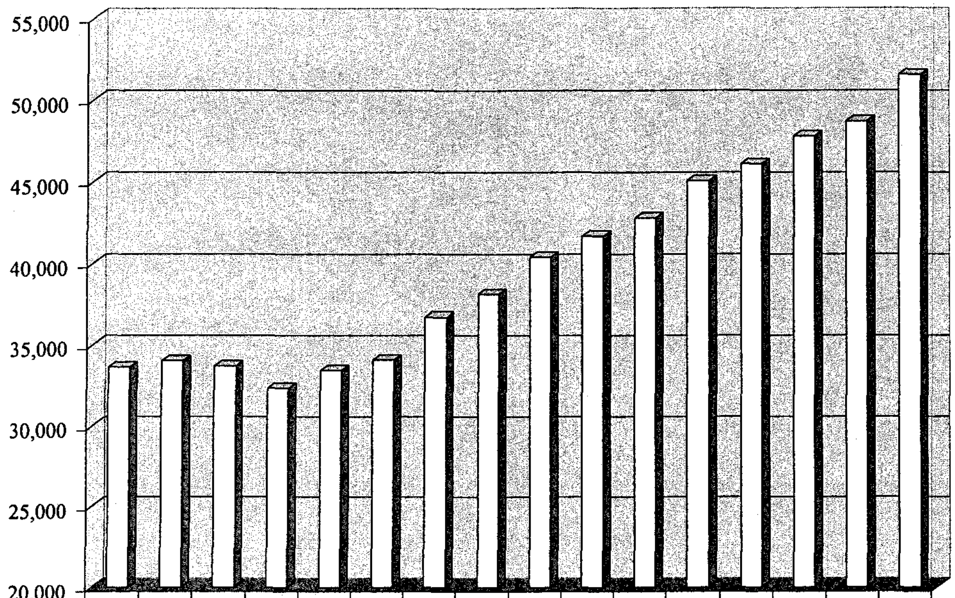
	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
□ Active	8,481	8,585	8,555	8,515	8,432	8,783	9,998	10,739	11,562	12,656	12,671	12,664	12,847	13,806	15,474	16,322
▨ Transfers	1,274	1,369	1,808	1,591	1,591	1,603	2,256	2,373	2,189	2,373	2,513	2,463	2,515	2,821	3,144	3,382
▩ Vested Temninations	774	819	948	1,493	1,603	2,008	1,603	1,951	2,232	2,434	2,976	3,404	3,780	4,215	4,306	5,667
■ Receiving Payments	3,040	3,155	3,259	3,365	3,518	3,716	3,935	4,147	4,356	4,467	4,815	5,146	5,544	5,892	6,239	6,554

Average Age/Service
Miscellaneous



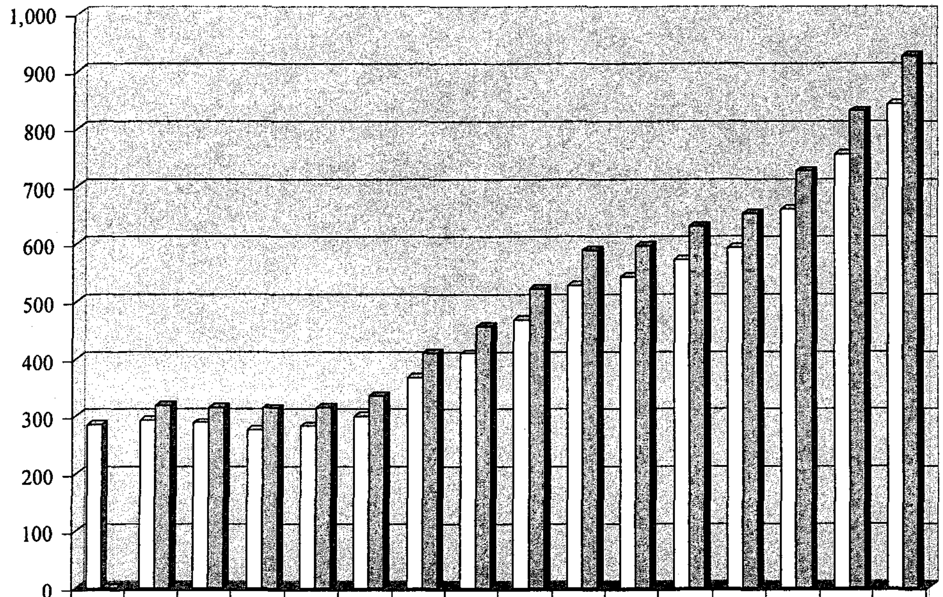
	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
□ Average Age	41.3	41.7	42.2	42.4	42.7	42.8	42.6	42.5	42.6	42.8	43.0	43.4	43.5	43.2	42.7	42.6
▨ Average Service	7.6	8.1	8.4	8.4	8.7	8.6	8.2	8.0	8.0	7.8	8.0	8.4	8.6	8.2	7.7	7.7

Average PERSable Wages
Miscellaneous



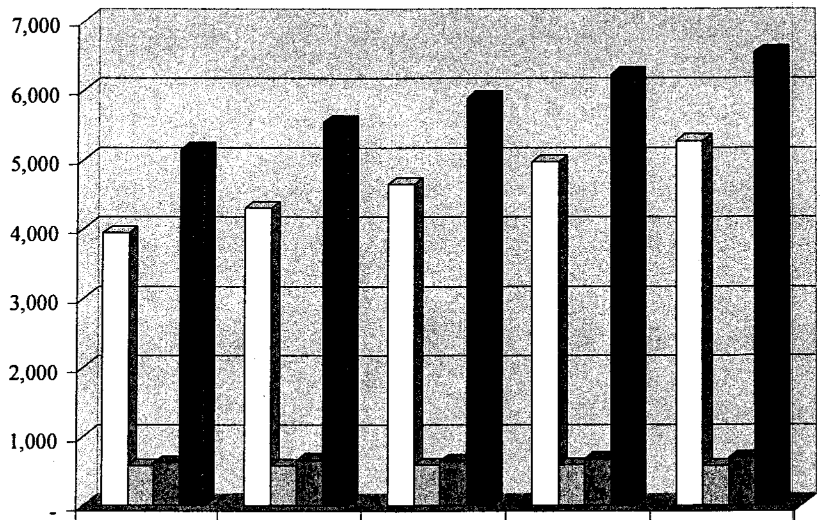
	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
□Average	33,600	34,000	33,700	32,300	33,400	34,100	36,700	38,100	40,400	41,700	42,800	45,100	46,100	47,800	48,700	51,600

Total Annual PERSable Wages (Millions)
Miscellaneous



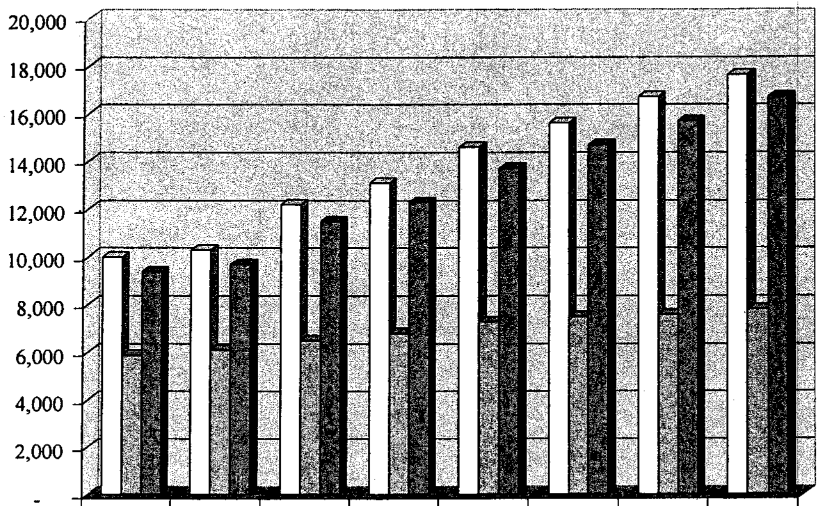
	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
□Current	285.4	291.9	288.0	275.3	282.0	299.7	366.5	408.9	466.9	527.2	542.1	571.7	592.5	659.3	754.1	841.6
▨Projected	-	318.8	314.5	314.1	314.9	334.7	409.3	456.6	521.4	588.7	596.6	629.2	652.2	725.7	830.1	926.4

Members Receiving Payments Miscellaneous



	2004	2005	2006	2007	2008
□ Service Retirement	3,946	4,300	4,642	4,969	5,268
▨ Disability Retirement	574	579	588	587	580
▨ Beneficiaries	623	661	658	675	703
■ Total Retirements	5,143	5,540	5,888	6,231	6,551

Average Annuity Miscellaneous



	2001	2002	2003	2004	2005	2006	2007	2008
□ Average Service Ret	10,000	10,300	12,200	13,100	14,600	15,600	16,700	17,600
▨ Average Disabled Ret	5,900	6,100	6,500	6,800	7,300	7,500	7,600	7,800
▨ Average Ret Annuity	9,400	9,700	11,500	12,300	13,700	14,700	15,700	16,700

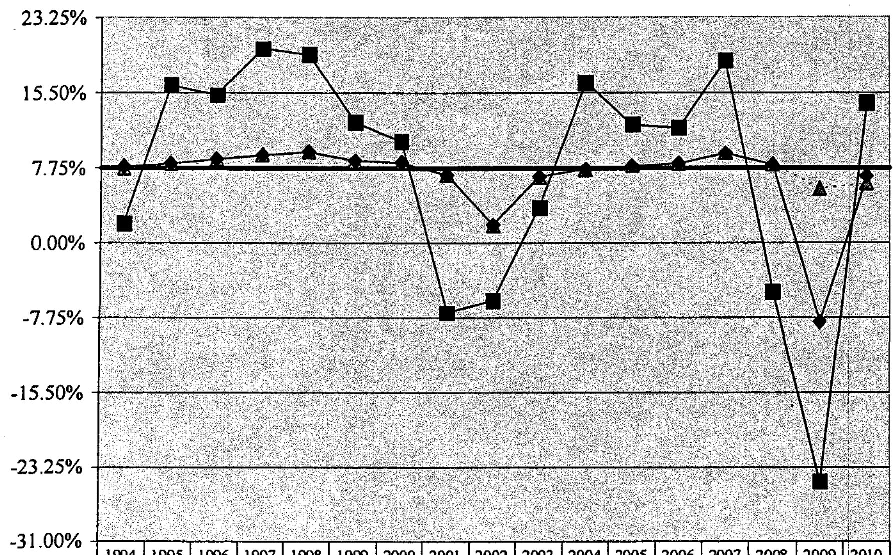
Average Annuity
Miscellaneous

Years Retired	Service Retirement Retirees' Benefit							
	2001	2002	2003	2004	2005	2006	2007	2008
Under 5	$ 12,349	$ 12,462	$ 16,831	$ 18,135	$ 20,680	$ 21,383	$ 23,154	$ 22,930
5~9	11,755	12,175	12,835	13,079	12,996	13,688	13,474	18,143
10~14	9,780	10,414	11,106	11,844	12,261	12,351	12,996	13,308
15-19	8,238	8,486	9,030	9,158	10,059	10,348	10,992	11,832
20-24	4,605	5,780	6,361	7,358	8,098	9,061	9,181	9,818
25-29	3,096	3,176	3,321	3,605	5,336	5,590	6,915	7,442
Over 30	4,564	3,703	4,247	3,610	5,881	5,387	5,242	5,414
All Years	9,982	10,312	12,223	13,099	14,560	15,586	16,664	17,631

Average Annuity
Miscellaneous

Attained Age	Service Retirement Retirees' Benefit							
	2001	2002	2003	2004	2005	2006	2007	2008
50-54	$ 8,352	$ 8,270	$ 11,218	$ 10,905	$ 13,909	$ 15,136	$ 15,599	$ 15,620
55-59	11,771	11,299	14,832	16,591	17,653	18,881	19,904	20,836
60-64	11,791	12,027	16,809	17,708	19,425	20,574	21,735	22,549
65-69	11,024	11,945	13,184	14,094	15,593	16,628	18,226	19,717
70-74	10,884	10,889	11,224	11,483	12,482	12,874	13,991	14,974
75-79	8,957	9,537	10,418	10,954	11,645	12,257	12,310	12,820
80-84	7,196	7,640	8,304	9,316	10,352	10,510	10,758	11,762
85 & over	5,201	5,645	5,811	6,016	7,409	8,220	8,929	9,524
All Ages	9,982	10,312	12,223	13,099	14,560	15,586	16,664	17,631

Actuarial Investment Return
Miscellaneous



	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
··▲·· AVA Modified	7.7%	8.2%	8.7%	9.1%	9.4%	8.5%	8.3%	7.1%	1.8%	6.8%	7.6%	8.0%	8.2%	9.3%	8.1%	5.7%	6.1%
—■— MVA Rate	2.0%	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%	-24.8	14.5%
—◆— AVA Unmodified	7.9%	8.2%	8.7%	9.1%	9.4%	8.5%	8.3%	7.1%	1.8%	6.8%	7.6%	8.0%	8.2%	9.3%	8.1%	-8.2%	6.9%

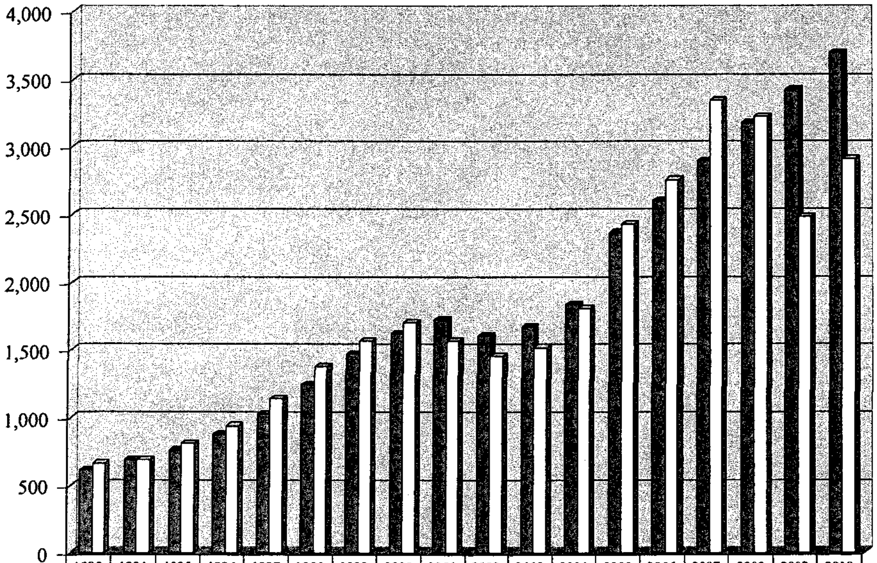
Actuarial Investment Return
Miscellaneous

- Above assumes contr., payments, etc. received evenly throughout year.
- 6/30/08:
  - Market Value return ≈ (5.1)%
  - Actuarial Value return ≈ 8.8%
- 6/30/09:
  - Market Value return ≈ (24.8)%[10]
  - Actuarial Value return
    - □ Modified ≈ 5.6%
    - □ Unmodified ≈ (8.2)%
- 6/30/10:
  - Market Value return through 10/31/09 ≈ 7.9%
  - Estimated Annualized MVA Return[11] ≈ 14.5%
  - Est. Annualized Modified AVA Return ≈ 6.1%

[10] Estimated based on CalPERS 6/30/09 published rate of return or -23.5%, adjusted by published 6/30/09 values for real estates and AIM.

[11] Estimate based on CalPERS 10/31/09 published rate of return of 7.9%, an additional gain of 2.9% through 02/01/10 based on CalPERS market value from the website and 7.75% thereafter.

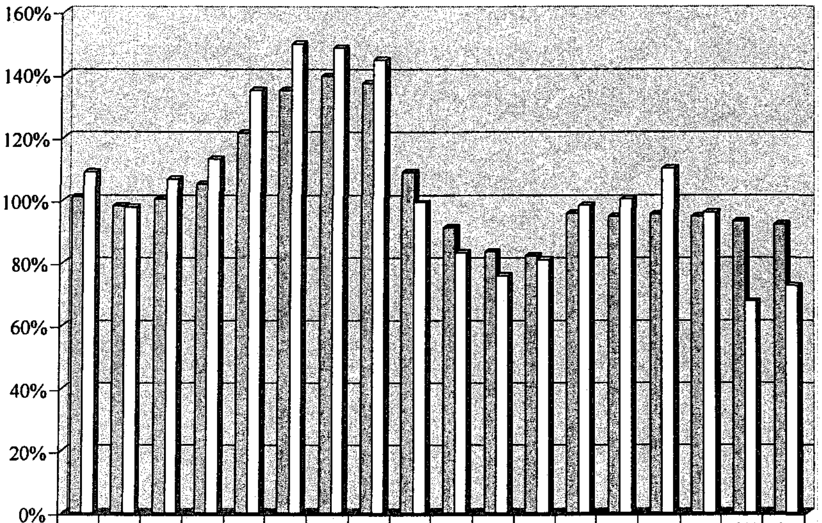
Asset Values (Millions)
Miscellaneous



	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
▨ Actuarial	611	690	760	874	1,026	1,241	1,469	1,618	1,721	1,600	1,668	1,834	2,365	2,600	2,894	3,175	3,423	3,696
□ Market	661	688	808	939	1,140	1,379	1,564	1,702	1,564	1,454	1,517	1,807	2,429	2,754	3,342	3,223	2,482	2,907

6/30/09 & 6/30/10 asset values estimated.

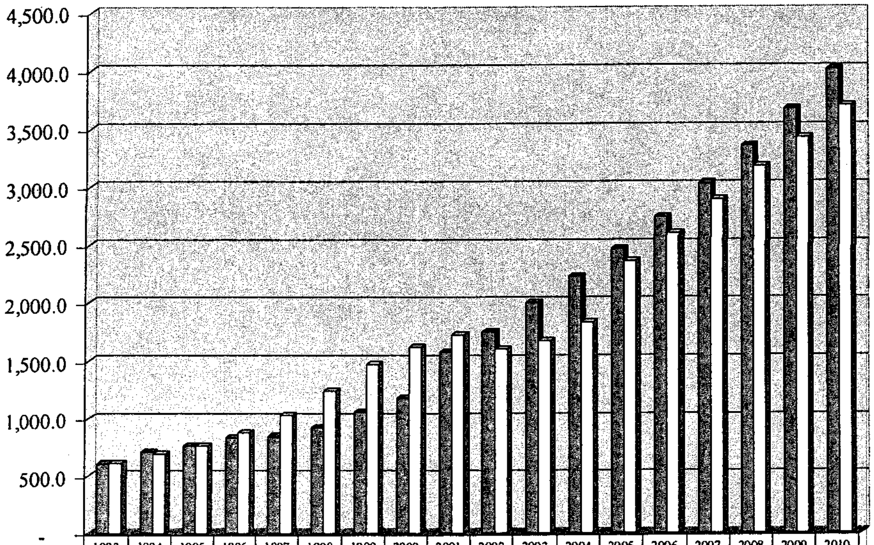
Funded Status
Miscellaneous



	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
▨ Funded Ratio - AVA	101%	98%	100%	105%	122%	135%	139%	137%	109%	91%	83%	82%	96%	95%	96%	95%	93%	92%
□ Funded Ratio - MVA	109%	98%	107%	113%	135%	150%	149%	145%	99%	83%	76%	81%	98%	100%	110%	96%	68%	73%

6/30/09 & 6/30/10 funded status estimated

Funded Status (Millions)
Miscellaneous



	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
▨ Actuarial Liability	605.9	704.4	756.5	830.8	844.1	920.3	1,052.	1,177.	1,577.	1,750.	1,998.	2,231.	2,471.	2,741.	3,029.	3,350.	3,669.	4,008.
□ Actuarial Asset Value	610.6	689.9	759.6	874.2	1,025.	1,241.	1,468.	1,617.	1,720.	1,599.	1,668.	1,834.	2,364.	2,599.	2,894.	3,175.	3,423.	3,695.

6/30/09 & 6/30/10 funded status estimated

Contribution Rates
Miscellaneous

- Investment gains/(losses) – Impact on funded status:
  - Actuarial asset "reserve" at 6/30/08 1.5%
  - 6/30/09 [-24.8% compared to 7.75%] -32.6%
  - 6/30/10 [+14.5%[12] compared to 7.75%] 6.7%
  - Total estimated % loss through 6/30/10 -24.3%
  - Total estimated unrecognized gain [-24.3% x $ 3,223] $ -784.2 million

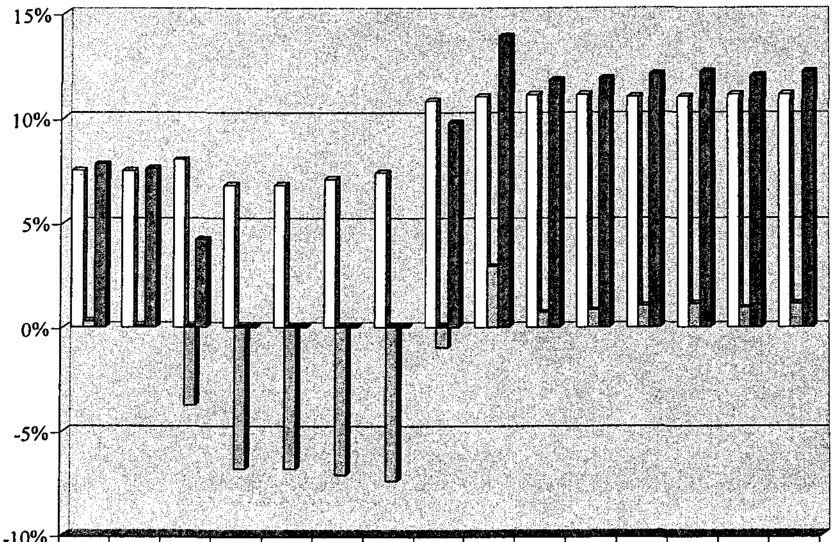
	6/30/07	6/30/08	Projected 6/30/10	Projected 6/30/40
UAL [13] (millions)	$ 135.2	$175.3	$ 166.8	$ 262.0
Investment losses[14]			784.2	1019.5
Total			951.0	1281.5

[12] Estimate based on CalPERS 10/31/09 published rate of return of 7.9%, an additional gain of 2.9% through 02/01/10 based on CalPERS market value from the website and 7.75% thereafter.

[13] Does not include asset gains or losses after June 30, 2008.

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

Contribution Rates
Miscellaneous



	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
□ Normal Cost	7.5%	7.5%	8.0%	6.8%	6.8%	7.1%	7.4%	10.8%	11.0%	11.1%	11.1%	11.0%	11.0%	11.1%	11.1%
▨ UAL Amort	0.3%	0.1%	-3.8%	-6.8%	-6.8%	-7.1%	-7.4%	-1.0%	2.9%	0.7%	0.8%	1.0%	1.1%	0.9%	1.1%
■ Total	7.8%	7.6%	4.2%	0.0%	0.0%	0.0%	0.0%	9.8%	13.9%	11.8%	11.9%	12.1%	12.2%	12.0%	12.2%

B4

Contribution Rates
Miscellaneous

	6/30/07 **2009/2010**	6/30/08 **2010/2011**
■ Normal cost	**11.1%**	**11.1%**
■ Amortization bases:		
● (Gain)/Loss	1.0%	1.2%
● Fresh Start	-0.1%	-0.1%
Sub-total	0.9%	1.1%
● **Total:**	**12.0%**	**12.2%**
● Amortization period	30 years	30 years

■ What Happened from 6/30/07 to 6/30/08:

● 2009/10 Rate	12.0%
● (Gains)/Losses	0.2
● 2010/11 Rate	12.2%

B4

Contribution Projections
Miscellaneous

- Market Value Investment Return:
  - June 30, 2009 -24.8% [15]
  - Estimated June 30, 2010[16] 11.2% (75th) , 14.5% (50th), 17.8% (25th)
  - June 30, 2010 - 2014 75% Confidence Limit[17]: ≈ **0.4% - 3.6%**
    50% Confidence Limit: ≈ **7.75%**
    25% Confidence Limit: ≈ **11.8% - 15.3%**
- Fresh Starts:
  - **No Fresh Starts for 10/11**
  - 15 Year +0.6% 20 Year 0.3% 25 Year 0.1%
- No Other:
  - Gains or Losses
  - Method or Assumption Changes
  - Benefit Improvements
- Estimated $784.2 million market value loss:
  - Results in 3.7% 2011/12 contribution rate increase (≈ $ 36.2 million)
  - 30 year amortization would be 4.8% rate increase (≈ $ 47.1 million)

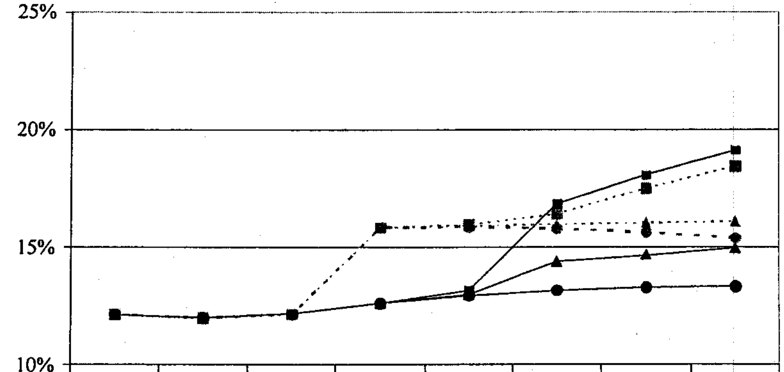
[15] Estimated based on CalPERS 6/30/09 published rate of return or -23.5%, adjusted by published 6/30/09 values for real estates and AIM.

[16] Estimate based on CalPERS 10/31/09 published rate of return of 7.9%, an additional gain of 2.9% through 02/01/10 based on CalPERS market value from the website and 0.4% (75th), 7.75% (50th), 15.3% (25th) thereafter.

[17] Confidence Limits – Actual Return will exceed the given rate with indicated probabilities, rates vary by year.

Contribution Projections
Miscellaneous

Investment Return Varies and No Fresh Start 10/11



	08/09	09/10	10/11	11/12	12/13	13/14	14/15	15/16
··■·· Unmodified AVA - 75th	12.2%	12.0%	12.2%	15.8%	15.9%	16.4%	17.5%	18.4%
··▲·· Unmodified AVA - 50th	12.2%	12.0%	12.2%	15.8%	15.9%	16.0%	16.0%	16.1%
- ● - Unmodified AVA - 25th	12.2%	12.0%	12.2%	15.8%	15.9%	15.8%	15.6%	15.4%
—■— Modified AVA - 75th	12.2%	12.0%	12.2%	12.6%	13.2%	16.8%	18.1%	19.1%
—▲— Modified AVA - 50th	12.2%	12.0%	12.2%	12.6%	13.0%	14.4%	14.7%	15.0%
—●— Modified AVA - 25th	12.2%	12.0%	12.2%	12.6%	13.0%	13.2%	13.3%	13.3%

Contribution Projections
Miscellaneous

Payroll Growth Assumptions

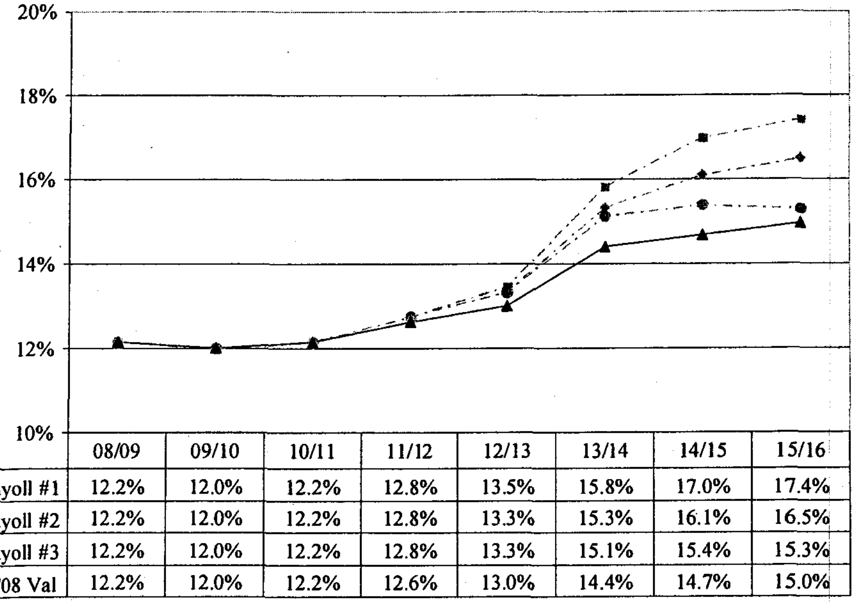
	2009/10	2010/11	2011/12	2012/13
County #1	-10.00%	-10.00%	-10.00%	3.25%
County #2	-5.00%	-5.00%	-5.00%	3.25%
County #3	-5.00%	0.00%	+5.00%	13.50%
CalPERS	3.25%	3.25%	3.25%	3.25%

Projected PERSable Wages
('000)

	2008/09[18]	2009/10	2010/11	2011/12	2012/13
County #1	$ 801,650	$ 721,485	$ 649,336	$ 584,403	$ 603,396
County #2	801,650	761,567	723,489	687,315	709,652
County #3	801,650	761,567	761,567	799,646	907,598
CalPERS	868,965	897,207	926,366	956,473	987,558

[18] Provided by County

Contribution Projections
Miscellaneous
Modified AVA - 50th Percentile



	08/09	09/10	10/11	11/12	12/13	13/14	14/15	15/16
■ County Payoll #1	12.2%	12.0%	12.2%	12.8%	13.5%	15.8%	17.0%	17.4%
◆ County Payoll #2	12.2%	12.0%	12.2%	12.8%	13.3%	15.3%	16.1%	16.5%
● County Payoll #3	12.2%	12.0%	12.2%	12.8%	13.3%	15.1%	15.4%	15.3%
▲ CalPERS '08 Val	12.2%	12.0%	12.2%	12.6%	13.0%	14.4%	14.7%	15.0%

Contribution Policy

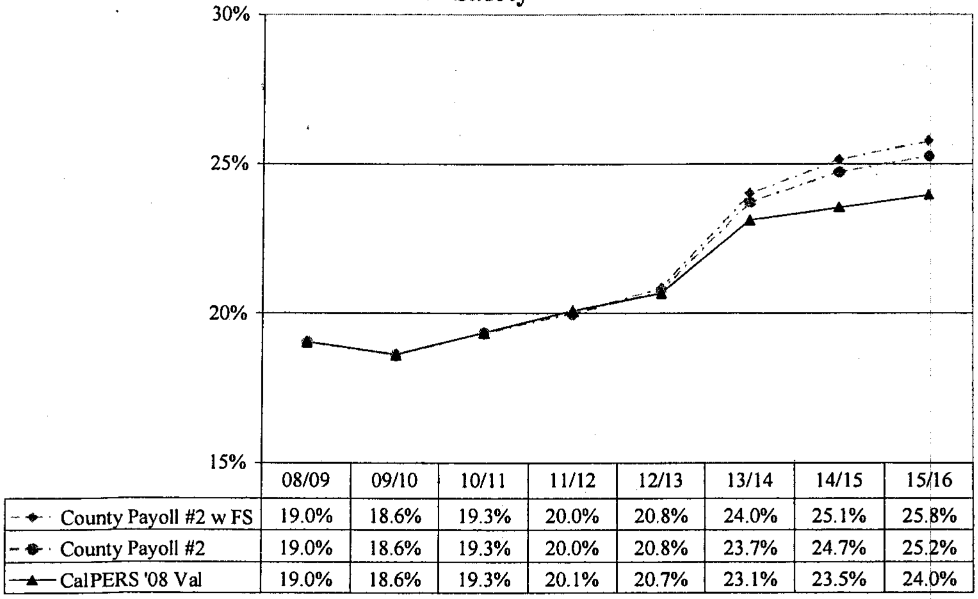
- Consider policy implications of not increasing CalPERS contributions:
  - UAL not being paid off
  - Generational shift of Unfunded Liability
- Similar to minimum payment on credit card balance

Contribution Policy

- Consider one of the following:
  - **Fresh start with declining period**
    - □ 2009/10 30 years
    - □ 2010/11 29 years

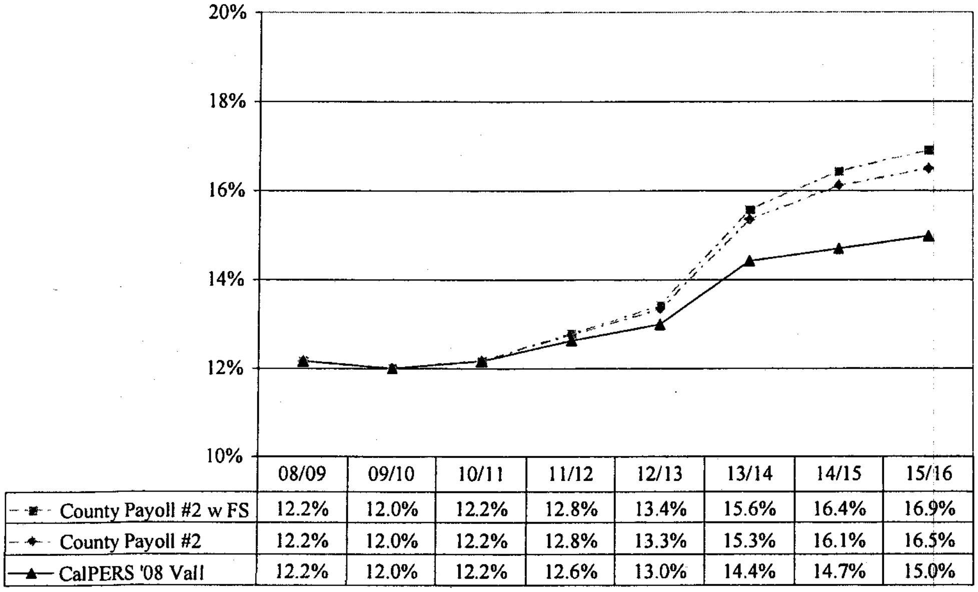
      ↓ ↓
    - □ CalPERS will not automatically do this
  - **Adjust contribution to amortize based on either:**
    - □ Full June 30, 2009 market value loss or
    - □ Schedule using un-modified actuarial value
    - □ CalPERS will not automatically do this
    - □ Requires:
      - ○ Asking CalPERS to use "Fresh Start"
      - ○ Higher rates 2011/12 and beyond
  - **Flat Rate:**
    - □ Average of 2011/12 through 2015/16
    - □ Requires:
      - ○ Asking CalPERS to use "Fresh Start"
      - ○ Shorter amortization period

Contribution Policy
Fresh Start with Declining Period
Modified AVA - 50th Percentile
Safety



	08/09	09/10	10/11	11/12	12/13	13/14	14/15	15/16
- -◆- - County Payoll #2 w FS	19.0%	18.6%	19.3%	20.0%	20.8%	24.0%	25.1%	25.8%
- -●- - County Payoll #2	19.0%	18.6%	19.3%	20.0%	20.8%	23.7%	24.7%	25.2%
—▲— CalPERS '08 Val	19.0%	18.6%	19.3%	20.1%	20.7%	23.1%	23.5%	24.0%

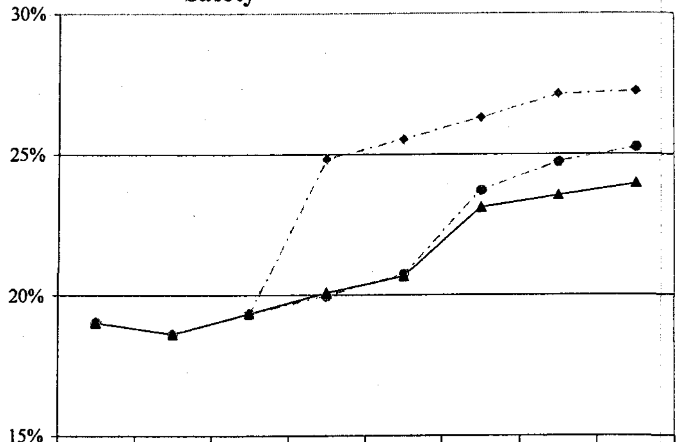
Contribution Policy
Fresh Start with Declining Period
Modified AVA - 50th Percentile
Miscellaneous



	08/09	09/10	10/11	11/12	12/13	13/14	14/15	15/16
- -■- - County Payoll #2 w FS	12.2%	12.0%	12.2%	12.8%	13.4%	15.6%	16.4%	16.9%
- -◆- - County Payoll #2	12.2%	12.0%	12.2%	12.8%	13.3%	15.3%	16.1%	16.5%
—▲— CalPERS '08 Vall	12.2%	12.0%	12.2%	12.6%	13.0%	14.4%	14.7%	15.0%

Contribution Policy
Unmodified AVA

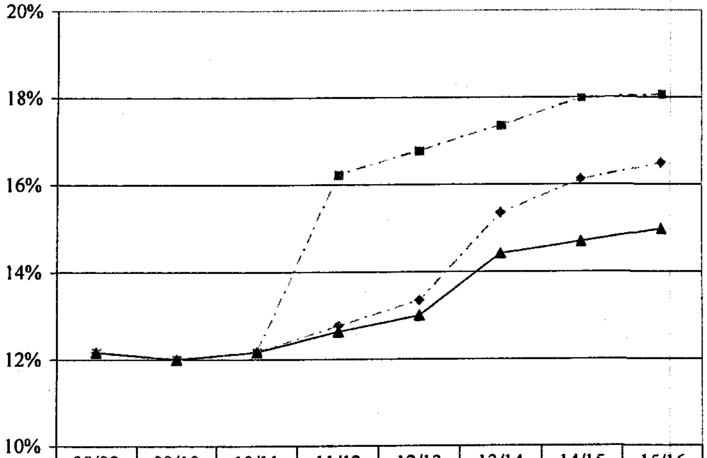
50th Percentile
Safety



	08/09	09/10	10/11	11/12	12/13	13/14	14/15	15/16
- ◆ · Co Payoll #2 - Unmod AVA	19.0%	18.6%	19.3%	24.8%	25.5%	26.3%	27.1%	27.2%
- ● · Co Payroll #2 - Mod AVA	19.0%	18.6%	19.3%	20.0%	20.8%	23.7%	24.7%	25.2%
—▲— CalPERS '08 Val - Mod AVA	19.0%	18.6%	19.3%	20.1%	20.7%	23.1%	23.5%	24.0%

Contribution Policy
Unmodified AVA

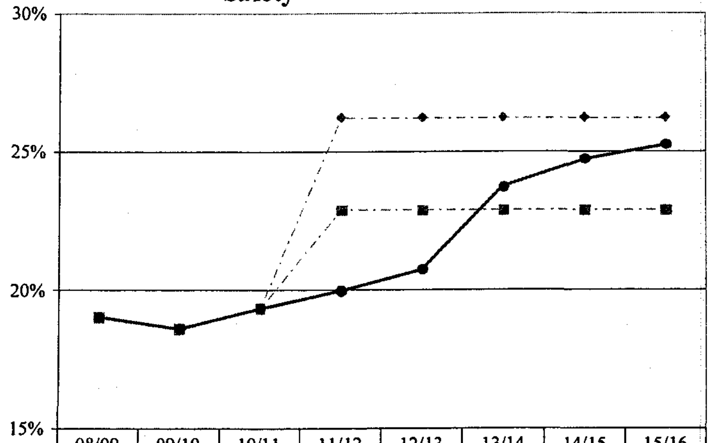
50th Percentile
Miscellaneous



	08/09	09/10	10/11	11/12	12/13	13/14	14/15	15/16
- ■ · Co Payroll #2 - Unmod AVA	12.2%	12.0%	12.2%	16.2%	16.8%	17.3%	18.0%	18.1%
- ◆ · Co Payroll #2 - Mod AVA	12.2%	12.0%	12.2%	12.8%	13.3%	15.3%	16.1%	16.5%
—▲— CalPERS '08 Val - Mod AVA	12.2%	12.0%	12.2%	12.6%	13.0%	14.4%	14.7%	15.0%

Contribution Policy
Flat Rate

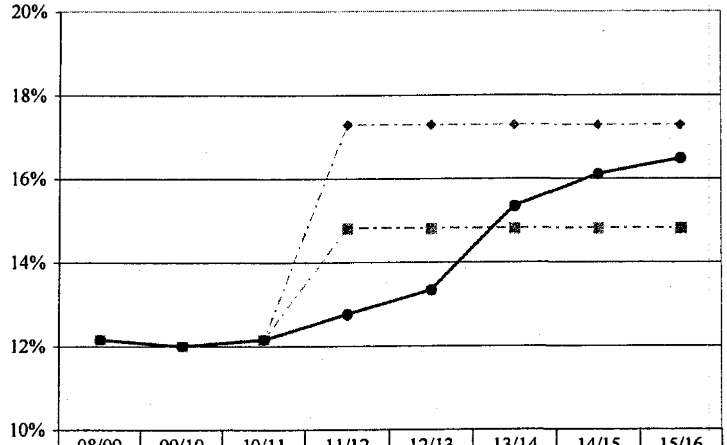
County Payroll #2 - 50th Percentile
Safety



	08/09	09/10	10/11	11/12	12/13	13/14	14/15	15/16
- ◆ - Flat Rate - Unmod AVA	19.0%	18.6%	19.3%	26.2%	26.2%	26.2%	26.2%	26.2%
- ■ - Flat Rate - Mod AVA	19.0%	18.6%	19.3%	22.9%	22.9%	22.9%	22.9%	22.9%
—●— Mod AVA	19.0%	18.6%	19.3%	20.0%	20.8%	23.7%	24.7%	25.2%

Contribution Policy
Flat Rate

County Paryoll #2 - 50th Percentile
Miscellaneous



	08/09	09/10	10/11	11/12	12/13	13/14	14/15	15/16
- ◆ - Flat Rate - Unmod AVA	12.2%	12.0%	12.2%	17.3%	17.3%	17.3%	17.3%	17.3%
- ■ - Flat Rate - Mod AVA	12.2%	12.0%	12.2%	14.8%	14.8%	14.8%	14.8%	14.8%
—●— Mod AVA	12.2%	12.0%	12.2%	12.8%	13.3%	15.3%	16.1%	16.5%

POB (Millions)
Bond Proceeds Balance

	Safety	Misc.	Total
POB @ 2/16/05	$ 85.7	$ 311.2	$ 396.9
Earnings to 6/30/05[19]	3.8	13.8	17.6
Amortization Payment through 6/30/05[20]	0.0.	0.0	0.0
Balance @ 6/30/05	**89.5**	**325.0**	**414.5**
Earnings to 2/15/06[19]	6.5	23.7	30.3
Amortization Payment through 2/15/06[20]	(3.4)	(12.2)	(15.6)
Balance @ 2/15/06	**92.7**	**336.5**	**429.2**
Earnings 2/16 - 6/30/06[19]	$ 4.0	$ 14.5	$ 18.5
Amortization payment through 6/30/06[20]	(2.0)	(7.3)	(9.3)
Balance @ 6/30/06	**94.7**	**343.7**	**438.4**

[19] Estimated based on CalPERS market value returns: 12.2% for 04/05, 11.9% for 05/06, 18.8% for 06/07, -5.1% for 07/08 and -24.8% for 2008/09.

[20] Based on a rolling 30-year amortization except CalPERS 6/30/04 reports show no reduction in 04/05 contribution

POB (Millions)
Bond Proceeds Balance

	Safety	Misc.	Total
Balance @ 6/30/06	**94.7**	**343.7**	**438.4**
Earnings 7/1/06 - 2/15/07[19]	10.8	39.1	49.9
Amortization payment through 2/15/07[20]	(3.6)	(12.9)	(16.5)
Balance @ 2/15/07	**101.9**	**369.9**	**471.8**
Earnings 2/16 - 6/30/07[19]	6.8	24.7	31.5
Amortization payment through 6/30/07[20]	(2.3)	(8.3)	(10.6)
Balance @ 6/30/07	**106.4**	**386.3**	**492.7**
Earnings 7/1/07- 2/15/08[19, 21]	(3.4)	(12.4)	(15.9)
Amortization payment through 2/15/08[20]	(4.0)	(14.5)	(18.5)
Balance @ 2/15/08	**99.0**	**359.4**	**458.4**
Earnings 2/16 - 6/30/08[19]	(1.9)	(7.0)	(8.9)
Amortization payment through 6/30/08[20]	(2.2)	(8.1)	(10.3)
Balance @ 6/30/08	**94.8**	**344.3**	**439.1**

[21] February 4, 2008 discussion outline showed $37.1 estimated earnings. Adjusted because CalPERS does not credit earnings except at fiscal year end (June 30).

POB (Millions)
Bond Proceeds Balance

	Safety	Misc.	Total
■ **Balance @ 6/30/08**	**94.8**	**344.3**	**439.1**
■ Earnings 7/1/08- 2/15/09[19],	(15.5)	(56.2)	(71.7)
■ Amortization payment through 2/15/09[20]	(3.6)	(12.9)	(16.5)
■ **Balance @ 2/15/09**	**75.8**	**275.2**	**351.0**
■ Earnings 2/16 - 6/30/09[19]	(7.7)	(27.9)	(35.6)
■ Amortization payment through 6/30/09[20]	(1.7)	(6.2)	(7.9)
■ **Balance @ 6/30/09**	66.4	241.1	307.5

POB (Millions)
Bond Proceeds Balance

	Safety	Misc.	Total
Method 1			
■ Earnings 7/1/09- 2/15/10[22]	5.9	21.3	27.1
■ Amortization payment through 2/15/10[20]	(2.5)	(9.)	(11.5)
■ **Balance @ 2/15/10**	**69.8**	**253.3**	**323.1**
Method 2			
■ Earnings 7/1/09- 2/15/10[23]	7.5	27.3	34.8
■ Amortization payment through 2/15/10[20]	(2.5)	(9.)	(11.5)
■ **Balance @ 2/15/10**	**71.4**	**259.3**	**330.8**

[22] Estimate based on CalPERS 10/31/09 published rate of return of 7.9%, an additional gain of 2.9% through 2/01/10 based on CalPERS market value for the website and 7.75% from 2/02/10 through 6/30/10.

[23] Estimate based on CalPERS 10/31/09 published rate of return of 7.9%, an additional gain of 2.9% through 2/01/10 based on CalPERS market value for the website and 7.75% from 2/02/10 through 2/15/10.

POB (Millions)
Bond Proceeds Balance

	Payments			
	Principal	**Interest**	**Total**	**Balance**
■ 2/17/05	n/a	n/a	n/a	$400.0
■ 8/15/05	n/a	9.4	9.4	400.0
■ 2/15/06	3.2	9.5	12.7	396.8
■ 8/15/06	n/a	9.5	9.5	396.8
■ 2/15/07	4.0	9.5	13.4	392.9
■ 8/15/07	n/a	9.4	9.4	392.9
■ 2/15/08	4.9	9.4	14.3	388.0
■ 8/15/08	n/a	9.3	9.3	388.0
■ 2/15/09	5.9	9.3	15.2	382.1
■ 8/15/09	n/a	9.2	9.2	382.1
■ 2/15/10	7.0	9.2	16.2	375.1

POB (Millions)
Estimated Savings

	Method 1	**Method 2**
■ Net Estimated Losses:		
A. CalPERS Estimated Balance	$ 323.1	$ 330.8
B. Bond Proceeds Balance	375.1	375.1
C. Cash Flow Savings/(Deficit) [Payments that would have been paid to CalPERS less POB debt service]	(2.0)	(2.0)
D. Net [(A) – (B) + (C)]	(54.0)	(46.3)
■ Net Estimated Losses:		
E. CalPERS Investment Earnings	$42.9	$50.6
F. POB Interest Payments	93.8	93.8
G. Cost of Issuance	3.1	3.1
H. Net [(E) – (F) – (G)]	(54.0)	(46.3)

- Above estimates based on market rate of return. Savings (losses) based on actuarial rate of return would be higher (lower).

Net Funding Ratio with POB
(Millions)

		Safety					
						Proj.	Proj.
		6/30/05	6/30/06	6/30/07	6/30/08	6/30/09[24]	6/30/10[25]
(1)	AAL	$ 1,127	$1,232	$1,370	$ 1,469	$ 1,599	$ 1,735
(2)	AVA	1,069	1,170	1,291	1,414	1,514	1,622
(3)	UAAL [(1) - (2)]	58	62	78	55	85	113
(4)	Funding Ratio [(2)/(1)]	94.8%	95.0%	94.3%	96.2%	94.7%	93.5%
(5)	POB Balance	$ 86	$ 86	$ 85	$ 84	$ 83	$ 81
(6)	Net AVA [(2) - (5)]	983	1,084	1,207	1,330	1,431	1,541
(7)	Net Funding Ratio [(6)/(1)]	87.2%	88.0%	88.1%	90.5%	89.5%	88.8%

[24] Projected 6/30/09 AVA based on modified asset smoothing method and estimated 2008/09 CalPERS investment return -24.8%.

[25] Projected 6/30/10 AVA based on modified asset smoothing method and estimated 2009/10 CalPERS investment return 15.6%, which is based on CalPERS 10/31/09 published rate of return of 7.9%, an additional gain of 5.8% through 1/12/10 based on CalPERS market value for the website and 7.75% from 1/13/10 through 6/30/10.

Net Funding Ratio with POB
(Millions)

		Miscellaneous					
						Proj.	Proj.
		6/30/05	6/30/06	6/30/07	6/30/08	6/30/09[22]	6/30/10[23]
(1)	AAL	$ 2,472	$ 2,742	$ 3,029	$ 3,350	$3,669	$ 4,008
(2)	AVA	2,365	2,600	2,894	3,175	3,423	3,696
(3)	UAAL [(1) - (2)]	107	142	135	175	246	313
(4)	Funding Ratio [(2)/(1)]	95.7%	94.8%	95.5%	94.8%	93.3%	92.2%
(5)	POB Balance	$ 314	$ 311	$ 308	$ 304	$ 300	$ 294
(6)	Net AVA [(2) - (5)]	2,051	2,288	2,586	2,871	3,124	3,402
(7)	Net Funding Ratio [(6)/(1)]	83.0%	83.5%	85.4%	85.7%	85.1%	84.9%

Net Funding Ratio with POB
(Millions)

		Total					
						Proj.	Proj.
		6/30/05	6/30/06	6/30/07	6/30/08	6/30/09[22]	6/30/10[23]
(1)	AAL	$ 3,599	$ 3,974	$ 4,399	$4,820	$5,267	$ 5,744
(2)	AVA	3,434	3,770	4,186	4,589	4,937	5,318
(3)	UAAL [(1) - (2)]	165	204	213	231	331	425
(4)	Funding Ratio [(2)/(1)]	95.4%	94.9%	95.2%	95.2%	93.7%	92.6%
(5)	POB Balance	$ 400	$ 397	$ 393	$ 388	$ 382	$ 375
(6)	Net AVA [(2) - (5)]	3,034	3,373	3,793	4,201	4,555	4,943
(7)	Net Funding Ratio [(6)/(1)]	84.3%	84.9%	86.2%	87.2%	86.5%	86.1%

Net Funding Ratio with POB
(Millions)
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CalPERS Rate Smoothing

6/30/2008:	Unmodified	Modified
Market Value	100.0%	100.0%
Actuarial Value	97.8%	97.8%
6/30/2009:	-24.8%	-24.8%
Market Value	75.2%	75.2%
Actuarial Value:		
1. Project @ 7.75%	105.4%	105.4%
2. Adjust:[(MV-AV) x (1/15)]	103.4%	103.4%
3. Limited by corridor [Unmodified: 120%, Modified: 140%]	90.2%	103.4%
Actuarial Rate of Return	-7.7%	5.7%
Ratio of Actuarial Value to Market Value	120.0%	137.5%

CalPERS Rate Smoothing

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		
○ Years	30 Years	30 Years
○ Factor	6%	6%
• Minimum	Normal Cost less 30 Year Amortization of Surplus	Normal Cost less 30 Year Amortization of Surplus

Appendix 2

Report from Financial Advisor

MEMORANDUM

To: Pension Advisory Review Committee, Riverside County

From: Fieldman, Rolapp & Associates

Date: Review of Issues and Policy Relating to Pension Obligations

Re: May 19, 2004

Introduction

Riverside County (the "County") has engaged Fieldman, Rolapp & Associates to evaluate the issues and considerations relating to the County's funding of pension obligations, particularly recently accruing unfunded liabilities. Due to timing considerations, our review will be divided into two parts. The first portion, embodied in this memorandum, provides review, analysis and recommendations relating to those funding issues with immediate impact on the County's 2004-05 Fiscal Year cost for pensions. The second portion to follow immediately after adoption of the FY 2004-05 budget, will address issues relating to the potential use of pension obligation bonds to provide immediate funding of accrued liabilities.

This evaluation has been prepared to present a specific description of the problems and the situations from which the problems originate. The goals of this analysis are to form a policy perspective for the resolution of the County's current financial situation and a framework for application to future problems as well. Moreover, through developing an understanding of the origins of the problems, the approach to resolving problems can be tailored more specifically, in both approach and magnitude, to foster the most thoughtful and desirable benefits.

Specifically, the County has three primary options that can be implemented prior to the next Fiscal Year.

- The County can prepay its 2004-05 Fiscal Year contribution due during the period from July 1 to July 15, 2004 and receive a discount against costs payable during the year.

- The County can request a fresh start reamortization of the unfunded liabilities over a term between five (5) and thirty (30) years. This allows for the development of a new payment schedule providing for the payment of all unfunded liabilities on an even percentage of projected payroll over the entire amortization term.

- The County can request rate restructuring, under which a portion of the employer contribution payable during the 2004-05 Fiscal Year is deferred and reamortized in rates payable beginning in the 2007-08 Fiscal Year. This option, available for entities in "financial crisis," allows the County to reduce the increase in its total employer contribution from the 2003-04 Fiscal Year to the 2004-05 Fiscal Year.

Background

The County maintains two primary pension plans to provide for retirement benefits of County employees[1]. The Miscellaneous Plan (the "Miscellaneous Plan") provides retirement benefits for most employees of the County as well as Riverside Superior Court employees, while the Safety Plan (the "Safety Plan") provides benefits for the sheriff's department and other law enforcement related employees. Retirement benefits are based on age, years of service and income. The role of each plan is to accumulate contributions necessary to fund retirement benefits, to invest those contributed funds and to administer benefits to retired members.

The timing issues, specific retirement benefits and actuarial assumptions differ significantly between the two Plans. However, each of the Plans is a defined benefit plan, providing for a specified level of benefits to members, regardless of investment performance. ***The County remains ultimately liable for the provision of benefits, without regard to the level of contributions previously made, the investment performance or accuracy of various actuarial assumptions.***

As the primary provider of social services and law enforcement, the County receives reimbursement for the employment costs of a large proportion of its employees. Cities contract for sheriff services in lieu of individual police forces, paying for the proportional costs of those personnel involved in law enforcement. Other grants pay employment costs of additional employees. As a general matter, it is believed by County finance staff that approximately 20% of the total employment costs of the County are actually borne by the County's General Fund. Other funds and reimbursable sources make up the majority of the employment funding.

CalPERS. The County is a Contract Agency participant in the California Public Employees Retirement System ("CalPERS")[2] which maintains and administers the Plans and manages the investment of funds. The County, as employer, and certain employees make contributions to their respective funds.[3] CalPERS invests the contributions made

[1] Through its related entities, the County also maintains three other plans: Flood Control, Waste Management and Parks and Open Space.

[2] CalPERS is the largest pension fund in the United States, with over 1.4 million participants. The portfolio had a value in excess of $166 billion as of February 29, 2004. CalPERS Facts at a Glance.

[3] The County pays the employee contribution for all non-management employees exceeding a minimum length of service; in the Miscellaneous Plan the threshold is 5 years while in the Safety Plan the threshold is 3 years. For management employees, the County pays the entire employee contribution. The County also subsidizes the employee contribution, paying one percent (1%) of the employee's salary, for non-management employees with less than the threshold level of service who were employed by the County as

by the County and the employees in its diversified portfolio.[4] The Miscellaneous and Safety Plans have rights to a pro-rata share of the entire portfolio, not specific investments.[5] Regardless of the involvement of CalPERS, it remains the ultimate responsibility of the County to provide for the level of benefits defined under the Plans for member employees.

Contributions made by employees is a percentage of salary fixed as one of the terms of employment.[6] The County contribution, as employer, consists of two components. During the course of each fiscal year an amount is payable that accounts for the accrual of retirement benefits allocable to the then current fiscal year.[7] The amount that currently accrues is termed the "Normal Cost." If the actuarial value of assets is less than the accrued liability for benefits relating to members' past service the employer makes an additional payment.[8] That payment is technically termed the "Payment on Amortization Basis."

Actuarial Valuation. On an annual basis, CalPERS provides an actuarial valuation (the "Actuarial Valuation"), providing a review of the status of the Plans as of the end of a fiscal year (the "Valuation Date"). The Actuarial Valuation is done on a basis two years in arrears, that is, the calculation as of June 30, 2002 is applied to estimate the payments to be made by the County for the Fiscal Year beginning July 1, 2004. The Actuarial Valuation serves four primary functions: first, it provides actuarial estimates of a number of attributes of the Plans—chief among them (i) the actuarial accrued liability of benefits ("AAL"), (ii) the actuarial value of assets of the plans ("AVA"), and (iii) the unfunded actuarial accrued liability ("UAAL" often termed in the Actuarial Valuation as the "Unfunded Liability"); second, it calculates the contribution level required for the next fiscal year for the County, as employer; third, it provides actuarial information to CalPERS; and fourth, it provides pension information to be used in financial statements of the County in compliance with GASB No. 27 . Each of these actuarial estimates is based on assumptions of behavior of employees and retirees, of growth in employment, payrolls and pension benefits, and of rates of inflation and investment earnings on invested funds.

An important attribute of the CalPERS Actuarial Valuation is the role of "smoothing"—the practice of using a rolling three (3) year average of investment income in place of the actual year to year investment performance in determining the actuarial value of the

of July 11, 2002. However, these amounts continue to be considered by CalPERS as employee contributions and are accounted in the fund established for each employee's contribution. Safety pick up is after three years.

[4] The portfolio is allocated to target levels of 26% fixed income, 65% equities and 9% real estate.

[5] In effect, the interest of the Plans in the CalPERS portfolio is analogous to an interest in a mutual fund.

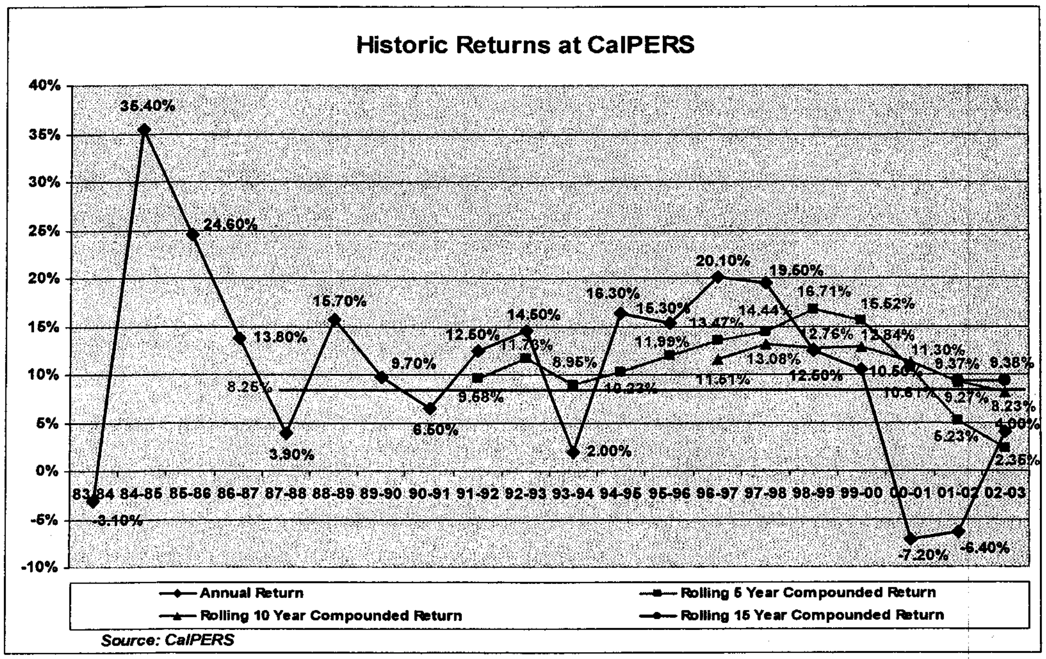
[6] For County employees, the employee contribution is eight percent (8%) before consideration of the County's policy of subsidizing employee contributions as noted in 3 above.

[7] The Normal Cost is a level annual cost spread as a level percentage of expected pay from the age of hire to the assumed retirement age.

[8] In years in which the actuarial value of assets exceeds the accrued liability, the excess is expressed as a credit against the Normal Cost. As an aside, this practice would tend to exacerbate the impact of changes in value of the portfolio.

assets of the Plans. Smoothing removes some of the annual volatility inherent in the investment of a diversified portfolio containing a significant portion of equity investments. It is important to comprehend the impact of smoothing and the possibility for variance between the market value of assets and the actuarial value of assets caused by use of a rolling average. Ultimately, managerial interpretation is necessary before acting on the results of the Actuarial Valuation.

Even in the presence of smoothing, actuarial estimates of UAAL represent a moving target, varying significantly as payroll and investment returns, benefits and members' behavior all change over time. For example, the returns on investment experienced by CalPERS from July 1, 2003 to March 31, 2004 have been approximately 16.25%. That would tend to decrease UAAL over the period in which that return is applied in calculating the actuarial value of the portfolio. The actuarial assumptions for CalPERS include a return on the portfolio of 8.25% over time.[9] However, in the real world of market performance, returns do not churn out at 8.25% each year; some years are better, some are worse. Below is a chart demonstrating the performance of the CalPERS portfolio over the period from 1987 to the present.


Historic Returns at CalPERS

Source: CalPERS

The year-over-year variation in return is a striking feature. Moreover, for most of the past 19 years, the returns have been positive. However, some years, particularly the past three years (Fiscal Years 2000-01, 2001-02 and 2002-2003), the returns have been below the 8.25% assumed return on the CalPERS portfolio.

[9] As of April 21, 2004, the CalPERS board changed the inflation assumption applicable to actuarial estimates to 3.0% from 3.5%. In addition, the estimated income from the portfolio has also been decreased from the prior 8.25% estimate to 7.75%. Those changes will be effective for Actuarial Valuations for fiscal years ending June 30, 2003 and thereafter.

Over the most recent years, losses in investment value, increases in pension benefits and payroll and the changes in member retirement patterns have resulted in the elimination of surpluses and the rise of unfunded liabilities. The increases in UAAL were evident in the Actuarial Valuations of both County plans. Below are tables of the Actuarial Valuations for the Miscellaneous and Safety Plans showing historical trends.

Historical Funding Status and Projection to Current Amortization.

Miscellaneous Plan

Valuation Date	Accrued Liability	Actuarial Value of Assets	Unfunded Liability[10]	Funded Status	Annual Covered Payroll	UAAL as a % of Payroll
6/30/00	$1,177,942,955	$1,617,839,633	($439,896,678)	137.3%	$408,876,968	(107.6%)
6/30/01	1,577,476,976	1,720,517,029	(143,040,053)	109.1%	466,882,443	(30.6%)
6/30/02	1,750,077,646	1,599,915,845	150,161,801	91.4%	527,188,820	28.5%

Safety Plan

Valuation Date	Accrued Liability	Actuarial Value of Assets	Unfunded Liability[10]	Funded Status	Annual Covered Payroll	UAAL as a % of Payroll
6/30/00	$686,413,863	$777,090,314	($90,676,451)	113.2%	$119,551,961	(75.8%)
6/30/01	768,055,802	803,870,603	(35,814,801)	104.7%	127,824,039	(28.0%)
6/30/02	839,798,639	773,983,852	65,814,787	92.2%	137,201,379	48.0%

The update of that Unfunded Liability for determination of the County's contribution rate for FY 2004-05 shows an even higher liability. The Valuation Date for the most recent Actuarial Valuation was June 30, 2002. The Actuarial Valuation also determines the required contribution for the fiscal year beginning two years after the Valuation Date. For this reason, the Actuarial Valuation contains a Roll Forward of the Unfunded Liability to June 30, 2004. The Rolled Forward Unfunded Liability is a determination of the sufficiency of the employer's contributions for the two intervening fiscal years as compared with the Normal Cost of the Plan and the interest on the Unfunded Liability (and any shortfalls in meeting Normal Costs) during those years. Investment performance on the portfolio (other than the assumed 8.25% return) is not considered in the Rolled Forward Unfunded Liability. Deviation from the assumed rate of return after June 30, 2002 will result in a different level of Unfunded Liabilities for the Actuarial Valuations for future fiscal years.

The Rolled Forward Unfunded Liability for the Miscellaneous and Safety Plans is summarized below:

[10] A negative unfunded liability equatesto a surplus.

Miscellaneous Plan

Unfunded Liability as of 6/30/02	Expected Payment on Unfunded Liability for 2002-03	Expected Interest on Unfunded Liability and on ,Expected Payment for 2002-03	Expected Unfunded Liability as of 6/30/03	Expected Payment on Unfunded Liability for 2003-04	Expected Interest on Unfunded Liability and on Expected Payment for 2003-04	Rolled Forward Unfunded Liability as of 6/30/04
$150,161,801	($40,950,775)	$14,044,095	*$205,156,672*	($6,843,680)	$17,202,133	*$229,202,485*

Safety Plan

Unfunded Liability as of 6/30/02	Expected Payment on Unfunded Liability for 2002-03	Expected Interest on Unfunded Liability and on Expected Payment for 2002-03	Expected Unfunded Liability as of 6/30/03	Expected Payment on Unfunded Liability for 2003-04	Expected Interest on Unfunded Liability and on Expected Payment for 2003-04	Rolled Forward Unfunded Liability as of 6/30/04
$65,814,787	($8,849,678)	$5,787,535	*$80,452,000*	($4,499,944)	$6,819,234	*$91,771,179*

As a result, over the period from June 30, 2000 to June 30, 2004, the Unfunded Liability estimates have gone from a surplus of $439,896,678 to a deficit of $229,202,485 for the Miscellaneous Plan and from a surplus of $90,676,451 to a deficit of $91,771,179 for the Safety Plan.

It is important to note that Rolled Forward Unfunded Liability forms the basis for the amortization of Unfunded Liability. That amount is required to be paid as an employer contribution as the Payment on Amortization Basis in addition to the County's obligation to pay the Normal Cost for the Plans. Based on the Rolled Forward Unfunded Liabilities for the Plans, the County's actuary, Bartel Associates, LLC has provided a current estimated amortization of Unfunded Liabilities as stated below.[11]

[11] We have not undertaken an independent review of the amortization estimate, nor have we been retained to provide any alternate scenarios relating to amortization of Unfunded Liabilities.

Current Amortization-Miscellaneous Plan | **Current Amortization-Safety Plan**

Year	Unfunded Liab.	$ Payment	Amortization	% Projected Payroll	Year	Unfunded Liab.	$ Payment	Amortization	% Projected Payroll
2004/05	$229,202,485	$ 25,681,090	7,810,238	4.4%	2004/05	$ 91,771,179	$ 6,633,213	(669,711)	4.3%
2005/06	221,392,247	24,670,290	7,402,914	4.0%	2005/06	92,440,890	5,898,660	(1,489,215)	3.7%
2006/07	213,989,334	23,672,412	6,975,429	3.7%	2006/07	93,930,105	5,161,881	(2,378,644)	3.1%
2007/08	207,013,904	22,686,631	6,525,264	3.5%	2007/08	96,308,749	4,422,141	(3,344,532)	2.6%
2008/09	200,488,641	21,712,126	6,049,691	3.2%	2008/09	99,653,282	3,678,693	(4,393,963)	2.1%
2009/10	194,438,950	20,748,077	5,545,763	2.9%	2009/10	104,047,245	2,930,780	(5,534,618)	1.6%
2010/11	188,893,187	19,793,667	5,010,288	2.7%	2010/11	109,581,863	2,177,631	(6,774,825)	1.1%
2011/12	183,882,898	18,848,077	4,439,814	2.5%	2011/12	116,356,688	1,418,463	(8,123,611)	0.7%
2012/13	179,443,084	17,910,489	3,830,603	2.3%	2012/13	124,480,300	652,477	(9,590,766)	0.3%
2013/14	175,612,481	16,980,085	3,178,605	2.1%	2013/14	134,071,065	(121,139)	(11,186,900)	-0.1%
2014/15	172,433,877	16,056,044	2,479,437	1.9%	2014/15	145,257,965	(903,215)	(12,923,517)	-0.4%
2015/16	169,954,440	15,137,542	1,728,351	1.7%	2015/16	158,181,482	20,350,344	8,123,189	8.9%
2016/17	168,226,089	14,223,751	920,202	1.6%	2016/17	150,058,293	20,375,476	8,819,500	8.5%
2017/18	167,305,887	13,313,840	49,418	1.4%	2017/18	141,238,793	20,420,554	9,594,009	8.3%
2018/19	167,256,469	12,406,973	(890,039)	1.3%	2018/19	131,644,783	20,485,836	10,453,437	8.0%
2019/20	168,146,509	11,502,306	(1,904,712)	1.1%	2019/20	121,191,346	20,571,604	11,405,082	7.7%
2020/21	170,051,221	10,598,990	(3,001,691)	1.0%	2020/21	109,786,264	20,678,162	12,456,867	7.5%
2021/22	173,052,912	9,696,167	(4,188,657)	0.9%	2021/22	97,329,397	11,863,538	4,313,536	4.1%
2022/23	177,241,569	8,792,971	(5,473,936)	0.8%	2022/23	93,015,861	9,291,478	1,993,348	3.1%
2023/24	182,715,505	19,010,317	4,704,924	1.6%	2023/24	91,022,512	9,470,279	2,343,830	3.1%
2024/25	178,010,581	18,520,801	4,583,772	1.5%	2024/25	88,678,683	9,226,419	2,283,476	2.9%
2025/26	173,426,808	18,043,891	4,465,740	1.4%	2025/26	86,395,207	8,988,839	2,224,677	2.7%
2026/27	168,961,068	17,579,260	4,350,747	1.3%	2026/27	84,170,530	8,757,376	2,167,391	2.5%
2027/28	164,610,320	17,126,594	4,238,716	1.2%	2027/28	82,003,139	8,531,874	2,111,581	2.4%
2028/29	160,371,605	16,685,585	4,129,569	1.2%	2028/29	79,891,558	8,312,178	2,057,208	2.2%
2029/30	156,242,036	16,255,931	4,023,232	1.1%	2029/30	77,834,350	8,098,140	2,004,235	2.1%
2030/31	152,218,803	15,837,341	3,919,634	1.0%	2030/31	75,830,116	7,889,612	1,952,625	2.0%
2031/32	148,299,169	15,429,529	3,818,704	1.0%	2031/32	73,877,490	7,686,455	1,902,345	1.9%
2032/33	144,480,466	15,032,219	3,720,372	0.9%	2032/33	71,975,145	7,488,529	1,853,360	1.7%
2033/34	140,760,094	14,645,139	3,624,572	0.9%	2033/34	70,121,785	7,295,699	1,805,636	1.6%
2034/35	137,135,521	14,268,027	3,531,240	0.8%	2034/35	68,316,149	7,107,835	1,759,141	1.5%
Unamort.	133,604,282				Unamort.	66,557,008			

Source: Bartel Associates, LLC estimate of 4/26/2004

A number of observations can be made with regard to the current amortization structure.

Miscellaneous Plan

- Unfunded Liability is not completely amortized over 30 year period
- Negative amortization occurs from Fiscal Years 2018-19 to 2023-24
- Payment amount, both absolute and in percent of payroll, is highest at the outset and decreases for first 20 years

Safety Plan

- Unfunded Liability is not completely amortized over 30 year period
- Significant negative amortization occurs through Fiscal Year 2014-15
- Payment amounts vary, both absolute and in percent of payroll, with a significant plateau from Fiscal Years2015-16 to 2020-21

Under the current amortization structure, the County will face employer contribution amounts in FY 2004-05 for Payment on Amortization Bases of $25,681,090 (4.326% of payroll) for the Miscellaneous Plan and $6,633,211 (4.33% of payroll) for the Safety Plan. When the Normal Cost for each plan is added, the result is a total employer contribution of $90,396,428 for the Miscellaneous Plan and $37,371,194 for the Safety Plan. These represent increases of 77% for the Miscellaneous Plan (from $51,026,879) and 53.8% for the Safety Plan (from $24,287,541).

With the observations noted above, the current amortization schedule is problematic for both Plans. It places unnecessary pressure on the most immediate fiscal years, while incurring additional expense due to negative amortization and failing to fully amortize the Unfunded Liabilities.[12] Some alteration to the amortization schedule likely is in order.

Summary of Recommendations

This analysis makes three primary recommendations with regard to the County's immediate options.

Prepayment of Employer Liabilities. The savings from a prepayment of employer contributions are readily available and can be easily accessed. The County should move forward with inclusion of the employer costs as a portion of its TRAN issue

"Fresh Start" *Reamortization*. A fresh start reamortization with a 20 year term allows for the County to restructure a repayment of Unfunded Liabilities with a minimum of negative amortization and on uniform basis (with regard to projected total payroll). On a purely financial basis, a fresh start reamortization provides a superior solution. As applied to the Miscellaneous Plan, a fresh start reamortization with a 20 year term is strongly recommended, unless cash flow during the initial Fiscal Years is such an overriding consideration that the greater cash flow reduction in initial years offered by the 30 year fresh start becomes imperative.

With regard to the Safety Plan, the 20 year fresh start reamortization offers the ability to restructure the current amortization of Unfunded Liabilities. At some point in the near term, the County should adopt a posture of restructuring the amortization of Unfunded Liabilities in the Safety Plan through a mechanism such as a fresh start approach with a 20 year amortization or the use of pension obligation debt financing. However, in the short run, the 20 year fresh start involves some upfront cash flow obligations, making the immediate implementation of a 20 year fresh start impractical. The County can retain the option of reamortization at a future date.

Rate Restructuring with CalPERS. Limited rate restructuring is an available, short term repair for an extremely difficult financial situation. When viewed against the County's cost of capital, the action of deferring payment of Unfunded Liabilities is obviously a net cost to the County. CalPERS also requires adoption of a 30 year fresh start amortization as a prerequisite to rate restructuring. Therefore for the same reasons we do not recommend a 30 year fresh start, we do not recommend a rate restructuring from a financial basis. Moreover, with the other significant requirements, including the procedural requirement of approval by County employee unions and the application of restructuring only to 2004-05 Fiscal Year liabilities, rate restructuring has significant downside consequences. We understand that if the County considers its situation to be a

[12] Negative amortization not only incurs interest expenses, it also means that the County is not recovering on a current basis its pension costs via contract or reimbursement arrangements.

weekly financial crisis, the technique remains an available remedial, short term possibility.

As noted above, this analysis did not include a specific review of the debt financing options the County has with regard to managing the funding of its Unfunded Liabilities. An additional phase of our analysis will support the work of the Committee in review of the potential issuance of pension obligation bonds.

Definition of the Issues

A material impact of the State financial crisis is that County revenues, particularly those involving State reimbursement, are subject to significant reduction, without a corresponding reduction in County expenses. The development of Unfunded Liabilities and the corresponding need to make Payments on Amortization Bases as part of the County's employer contribution as well as an increasing Normal Cost exacerbates an already difficult budget situation, particularly for the upcoming 2004-05 Fiscal Year. Moreover, the Rolled Forward Unfunded Liabilities and the potential for further growth of liabilities based on unsatisfactory investment returns during Fiscal Year 2002-03 open the possibility of a longer term benefit through the application of debt financing techniques. In sum, the County faces three primary issues or problems involving its contributions to the pension Plans:

1. The County desires (needs) relief from increased employer contributions to the pension Plans, particularly in the upcoming 2004-05 Fiscal Year.

2. The current amortizations contain structural problems, including negative amortization, that may be solved through restructuring.

3. The existence of UAAL and possibility of debt financing options generates an opportunity for realizing savings through the assumption of risk—so-called "risk arbitrage." (That concept will be more fully explained with the upcoming analysis and recommendations on financing options.)

Of these issues, the first two are most appropriate for discussion and recommendation in this memorandum. We understand that the Committee will deal with the potential application of debt financing options after the conclusion of the 2004-05 Budget and the consideration of the most immediate issues. A further analysis and recommendation in support of the Committee's analysis of the application of debt financing options will be provided in a future memorandum.

1. **Need for Cash Flow Relief.** During Fiscal Year 2004-05, the County is projected to make total employer contributions to the Plans summarized as follows:

Total County Employer Contributions*

		2004-05	**2003-04**
Miscellaneous Plan		$90,396,428	$51,026,879
Normal Cost	$65,715,339		
Payment on Amortization Bases	$25,681,089		
Safety Plan		$37,371,194	$24,287,541
Normal Cost	$30,737,983		
Payment on Amortization Bases	$6,633,211		
Total Cost		**$127,767,622**	**$75,314,420**

* Not including County paid employee contributions, see footnote 3 above.

The table demonstrates the dramatic increase in employer contributions required in the 2004-05 Fiscal Year as compared with the immediately prior year.

The Normal Cost for the County is determined at a constant percentage of payroll and the nominal dollar contribution required will change in future years as payroll grows. Given the anticipated rate of overall growth in County employment, corresponding to general County economic growth, that Normal Cost can be expected to continue to grow in absolute terms at a rate greater than the 3.75% estimated by CalPERS. Under the current amortization, contained on page 6, the Payment on Amortization Bases for the Miscellaneous Plan is at its highest during the 2004-05 Fiscal Year and decreases in future years. For the Safety Plan, the Payment on Amortization Bases decreases from Fiscal Year 2004-05 until Fiscal Year 2015-16. In that year, the current amortization calls for a dramatic increase of more than $20 million in Fiscal Year 2015-16.

The precise impact of the State budget crisis on payments to the County during the Fiscal Year will not be precisely known until enactment of a budget for the State's 2004-05 Fiscal Year. However, the Governor's May Revise indicates that significant transfers will be made from funds provided to local government and from a shift in property tax recovered from cities and counties to state programs. The County's 2004-05 Fiscal Year Budget anticipates such significant reductions in funding.

The restructuring options discussed below—the Fresh Start reamortization, the CalPERS rate relief and the prepayment of the 2004-05 employer contribution—each have the potential to provide some level of budgetary savings during 2004-05.

2. **Current Amortization Problems**. The current amortization of Unfunded Liabilities, listed on page 6 above, has a number of structural shortcomings. First, the amortization structure for each plan fails to provide a complete funding of Unfunded Liabilities within a 30 year period. For each Plan, employer contributions by the County to make Payments on Amortization Bases over the term result in amortization of less than 50% of the original Unfunded Liabilities. The Miscellaneous Plan, with a total Unfunded Liability of $229,202,485, has an unamortized Unfunded Liability at the end of the 2034-35 Fiscal Year of $133,604,282. For the Safety Plan, the original Unfunded Liability of $91,771,179 is reduced to $66,557,008.

As noted above, the continuation of Unfunded Liabilities is carried with CalPERS at the implicit interest cost at 8.25% (or 7.75% for future fiscal years). Moreover, a large proportion of the employement cost of the County is subject to reimbursement from other sources, like the federal and local governments, through contracts and grants. **To the extent that the County does not provide for a full amortization of its liabilities, at the termination of those programs or contracts, the County will be responsible for the unreimbursed liability.**

Second, the employer contribution varies significantly from year to year, both in absolute terms and as a percentage of payroll. If we assume that a goal of the amortization of Unfunded Liabilities is to mirror the calculation of Normal Cost, which is calculated striving to a constant percentage of payroll, the current amortization, while perhaps correct in an actuarial sense, is an abysmal failure from a strict financial perspective.

Third, the amortization structures each include significant levels of negative amortization. The Miscellaneous Plan includes a modest amount of negative amortization, while the Safety Plan includes significant growth in Unfunded Liabilities. The problem with negative amortization is the implicit compounding of interest that occurs. The amortization structure not only fails to reduce the then existing Unfunded Liability, it fails to pay completely the implicit interest component. Therefore, in future periods, the Unfunded Liability includes interest and the maintenance of a balance of Unfunded Liability generates "interest on interest." Negative amortization also raises the spectre fo inadequate reimbursement under grants and contracts. This increases the possibility that the County will face increased liabilities in future years.

Fourth, the current estimates of the required contributions to each Plan start at a high point in Fiscal Year 2004-05. For the Miscellaneous Plan, the payment amount decreases in absolute amount for the first 19 years, experiencing a sharp increase in Fiscal Year 2023-24. As a percentage of payroll, the variance is even more stark, with all of the highest contribution rates being experienced between the present and Fiscal Year 2015-16.

The Safety Plan amortization indicates that the employer contribution begins at a relatively high level, decreasing and disappearing by Fiscal Years 2013-14 and 2014-15. However, by Fiscal Year 2015-16, the employer contribution experiences a huge increase to a level more than triple the Fiscal Year 2004-05 contribution in dollar amount and more than double the Fiscal Year 2004-05 contribution as a percentage of payroll. The variability of that cash flow poses a potential threat to the County's financial state. A refinancing or restructuring of that obligation, resulting in a "smoothing" of the contour of the obligation, is indicated.

The Origin of the Problems

The Existence of Unfunded Liabilities. Unfunded Liabilities occur in public (and private) pension funds because of investment losses, increases in benefits and changes in retiree behavior and longevity. The chart of CalPERS' investment performance on page

3 above indicates the variance possible in returns on invested assets. While the performance in each of the most recent three Fiscal Years has been under the assumed target, there have been other years of sub-par investment returns.

Changes in pension benefits, some driven by the relatively high level of investment returns from Fiscal Years 1994-95 through 1999-2000 also have added to the increase in Unfunded Liabilities. Retirement benefits, particularly for the Safety Plan, have become more generous, increasing the present value of future benefits. This change impacts the Normal Cost relating to the current accrual of benefit costs, but more importantly, increase the Unfunded Liability by increasing the total cost of future benefits allocated to past years in a "retroactive" fashion. Moreover, it is important to note that even without changes to the formula for pension benefits, the overall level of pension benefits payable can also be driven by the number of employees and the growth in payroll for those employees. Additionally, a significant expense for the Safety Plan is the number and nature of disability retirements granted.

As the benefits have changed over time, the behavior of member employees also changes. For example, as Safety plans have moved to a "3% at 50" standard—that is, 3% of the salary average for the highest 3 years for each year of service with a minimum retirement age of 50—employees have moved to earlier retirement. Moreover, with general improvements in health care, employees are living longer and receiving more retirement benefits over a longer period.

The bull market of the mid and late 1990's was a time of truly spectacular investment returns, the longest and strongest period of continuous economic growth ever recorded.[13] There was a tendency to believe that this was how market performance would continue in the future.[14] The reactions to this windfall increase in actuarial asset values included credits against employer contributions regarding Normal Costs, increases in long term benefits, and greater numbers of workers requiring pension benefits. The short term returns in pension benefits masked the effects of these actions.

Percentage of Funded Liability. In 2000, the County was in a fully funded status, with actuarial value of assets exceeding the Accrued Liability. For that year, the Miscellaneous Plan was funded at 137.3% and the Safety Plan was funded at 113.2%. By the 2002 Actuarial Valuation those ratios had decreased to 91.4% and 92.2%, respectively.[15]

[13] The run up in equity prices prompted many commentators to compare the relationship between price and value to be similar to the pricing of tulip bulbs in 17th century Holland. Moreover, near its end, Alan Greenspan was quoted using the phrase "irrational exuberance" in referring to pricing behavior.

[14] Remember that during that time there was talk of the "death of the business cycle." Rumors of the demise of the business cycle turned out to be premature.

[15] In the continuum of retirement plans, this level of funding is relatively high. In fact, fully funding the plan is not necessarily desirable. As noted by Standard & Poor's Rating Services, the action of fully funding the retirement plan, particularly through the use of debt financing techniques, can lead to an overfunding scenario in times of significant investment returns. This overfunding historically has led to increases in benefits, creating future unfunded liabilities. S&P refers to the effect of this as a "Trojan Horse."

Corresponding roughly to performance of the investment markets, pension plans have experienced periods of full funding and periods of unfunded liabilities. In the same fashion in which three years of sub-par investment performance have resulted in significant Unfunded Liabilities, a period of significant gain would result in a resolution of the deficit position and produce the opposite result--overfunding. The relatively small spreads between liabilities and asset levels (less than 10%) in the County's Plans remain within the ability of the portfolio to resolve through a period of above average returns.

Identifying the Sources of Unfunded Liabilities. The key to addressing the County's issues may depend on the source of the Unfunded Liability. Some of the County's Unfunded Liability stems from increases in benefits provided to members. An additional portion of the Unfunded Liability results from the reduction in employer contributions during times of high investment returns.[16] To the extent that Liabilities were generated by the County's action or inaction—that the County actually created that part of the problem—it is logical and symmetrical to assume that action is involved in the solution. There is no realistic basis to assume that in the face of inaction that portion of the problem will be resolved.

As noted above, another part of the Unfunded Liabilities stems from market performance itself. Actuarial asset values decreased as general market values decreased. It is important to note that over time, the long term performance of pension assets, including the years of poor performance, will tend to converge toward the assumption of mean long term returns, assuming that the assumption is or was valid. What went down will tend to come back up. This assumes that the County continues to fund its obligations as specified in the actuarial reports and that no changes to actuarial assumptions are warranted (such as life expectance, terms of pension benefits, numbers and ages of eligible employees).

It is logical to assume that Unfunded Liabilities that result directly from decrease in actuarial values (or increases less than the long term performance target) will have a tendency to be resolved by the long term performance of the market itself. Specific action, other than the amortization required under actuarial principles, to resolve those Unfunded Liabilities may not be required.

Dividing the Unfunded Liability by Source. During the 2001-02 Fiscal Year the Unfunded Liabilities grew by $293,201,854 for the Miscellaneous Plan and by $101,629,588 for the Safety Plan. For that same Fiscal Year the Asset Loss for the Miscellaneous Plan was $252,405,804 and for the Safety Plan was $103,999,351. Those amounts exceed the Unfunded Liabilities as of June 30, 2002. It is arguable that the entire amount of Unfunded Liabilities as of June 30, 2002 is fairly allocable to losses due to investment.

[16] We note that the lower employer contribution rates likely reflected the results of past Actuarial Valuations. However, by assuming that increasing values can offset the need for continuing contributions, the Actuarial Valuations actually exacerbate the level of Unfunded Liabilities in times of poorer market performance.

As noted above, the Rolled Forward Unfunded Liability for June 30, 2004 includes additional amounts relating to the County's failure to make payments sufficient to pay all of the Normal Costs[17] (thereby adding to Unfunded Liabilities) and to cover the assumed interest on Unfunded Liabilities and the shortfall in contributions. It could be fairly argued that those amounts, totaling $79,040,683 for the Miscellaneous Fund and $25,956,391 for the Safety Fund, are more related to the County's actions. This would indicate that approximately 35% of the Unfunded Liabilities in the Miscellaneous Fund and 28.3% of the Unfunded Liabilities in the Safety Fund are not directly allocable to market performance.

Evaluating the Immediate Options (2004-05 Budget Impact)

The County has three options immediately available, each having the potential for positive impact on the employer contributions required in the 2004-05 Fiscal Year:

- Annual Prepayment of Contributions
- Fresh Start Reamortization
- Rate Restructuring from CalPERS

Prepayment of Contributions. CalPERS assumes that payments are made during the course of the year, evenly spread over the term. If an employer, such as the County, prepays its contribution during the beginning of the fiscal year, CalPERS provides a discount based on its assumed rate of earnings. The CalPERS actuary working with the County has indicated that prepaid amounts, amounts paid prior to July 15, 2004, would generate a credit on the following formula:

(prepayment amount) x $1.0825^{.5}$ - 1, approximately 4.04% of prepayment.

If this is applied to the amounts payable by the County the results would be as follows:

Miscellaneous Fund

Structure	Annual Payment	Credit
Current Amortization	$90,396,428	$3,652,016
20 Year Fresh Start	$82,039,114	$3,314,380
30 Year Fresh Start	$78,479,463	$3,170,570

Safety Fund

Structure	Annual Payment	Credit
Current Amortization	$37,371,194	$1,509,796
20 Year Fresh Start	$37,674,310	$1,522,042
30 Year Fresh Start	$36,249,048	$1,464,462

[17] Normal Costs increased due to increased payroll (beyond assumptions) and increases in benefits.

The desirability of a prepayment program, particularly when the County would obtain the funds through a cash flow borrowing, is more complex than a simple review of the amount of credit. The net benefit revolves around the comparison of the net interest cost of the borrowed funds with the credit received and with any benefit through accumulation of the funds prior to repayment of the debt. Staff of the Treasurer-Tax Collector, in consultation with CSAC relating to the pool of Tax and Revenue Anticipation Notes, has estimated the cost of borrowing at 1.60%.[18] We assume that funds that would have been paid to CalPERS would be deposited in the General Fund (in a segregated sub account) and would earn a daily rate equal to 1.50%. While we have not verified this figure, these rates seem appropriate, but are subject to change as market conditions change.

We have assumed that funds would be accumulated in the General Fund subaccount at a rate equal to the non discounted amounts that would have been payable to CalPERS.

The primary question on the prepayment alternative is the amount of the prepayment. Both the Normal Cost and the Payment on Amortized Basis on which the County's employer contribution is based represent actuarial estimates. If the County decreases employee numbers, the actual required contribution payable throughout the Fiscal Year would decrease. County staff has proposed that the County prepay less than 100% of the total estimated employer contribution to avoid an overfunding scenario. Staff has proposed funding 80% of the amount. We are not in position to evaluate this type of operational risk; however, the staff recommendation appears to be consistent with our understanding of the impact of variance of actual events from the expected scenario.

We have prepared an analysis of the proposed prepayment below:

[18] Under applicable Internal Revenue Code provisions and regulations, securities issued to fund pension accounts can not be exempt from federal income tax. Fortunately, under current market conditions, the penalty for taxable securities is slight, particularly for such a short maturity.

Prepayment of CalPERS Obligations

Total PERS Contribution:	$127,767,622.00	Discount:	$4,129,449.54
Percentage to be prepaid:	80.00%	Net TRAN Amount:	$98,084,648.06
Prepayment Amount:	$102,214,097.60	Rate on TRAN:	1.60%
Interest Earning Rate:	1.50%		

End Date	PERS Contribution	Interest Earned [1]	Account Subtotal	TRAN Payment [2]	Net Savings	TRAN Borrowing and Prepayment [3]
7/1/2004						$98,084,648.06
7/7/2004	$3,931,311.45					
7/21/2004	3,931,311.45	$2,261.85	$7,864,884.74			
8/4/2004	3,931,311.45	4,525.00	11,800,721.19			
8/18/2004	3,931,311.45	6,789.46	15,738,822.09			
9/1/2004	3,931,311.45	9,055.21	19,679,188.75			
9/15/2004	3,931,311.45	11,322.27	23,621,822.47			
9/29/2004	3,931,311.45	13,590.64	27,566,724.55			
10/13/2004	3,931,311.45	15,860.31	31,513,896.31			
10/27/2004	3,931,311.45	18,131.28	35,463,339.04			
11/10/2004	3,931,311.45	20,403.56	39,415,054.05			
11/24/2004	3,931,311.45	22,677.15	43,369,042.65			
12/8/2004	3,931,311.45	24,952.05	47,325,306.15			
12/22/2004	3,931,311.45	27,228.26	51,283,845.85			
1/5/2005	3,931,311.45	29,505.77	55,244,663.07			
1/19/2005	3,931,311.45	31,784.60	59,207,759.12			
2/2/2005	3,931,311.45	34,064.74	63,173,135.30			
2/16/2005	3,931,311.45	36,346.19	67,140,792.94			
3/2/2005	3,931,311.45	38,628.95	71,110,733.33			
3/16/2005	3,931,311.45	40,913.02	75,082,957.80			
3/30/2005	3,931,311.45	43,198.41	79,057,467.66			
4/13/2005	3,931,311.45	45,485.12	83,034,264.23			
4/27/2005	3,931,311.45	47,773.14	87,013,348.81			
5/11/2005	3,931,311.45	50,062.47	90,994,722.73			
5/25/2005	3,931,311.45	52,353.13	94,978,387.31			
6/8/2005	3,931,311.45	54,645.10	98,964,343.85			
6/22/2005	3,931,311.45	56,938.39	102,952,593.69			
6/30/2004		29,616.50	102,982,210.19	$99,649,643.11		
		$768,112.59	$102,982,210.19	$99,649,643.11	**$3,332,567.08**	

[1] Interest is assumed to be 1.50% and is earned on an actual/actual basis.

[2] TRANS are repaid on June 30, 2005 and bear interest at 1.60% on an 30/360 basis, assuming a July 1, 2004 issuance.

[3] TRAN amount is not rounded to denomination amount and costs of issuance are assumed by other portion of County TRAN issue.

This basic estimate of the potential savings from prepayment indicates that the net savings from an 80% prepayment through a TRAN issue would be approximately $3,332,500. The savings from a prepayment of employer contributions are readily available and can be easily accessed. **The County should move forward with inclusion of the employer costs as a portion of its TRAN issue.**

Fresh Start Reamortization. The Actuarial Valuation describes a Fresh Start approach as follows:

> *This simply means that the current unfunded actuarial liability is projected and amortized over a set number of years. . . It should be noted that the actuary may choose to use a fresh start under other circumstances. In all cases, the period of the fresh start is chosen by the actuary according to his or her best judgment, and will not be less than five years nor greater than 30 years. Actuarial Valuation for Fiscal Year ending June 30, 2002, Actuarial Methods, Funding Method, page A-1.*

The Miscellaneous and Safety Plans both qualify for a fresh start approach. The consulting actuary for the County, Bartel Associates, LLC, has developed estimates of the amortization under 20 and 30 year fresh start scenarios.

Miscellaneous Plan—Comparison of Amortization Alternatives

Year	Current Amortization	30 Yr. FS Amortization	20 Yr. FS Amortization	Difference Current and 30	Difference Current and 20	Difference 30 and 20
2004/05	$ 25,681,089.51	$ 13,764,123.70	$ 17,323,775.17	$ 11,916,965.82	$ 8,357,314.35	(3,559,651.47)
2005/06	24,670,290.08	14,280,278.33	17,973,416.74	10,390,011.74	6,696,873.34	(3,693,138.40)
2006/07	23,672,412.05	14,815,788.77	18,647,419.86	8,856,623.28	5,024,992.19	(3,831,631.09)
2007/08	22,686,631.21	15,371,380.85	19,346,698.11	7,315,250.36	3,339,933.10	(3,975,317.26)
2008/09	21,712,126.11	15,947,807.63	20,072,199.29	5,764,318.48	1,639,926.82	(4,124,391.66)
2009/10	20,748,077.36	16,545,850.42	20,824,906.76	4,202,226.94	(76,829.40)	(4,279,056.34)
2010/11	19,793,666.80	17,166,319.81	21,605,840.76	2,627,346.99	(1,812,173.96)	(4,439,520.96)
2011/12	18,848,076.79	17,810,056.80	22,416,059.79	1,038,019.98	(3,567,983.01)	(4,606,002.99)
2012/13	17,910,489.35	18,477,933.93	23,256,662.04	(567,444.59)	(5,346,172.69)	(4,778,728.10)
2013/14	16,980,085.43	19,170,856.45	24,128,786.86	(2,190,771.03)	(7,148,701.43)	(4,957,930.41)
2014/15	16,056,044.08	19,889,763.57	25,033,616.37	(3,833,719.49)	(8,977,572.29)	(5,143,852.80)
2015/16	15,137,541.64	20,635,629.71	25,972,376.98	(5,498,088.06)	(10,834,835.34)	(5,336,747.28)
2016/17	14,223,750.92	21,409,465.82	26,946,341.12	(7,185,714.90)	(12,722,590.20)	(5,536,875.30)
2017/18	13,313,840.34	22,212,320.79	27,956,828.91	(8,898,480.45)	(14,642,988.57)	(5,744,508.12)
2018/19	12,406,973.12	23,045,282.82	29,005,210.00	(10,638,309.69)	(16,598,236.87)	(5,959,927.18)
2019/20	11,502,306.39	23,909,480.92	30,092,905.37	(12,407,174.53)	(18,590,598.98)	(6,183,424.45)
2020/21	10,598,990.31	24,806,086.46	31,221,389.32	(14,207,096.14)	(20,622,399.01)	(6,415,302.87)
2021/22	9,696,167.18	25,736,314.70	32,392,191.42	(16,040,147.51)	(22,696,024.24)	(6,655,876.72)
2022/23	8,792,970.53	26,701,426.50	33,606,898.60	(17,908,455.97)	(24,813,928.07)	(6,905,472.10)
2023/24	19,010,316.83	27,702,729.99	34,867,157.30	(8,692,413.16)	(15,856,840.46)	(7,164,427.30)
2024/25	18,520,801.17	28,741,582.37		(10,220,781.19)	18,520,801.17	28,741,582.37
2025/26	18,043,890.54	29,819,391.71		(11,775,501.16)	18,043,890.54	29,819,391.71
2026/27	17,579,260.36	30,937,618.90		(13,358,358.53)	17,579,260.36	30,937,618.90
2027/28	17,126,594.41	32,097,779.61		(14,971,185.20)	17,126,594.41	32,097,779.61
2028/29	16,685,584.60	33,301,446.34		(16,615,861:74)	16,685,584.60	33,301,446.34
2029/30	16,255,930.80	34,550,250.58		(18,294,319.78)	16,255,930.80	34,550,250.58
2030/31	15,837,340.58	35,845,884.98		(20,008,544.39)	15,837,340.58	35,845,884.98
2031/32	15,429,529.06	37,190,105.66		(21,760,576.60)	15,429,529.06	37,190,105.66
2032/33	15,032,218.69	38,584,734.62		(23,552,515.94)	15,032,218.69	38,584,734.62
2033/34	14,645,139.06	40,031,662.17		(25,386,523.12)	14,645,139.06	40,031,662.17
2034/35	14,268,026.73	0.00		14,268,026.73	14,268,026.73	0.00
	133,604,281.59			133,604,281.59	133,604,281.59	
	$ 656,470,444	$ 740,499,355	$ 502,690,681	(84,028,911.27)	$ 153,779,762.86	$ 237,808,674.13
		PV at 6.00%		(14,563,472.89)	7,147,351.07	21,710,823.96

For the Miscellaneous Plan, a fresh start on either a 20 or 30 year basis results in a significant level of first year cash flow relief. For the 30 year amortization, the reduction is $11,916,966, with a 20 year amortization resulting in reduction of $8,357,315. The comparison between the fresh start amortizations and the current amortization continues to be favorable until the 2009-10 Fiscal Year. Over the 30 year term, the fresh start results in an additional cost over the current amortization of $84,028,911 on an undiscounted basis and $14,563,473 discounted at a rate of 6.00%. The 20 year fresh start exhibits a clear financial advantage with a gross savings of $153,779,762 and present value savings of $7,147,351 over the current amortization. In sum, the 20 year fresh start amortization provides a $21,710,824 present value advantage over the 30 year alternative. Moreover, the fresh start approaches result in a complete amortization of the Unfunded Liabilities over the term, unlike the result of the current amortization. The amortizations are sized to result in a level percentage of expected payroll over the term.

Miscellaneous Plan—Rate of Amortization

The table below compares the amount of each annual employer contribution that actually applies to the amortization of Unfunded Liabilities under the 30 year and 20 year fresh start alternatives.

	30 Year Fresh Start				20 Year Fresh Start			
Year	Unfunded Liab.	$ Payment	Amortization	% Payroll	Unfunded Liab.	$ Payment	Amortization	% Payroll
2004/05	$ 229,202,485	$ 13,764,124	$ (4,588,562)	2.3%	$ 229,202,485	$ 17,323,775	$ (884,985)	2.9%
2005/06	233,791,047	14,280,278	$ (4,430,094)	2.3%	230,087,470	17,973,417	$ (282,087)	2.9%
2006/07	238,221,141	14,815,789	$ (4,238,414)	2.3%	230,369,557	18,647,420	$ 395,895	2.9%
2007/08	242,459,556	15,371,381	$ (4,010,028)	2.3%	229,973,662	19,346,698	$ 1,156,108	2.9%
2008/09	246,469,583	15,947,808	$ (3,741,122)	2.3%	228,817,554	20,072,199	$ 2,006,322	2.9%
2009/10	250,210,705	16,545,850	$ (3,427,541)	2.3%	226,811,231	20,824,907	$ 2,954,985	2.9%
2010/11	253,638,246	17,166,320	$ (3,064,756)	2.3%	223,856,246	21,605,841	$ 4,011,281	2.9%
2011/12	256,703,002	17,810,057	$ (2,647,834)	2.3%	219,844,965	22,416,060	$ 5,185,190	2.9%
2012/13	259,350,836	18,477,934	$ (2,171,399)	2.3%	214,659,775	23,256,662	$ 6,487,558	2.9%
2013/14	261,522,235	19,170,856	$ (1,629,600)	2.3%	208,172,217	24,128,787	$ 7,930,169	2.9%
2014/15	263,151,836	19,889,764	$ (1,016,068)	2.3%	200,242,049	25,033,616	$ 9,525,822	2.9%
2015/16	264,167,904	20,635,630	$ (323,870)	2.3%	190,716,227	25,972,377	$ 11,288,419	2.9%
2016/17	264,491,774	21,409,466	$ 454,535	2.3%	179,427,808	26,946,341	$ 13,233,058	2.9%
2017/18	264,037,239	22,212,321	$ 1,327,351	2.3%	166,194,750	27,956,829	$ 15,376,129	2.9%
2018/19	262,709,888	23,045,283	$ 2,303,498	2.3%	150,818,621	29,005,210	$ 17,735,430	2.9%
2019/20	260,406,391	23,909,481	$ 3,392,676	2.3%	133,083,191	30,092,905	$ 20,330,277	2.9%
2020/21	257,013,714	24,806,086	$ 4,605,430	2.3%	112,752,914	31,221,389	$ 23,181,636	2.9%
2021/22	252,408,285	25,736,315	$ 5,953,217	2.3%	89,571,279	32,392,191	$ 26,312,262	2.9%
2022/23	246,455,067	26,701,427	$ 7,448,492	2.3%	63,259,017	33,606,899	$ 29,746,844	2.9%
2023/24	239,006,576	27,702,730	$ 9,104,781	2.3%	33,512,173	34,867,157	$ 33,512,173	2.9%
2024/25	229,901,795	28,741,582	$ 10,936,781	2.3%	-	-	$ -	0.0%
2025/26	218,965,014	29,819,392	$ 12,960,454	2.3%	-	-	$ -	0.0%
2026/27	206,004,560	30,937,619	$ 15,193,131	2.3%	-	-	$ -	0.0%
2027/28	190,811,429	32,097,780	$ 17,653,633	2.3%	-	-	$ -	0.0%
2028/29	173,157,795	33,301,446	$ 20,362,392	2.3%	-	-	$ -	0.0%
2029/30	152,795,403	34,550,251	$ 23,341,586	2.3%	-	-	$ -	0.0%
2030/31	129,453,816	35,845,885	$ 26,615,288	2.3%	-	-	$ -	0.0%
2031/32	102,838,529	37,190,106	$ 30,209,620	2.3%	-	-	$ -	0.0%
2032/33	72,628,909	38,584,735	$ 34,152,931	2.3%	-	-	$ -	0.0%
2033/34	38,475,978	40,031,662	$ 38,475,978	2.3%	-	-	$ -	0.0%
2034/35	-	-	$ -	0.0%	-	-	$ -	0.0%

We note that the 30 year amortization results in negative amortization of Unfunded Liabilities for a significant period, through the 2016-17 Fiscal Year. At its height, the Unfunded Liability grows from the original $229,202,485 to $264,491,774, an increase of more than $35 million. As noted above, any negative amortization carries with it the cost of compound interest. The 20 year amortization contains a very short period of modest negative amortization, through 2006-07, with a total negative amortization of slightly less than $1,167,100.

The analysis appears compelling that absent an acute need for immediate cash flow relief, the 20 year fresh start amortization offers a superior financial alternative. Timing – can do any time.

Safety Plan—Comparison of Amortization Alternatives

The comparison between the amortization alternatives for the Safety Plan is displayed below:

Year	Current Amortization	30 Yr. FS Amortization	20 Yr. FS Amortization	Difference Current and 30	Difference Current and 20	Difference 30 and 20
2004/05	$ 6,633,213.21	$ 5,511,065.29	$ 6,936,326.51	$ 1,122,147.92	(303,113.30)	(1,425,261.22)
2005/06	5,898,660.09	5,717,730.24	7,196,438.75	180,929.85	(1,297,778.66)	(1,478,708.51)
2006/07	5,161,881.17	5,932,145.12	7,466,305.20	(770,263.95)	(2,304,424.03)	(1,534,160.08)
2007/08	4,422,140.99	6,154,600.56	7,746,291.65	(1,732,459.57)	(3,324,150.65)	(1,591,691.08)
2008/09	3,678,693.31	6,385,398.09	8,036,777.58	(2,706,704.78)	(4,358,084.27)	(1,651,379.50)
2009/10	2,930,780.25	6,624,850.51	8,338,156.74	(3,694,070.27)	(5,407,376.50)	(1,713,306.23)
2010/11	2,177,631.44	6,873,282.41	8,650,837.62	(4,695,650.97)	(6,473,206.18)	(1,777,555.21)
2011/12	1,418,463.17	7,131,030.50	8,975,244.03	(5,712,567.33)	(7,556,780.86)	(1,844,213.53)
2012/13	652,477.45	7,398,444.14	9,311,815.68	(6,745,966.69)	(8,659,338.23)	(1,913,371.54)
2013/14	(121,138.90)	7,675,885.80	9,661,008.77	(7,797,024.69)	(9,782,147.67)	(1,985,122.98)
2014/15	(903,215.19)	7,963,731.51	10,023,296.60	(8,866,946.70)	(10,926,511.79)	(2,059,565.09)
2015/16	20,350,344.02	8,262,371.45	10,399,170.22	12,087,972.58	9,951,173.80	(2,136,798.78)
2016/17	20,375,475.77	8,572,210.38	10,789,139.11	11,803,265.39	9,586,336.66	(2,216,928.73)
2017/18	20,420,553.61	8,893,668.26	11,193,731.82	11,526,885.34	9,226,821.78	(2,300,063.56)
2018/19	20,485,836.18	9,227,180.82	11,613,496.77	11,258,655.36	8,872,339.42	(2,386,315.94)
2019/20	20,571,604.43	9,573,200.11	12,049,002.90	10,998,404.32	8,522,601.53	(2,475,802.79)
2020/21	20,678,162.08	9,932,195.11	12,500,840.50	10,745,966.97	8,177,321.58	(2,568,645.39)
2021/22	11,863,537.93	10,304,652.43	12,969,622.02	1,558,885.50	(1,106,084.09)	(2,664,969.60)
2022/23	9,291,478.04	10,691,076.89	13,455,982.85	(1,399,598.85)	(4,164,504.80)	(2,764,905.96)
2023/24	9,470,278.95	11,091,992.28	13,960,582.21	(1,621,713.33)	(4,490,303.26)	(2,868,589.93)
2024/25	9,226,419.26	11,507,941.99		(2,281,522.72)	9,226,419.26	11,507,941.99
2025/26	8,988,838.97	11,939,489.81		(2,950,650.84)	8,988,838.97	11,939,489.81
2026/27	8,757,376.36	12,387,220.68		(3,629,844.31)	8,757,376.36	12,387,220.68
2027/28	8,531,873.92	12,851,741.45		(4,319,867.53)	8,531,873.92	12,851,741.45
2028/29	8,312,178.17	13,333,681.76		(5,021,503.59)	8,312,178.17	13,333,681.76
2029/30	8,098,139.58	13,833,694.82		(5,735,555.24)	8,098,139.58	13,833,694.82
2030/31	7,889,612.49	14,352,458.38		(6,462,845.89)	7,889,612.49	14,352,458.38
2031/32	7,686,454.97	14,890,675.57		(7,204,220.60)	7,686,454.97	14,890,675.57
2032/33	7,488,528.75	15,449,075.90		(7,960,547.15)	7,488,528.75	15,449,075.90
2033/34	7,295,699.13	16,028,416.25		(8,732,717.11)	7,295,699.13	16,028,416.25
2034/35	7,107,835	-		7,107,834.88	7,107,834.88	0.00
	66,557,008			66,557,008.29	$ 66,557,008	
	$ 341,396,823	$ 296,491,108	$ 201,274,068	44,905,714.29	$ 140,122,755	$ 95,217,041
			PV at 6.00%	3,888,499.51	$ 12,581,372	$ 8,692,872

The fresh start amortizations under the Safety Plan do not provide significant short term cash flow relief. Under the 30 year fresh start approach, the reduction is approximately $1,122,150. For a 20 year fresh start, there is a small increase in 2004-05 contribution level, $303,113. Over the 30 year term, the fresh start results in savings over the current amortization of $44,905,714 on an undiscounted basis and $3,888,500 discounted at a rate of 6.00%. The 20 year fresh start exhibits a clear financial advantage with a gross savings of $140,122,755 and present value savings of $12,581,372 over the current amortization. In sum, the 20 year fresh start amortization provides an $8,692,872 present value advantage over the 30 year alternative. Moreover, the fresh start approaches result in a complete amortization of the Unfunded Liabilities over the term, unlike the result of the current amortization. The amortizations are sized to result in a level percentage of expected payroll over the term.

Safety Plan—Rate of Amortization

	30 Year Fresh Start				20 Year Fresh Start			
Year	Unfunded Liab.	$ Payment	Amortization	% Pay	Unfunded Liab.	$ Payment	Amortization	% Pay
2004/05	$ 91,771,179	$ 5,511,065	$ (1,837,230)	3.6%	$ 91,771,179	$ 6,936,327	$ (354,342)	4.5%
2005/06	93,608,409	5,717,730	$ (1,773,781)	3.6%	92,125,521	7,196,439	$ (112,946)	4.5%
2006/07	95,382,190	5,932,145	$ (1,697,033)	3.6%	92,238,467	7,466,305	$ 158,514	4.5%
2007/08	97,079,224	6,154,601	$ (1,605,589)	3.6%	92,079,953	7,746,292	$ 462,898	4.5%
2008/09	98,684,812	6,385,398	$ (1,497,921)	3.6%	91,617,055	8,036,778	$ 803,318	4.5%
2009/10	100,182,733	6,624,851	$ (1,372,365)	3.6%	90,813,737	8,338,157	$ 1,183,157	4.5%
2010/11	101,555,098	6,873,282	$ (1,227,108)	3.6%	89,630,580	8,650,838	$ 1,606,091	4.5%
2011/12	102,782,207	7,131,030	$ (1,060,175)	3.6%	88,024,489	8,975,244	$ 2,076,116	4.5%
2012/13	103,842,382	7,398,444	$ (869,414)	3.6%	85,948,373	9,311,816	$ 2,597,576	4.5%
2013/14	104,711,796	7,675,886	$ (652,481)	3.6%	83,350,797	9,661,009	$ 3,175,188	4.5%
2014/15	105,364,277	7,963,732	$ (406,827)	3.6%	80,175,609	10,023,297	$ 3,814,077	4.5%
2015/16	105,771,104	8,262,371	$ (129,675)	3.6%	76,361,532	10,399,170	$ 4,519,809	4.5%
2016/17	105,900,780	8,572,210	$ 181,993	3.6%	71,841,723	10,789,139	$ 5,298,430	4.5%
2017/18	105,718,787	8,893,668	$ 531,462	3.6%	66,543,293	11,193,732	$ 6,156,502	4.5%
2018/19	105,187,325	9,227,181	$ 922,305	3.6%	60,386,791	11,613,497	$ 7,101,150	4.5%
2019/20	104,265,019	9,573,200	$ 1,358,405	3.6%	53,285,641	12,049,003	$ 8,140,110	4.5%
2020/21	102,906,614	9,932,195	$ 1,843,984	3.6%	45,145,531	12,500,841	$ 9,281,776	4.5%
2021/22	101,062,630	10,304,652	$ 2,383,629	3.6%	35,863,755	12,969,622	$ 10,535,258	4.5%
2022/23	98,679,000	10,691,077	$ 2,982,327	3.6%	25,328,498	13,455,983	$ 11,910,442	4.5%
2023/24	95,696,673	11,091,992	$ 3,645,495	3.6%	13,418,055	13,960,582	$ 13,418,055	4.5%
2024/25	92,051,178	11,507,942	$ 4,379,016	3.6%	-	-	$ -	0.0%
2025/26	87,672,162	11,939,490	$ 5,189,281	3.6%	-	-	$ -	0.0%
2026/27	82,482,881	12,387,221	$ 6,083,231	3.6%	-	-	$ -	0.0%
2027/28	76,399,651	12,851,741	$ 7,068,400	3.6%	-	-	$ -	0.0%
2028/29	69,331,251	13,333,682	$ 8,152,969	3.6%	-	-	$ -	0.0%
2029/30	61,178,282	13,833,695	$ 9,345,819	3.6%	-	-	$ -	0.0%
2030/31	51,832,463	14,352,458	$ 10,656,587	3.6%	-	-	$ -	0.0%
2031/32	41,175,876	14,890,676	$ 12,095,735	3.6%	-	-	$ -	0.0%
2032/33	29,080,141	15,449,076	$ 13,674,611	3.6%	-	-	$ -	0.0%
2033/34	15,405,531	16,028,416	$ 15,405,531	3.6%	-	-	$ -	0.0%
2034/35	-	-	$ -	0.0%	-	-	$ -	0.0%

Source: Bartel Associates, LLC.

Similar to the Miscellaneous Plan, the 30 year fresh start of the Safety Plan results in a material level of negative amortization, approximately $14 million. However, the current amortization under the Safety Plan has a much higher level of negative amortization. With a 20 year fresh start, the negative amortization is confined to the period through 2006-07 and is less than $470 thousand. Under both fresh start approaches, the result is a much more even amortization of Unfunded Liability. Moreover, the percentage of payroll applied to Payment on Amortized Bases is estimated to be even over the amortization term under either a 20 year or 30 year fresh start approach.

In the long run, a 20 year fresh start amortization likely will be the superior financial alternative for the County. Ultimately, the uneven amortization under the current structure must be revised. However, under current circumstances, particularly in the absence of immediate cash flow relief under either fresh start approach, the County should consider taking no immediate action on the Safety Plan. Instead, the County should review its options for modifying the cash flow under a pension obligation bond scenario, reserving the potential for a 20 year fresh start reamortization as an alternative.

Rate Restructuring Option. CalPERS has adopted a rate restructuring plan for those pension plans considered to be in "financial crisis." At present, the City of Long Beach, the City of Santa Clara and Riverside County appear to be giving the option significant consideration.[19] Rate restructuring has some significant conditions:

- The employer must certify that the employer and the employees (labor) have agreed to the change;
- The employer must have adopted a 30 year fresh start amortization;
- The Chief Actuary at CalPERS must accept the restructuring;
- The employer must have "considered" pension obligation bonds;
- The employer must not be requesting a restructuring to provide additional retirement benefits (exception for prior agreements calling for benefits effective in 2004-05 year);
- Reamortization of the avoided cost begins in 2007-08 and bears interest at a rate of 7.75% (based on new assumption);
- The request must have been made by June 15, 2004.

Rate restructuring for the 2004-05 Fiscal Year must provide for a contribution at least equal to the 2003-04 contribution plus 20% of the additional amount that would have been required for 2004-05. For the County this minimum is as follows:

	Miscellaneous Plan	Safety Plan	Total
2003-04	$51,026,879	$24,287,541	$75,314,420
2004-05 (30 yr FS)	$78,479,463	$36,249,048	$114,728,511
Increase in 2004-05			$39,514,091
20% of Increase			$7,902,818
Minimum 2004-05 after restructuring			$83,217,238
Reduction from FS			$31,511,273

Rate restructuring is an available, short term repair. When viewed against the County's cost of capital, it is obviously a net cost to the County. Given the other requirements involved, we do not recommend a rate restructuring from a financial basis, but we understand that if the County considers its situation to be a financial crisis, the technique remains an available remedial, short term possibility.

[19] Based on remarks by Ken Marzion, Division Chief, Actuarial & Employer Services Division, CalPERS on April 21, 2004 at California Municipal Treasurers' Association Conference.