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February 14, 2012

The Honorable Gloria Negrete McLeod
Co-Chair, Conference Committee on Public Employee Pensions
California State Senate
State Capitol, Room 4061
Sacramento, CA 95814

The Honorable Warren Furutani
Co-Chair, Conference Committee on Public Employee Pensions
California State Assembly
State Capitol, Room 6025
Sacramento, CA 95814

Dear Senator Negrete McLeod and Assembly Member Furutani:

As Co-Chairs of the Conference Committee on Public Employee Pensions, you requested CalPERS staff to prepare an analysis of the impact on retirement costs of implementing a hybrid plan for all new hires, using parameters provided to us by your committee staff.

We have completed that staff analysis and it is attached to this letter. While we have endeavored to provide information and analysis that will be helpful to the committee, we must emphasize that the analysis is very sensitive to the assumptions and plan parameters. Even minor changes to those assumptions may generate very different results.

CalPERS remains available to assist the committee, the Legislature, and the Administration as the discussion about public employee retirement benefits continues.

Sincerely,

ROBERT UDALL GLAZIER
Deputy Executive Officer
External Affairs Branch

Enclosure

cc: CalPERS Board of Administration
The Honorable Edmund G. Brown Jr.
The Honorable Darrell Steinberg, President pro Tempore
The Honorable John A. Pérez, Speaker of the Assembly
The Honorable Bob Huff, Senate Republican Leader
The Honorable Connie Conway, Assembly Republican Leader
Members of the Senate Public Employment & Retirement Committee
Members of the Assembly Public Employees, Retirement & Social Security Committee
Ana Matosantos, Director, Department of Finance

Actuarial Cost Analysis

Proposal for the Creation of a Hybrid Plan for New Hires

Prepared at the Request of the Joint Legislative Conference Committee on Public Employee Pensions

February 2012

CalPERS

ACTUARIAL COST ANALYSIS
Proposal for the Creation of a Hybrid Plan for New Hires

I. Executive Summary

The Joint Legislative Conference Committee on Public Employee Pensions ("Committee") has requested that CalPERS staff prepare an analysis of the impact on retirement costs of implementing a hybrid plan for all new hires that is consistent with the "Twelve Point Pension Reform Plan" ("Governor's Plan") issued by the Governor of California. The Governor's Plan does not provide sufficient details for us to prepare an analysis. Therefore, Committee staff has provided additional details as specified.

The results of the analysis are very sensitive to the assumptions and plan parameters that the Committee directed CalPERS to use in preparing this analysis. Readers are cautioned to review the whole report and not rely on the executive summary. An understanding of the limitations of the analysis and of the assumptions and parameters used is critical to the understanding of the results.

Note that this staff analysis does not include a discussion on additional costs that may occur due to the administration of the hybrid plan, nor does it include additional costs related to the existing defined benefit plan, such as costs that may result from a need to change the asset allocation in the possible case of closing the defined benefit plan. An analysis of closing a defined benefit plan and replacing it with a defined contribution plan can be found in "The Impact of Closing the Defined Benefit Plan at CalPERS " issued March 2011 by CalPERS. The scope of that Issue Brief does not address hybrid plans, however, the concepts related to the additional cost of administering two plans and, the type of freeze a plan administrator may consider, are outlined in that Issue Brief, and would likely apply to various hybrid plan designs. This analysis also does not address the impact of proposed changes to health benefits.

The key results of this staff analysis are:

- For the defined contribution component of the proposed hybrid plan, a total contribution of 6.4% of salary for the "target" miscellaneous member and a total contribution of 11% of salary for the "target" safety member are expected to result in benefit replacing about 25% of a member's salary at the time of retirement. Refer to the caveats and assumptions sections for details on how these contribution percentages were derived.
- For the defined benefit component, the goal of a 25% replacement ratio for the "target" miscellaneous member is expected to result in a total normal cost of about 3.5% to 4% of payroll. The goal of a 50% replacement ratio for the "target"

safety member is expected to result in a total normal cost of about 14% to 16% of payroll. Refer to the costs section later in this analysis for more details.

- The proposed hybrid plan is expected to result in a shifting of risk from the employer to the member. The employer is expected to see reduced risk in the form of a smaller, less volatile defined benefit. The member is expected to see an increase in risk because the defined contribution portion of their benefit is not guaranteed and accordingly will be exposed to investment return volatility.
- Lower risk for an employer in a hybrid plan does not necessarily mean lower cost. Please see Attachment 2 for a discussion of risk and cost trade-off between a hybrid plan and a pure defined benefit plan.
- The total retirement benefits provided to the member by the proposed hybrid plan are lower, in general, than the benefits currently provided to new hires. See Attachment 4 for a replacement ratio analysis.
- Even though the total retirement benefits provided to the member by the proposed hybrid plan are lower than those currently in place, the expected savings are generally not significant and for the State plans cost increases for some plans may largely offset cost savings in other plans. For School employers, cost savings are expected to be about 2% of payroll for new employees. For local agencies cost savings will vary significantly but are expected to be greater than for the State.

II. Introduction

In response to the growing call for comprehensive public pension reform, the Legislature formed a Conference Committee on Public Employee Pensions ("Committee") for conducting a deliberative examination of public employee pensions in California. The Committee has held three hearings as of February 1, 2012. The Committee is expected to hold further hearings and develop a package of legislation for consideration by the entire Legislature.

The Governor released a 12-point pension reform proposal on October 27, 2011. If enacted, this proposal would fundamentally alter public employee pensions in California, most significantly establishing a defined benefit-defined contribution hybrid pension plan, increasing public employee contributions to the current costs of pension plans, and shifting some of the long-term financial risk from taxpayers and public employers to public employees. The Governor's entire proposal may be reviewed at this link: http://gov.ca.gov/docs/Twelve_Point_Pension_Reform_10.27.11.pdf

After discussions with Committee staff, we have prepared this analysis based on assumptions and plan design parameters specified by Committee staff. In many cases, Committee staff specified that the assumptions be the same as those adopted by the CalPERS Board of Administration for use in the annual actuarial valuation reports. Throughout this document, the plan design parameters specified are referred to as the proposed hybrid plan.

Based on our understanding, the Governor's Plan increases retirement ages and reduces retirement benefits for all new state, local and school employees hired on or after a date not yet specified. In the original 12 point pension reform proposal, the Governor's Plan targeted a 75% replacement ratio utilizing a three legged stool approach. The idea was to replace 75% of an individual's final salary through three benefit components, each of which would be designed to provide a third of the target, i.e. 25%. The three components are Social Security, an employer sponsored defined benefit (DB) plan, and a defined contribution (DC) plan. For members not covered by Social Security, the Governor's Plan calls for a 50% target replacement ratio from the defined benefit component.

We note that very recently the Governor released to the Conference Committee proposed language for his reforms.

The proposal was delivered in two parts. They can be viewed at this link:

http://gov.ca.gov/docs/Pension_Language_part_1.pdf
http://gov.ca.gov/docs/Pension_Language_part_2.pdf

Importantly, this language did not specify that each component (DB, DC and Social Security) would make up a third of the target benefit. However, we have been asked by Committee staff to prepare our analysis based on the original intent.

III. Discussion – Caveats and Assumptions

Note that throughout this document, non-safety employees are referred to as miscellaneous employees.

The following is important information about the methods and assumptions used for the analysis of the defined benefit portion of the proposed hybrid plan:

- The assumptions used in this analysis reflect those in place for the June 30, 2010 actuarial valuations unless noted below. The CalPERS Board will be considering potential changes to wage inflation, price inflation and discount rate assumptions in March 2012. Potential changes to these assumptions have not been included in this cost analysis and would impact this cost analysis, likely leading to materially different results.

- Actuarial Cost Method: The Entry Age Normal Cost method was used to compare the cost of service accrual (i.e. normal cost) under the proposed defined benefit portion of the hybrid plan and the current benefits in place today. An important feature of this method is that the cost of service accrual is dependent on the age of hire for an employee. The older the employee is at the time of hire,

the higher the cost of service accrual. The normal costs provided in this analysis were based on the assumption that the hiring pattern and the average age at hire for new employees will remain unchanged.

- Retirement Rates: Generally, lower benefits will tend to increase the average retirement age. Retirement rates were adjusted to reflect this. See Attachment 3 for estimated retirement rates used for each of the plans. To the extent the actual retirement experience is different than assumed in this cost analysis, the savings could be higher or lower than shown in this analysis.

- Disability Rates: For this analysis, we were asked by Committee staff to assume disability benefits would remain to the same level they are today for new hires. If the disability benefits remain unchanged, it is likely that the incidence of disability would increase under the benefit structure proposed. If such increase occurs, the cost of the proposed benefits would be greater. An analysis of the potential impact of an increase in the incidence of disability is included in a later section.

In addition, it is unclear under the Governor's Initial Plan how the costs will be divided between the member and employer. This analysis assumes an equal division of total normal cost between member and employer. This implies that any increases or decrease resulting from the allocation of future experience gains and losses would be borne by the employer alone for the defined benefit component of the proposed hybrid plan.

In a defined contribution plan, the main factors, which affect the income replacement ratio, are:

- Age at hire
- Age at retirement
- Return on assets
- Salary increases received throughout his/her career
- Annuitization option chosen by the employee.

As described in Attachment 1, any variations to these parameters can have material implication to the benefits payable to the member at retirement from the defined contribution component of the proposed hybrid plan. For the purpose of this analysis, we have developed a hypothetical member. As directed by the Committee staff, the hypothetical member is someone hired at age 32 that will eventually retire at age 67 for miscellaneous members and hired at age 27 that retires at age 57 for safety members.

For the hypothetical member, an assumption had to be made regarding the expected investment earnings on the contributions to the defined contribution portion of the proposed hybrid plan. Recent studies show that DC plans underperform DB plans by 80

to 180[1] basis points on average. For purposes of this analysis, we have assumed that the proposed DC plans will return 100 basis points less than the current assumed rate of return (7.75%) for the CalPERS DB plans, i.e. 6.75% for the proposed DC plan. This assumption is particularly volatile. See Attachment 1 to see how the expected benefit would be impacted by even lower investment returns.

For the base case member, we have also assumed that the salary of the member would increase each year in line with the current actuarial assumptions. As previously mentioned, the replacement ratio will be different at retirement depending on how fast a member's salary increases during his or her career. See Attachment 1 for more details.

Finally, we have assumed for this analysis that the DC component would be paid in the form of an annuity which would be purchased from a private insurance company. As a result, we have made assumptions regarding the assumptions for the annuity calculation. It is important to note that a private insurer may use different assumptions, which may result in members having to pay more or less than described in this analysis to annuitize their balance.

The assumptions used to in the calculation of the retirement benefit that a member would receive from the purchase of an annuity at retirement are as follows:

- Interest rate: 4.5%
- Mortality: CalPERS mortality table from the 1997-2007 experience study
- Males are four years older than their female spouses
- Males represent 50% for miscellaneous employees
- Males represent 85% for safety employees

In order to provide a better comparison between the benefits provided under the defined contribution component of the proposed hybrid plan and the benefits provided under the defined benefit component, we are assuming for the hypothetical member that funds in the defined contribution account will be used to purchase an annuity that provides the member with the same level of inflation and survivor protection as the one provided under the defined benefit plan. For miscellaneous members, we have assumed the annuity will provide 25% survivor continuance and 2% cost-of-living adjustment (COLA). For safety members, we have assumed a 50% survivor continuance and 2% COLA. See Attachment 1 for the impact of not providing such protection.

[1]Below is a list of recent studies comparing DB and DC plans including discussions on the returns on assets in DC versus DB.
"Analysis of Defined Benefit Plan Efficiency - July 25, 2011" by Pension Trustee Advisors, Inc.
http://www.texpers.org/documents/TEXPERS-DBDCAnalysis-Revised.pdf
"DC Plans Underperformed DB Funds" by CEM Benchmarking, Inc.
http://www.cembenchmarking.com/Files/Documents/Research/DC/DCUnderPerformedDBWeb.pdf
"DB Versus DC Plan Investment Returns", Towers Watson
http://www.towerswatson.com/assets/pdf/mailings/TW_20643-April-Insider.pdf

For a full listing of the assumptions and methods used in this cost analysis, refer to Attachment 3.

As mentioned in the executive summary, this analysis does not include a discussion on additional costs that may occur due to the administration of the hybrid plan, nor does it include additional costs related to the existing defined benefit plan, such as costs that may result from a need to change the asset allocation in the possible case of closing the defined benefit plan.

Several studies are also available regarding the impact of creating a hybrid plan. Some of these studies include a 2004 study by Watson Wyatt[2], benefit consultants, showing that "retirement plan costs typically rise after a conversion from a traditional pension to a hybrid plan." In addition, a November 2010 study by Towers Watson[3], a benefits consulting firm, found that "…hybrids are more volatile than DC plans. Conversely, as there is a natural tradeoff between cost and volatility, hybrid plans are somewhat more cost-efficient than DC plans, although somewhat less so than traditional DB plans."

In addition, it is likely that employers will also be facing additional administrative cost to comply with changes required under this proposal.

IV. Plan Design

There are two distinct plans analyzed in this paper: a defined contribution retirement plan and a defined benefit retirement plan. We were asked to structure these two plans in a way that, in the case of miscellaneous employees, each component makes up approximately one-third of a total retirement benefit that totals 75% of the employee's three year final average compensation. The additional one-third of the benefit is assumed to be made up by Social Security. In the case of safety members, the defined benefit is targeted to make up two-thirds of the final retirement benefit.

Defined Contribution Plan

A defined contribution retirement plan is a retirement plan that provides an individual savings account for each participant such as a 401(k) or 403(b) plan. DC plans do not provide guaranteed benefits. Retirement benefits are based solely on the value of a participant's individual retirement account at the time of payment (or purchase of an annuity), which in turn depends on the level of contributions (made to an individual account by the participant and employer) and investment earnings. Subject to various tax limitations, DC plans can be designed to include employer contributions, employee contributions or both. The maximum employee and employer contribution amounts are capped by federal tax law.

[2] Workforce Realities, Not Cost, Drive Hybrid Plan Conversions
http://www.watsonwyatt.com/us/pubs/insider/showarticle.asp?ArticleID=13111
[3] Hybrid Pension Plans: A Comprehensive Look at Their History, Economics and Features
http://www.towerswatson.com/assets/pdf/3143/Hybrid_Plans_Study.pdf

The income replacement ratio is the percentage of the employee's annual salary that is replaced at retirement. The main factors, which affect the income replacement ratio under a defined contribution plan, are:

- Age at hire
- Age at retirement
- Return on assets
- Salary increases received throughout a career payout
- Annuitization option chosen by the employee.

For the purpose of this cost analysis, we have been asked to analyze a defined contribution plan based on the annual contribution needed to provide a replacement benefit equal to 25% of the hypothetical member's salary at the time of retirement. The hypothetical member was defined by Committee staff as someone that starts working at age 32 and retires at age 67 with 35 years of service for miscellaneous members. For the safety members, the hypothetical members was defined as someone hired at age 27 that retires at age 57 with 30 years of service.

Based on these hypothetical members and the assumptions outlined in Attachment 3, it was determined the defined contribution plan would require a total contribution of 6.4% of salary for the miscellaneous employees and 11% of salary for safety employees in order to generate a replacement ratio of about 25% of salary at retirement. If the costs are to be divided equally between the employer and employee, the defined contribution component would result in an employer cost of 3.2% of salary for miscellaneous employees and 5.5% of salary for safety employees.

It is important to understand that the 25% replacement ratio is dependent of specific assumptions being realized and for members hired and retiring at the ages mentioned above. Please see Attachment 1 for tables that will help illustrate the impact the main factors listed above may have on the income replacement ratio at retirement for miscellaneous and safety members under a defined contribution plan.

Defined Benefit Plan

For the purpose of this cost analysis, Committee staff has asked us to analyze a defined benefit plan providing 25% replacement ratio for new employees covered by Social Security and a 50% replacement ratio for new employees not covered by Social Security. To achieve this 25% - 50% goal, we have been directed by Committee staff to assume the benefit formula provided by the defined benefit component of the hybrid plan would provide for a factor of 0.714% at age 67 for miscellaneous members covered by Social Security and 1.429% at age 67 for those not covered. For safety members, the request included a factor at age 57 of 0.833% for those covered by Social Security and 1.667% for those not covered.

We were also directed by Committee staff to assume the earliest retirement age for miscellaneous members be age 57, and that factors will decrease by 6% from age 67 to age 57. For members retiring after age 67, we were directed by Committee staff to increase the factors by 6% from age 67 to age 70. For safety members, we were directed by Committee staff asked to assume the earliest retirement age would be 52, with factors decreasing by 6% from age 57 to age 52. For members retiring after age 57, we were directed by Committee staff to increase the factors by 6% from age 57 to age 60. Please refer to Attachment 3 for a full description of the benefit factors used for this cost analysis.

For this analysis, we were directed by Committee staff to assume that all ancillary benefits available to current new hires would remain in place. These benefits include for example:

- 3 year final compensation
- 25%/50% post-retirement survivor allowance
- 2% cost-of-living adjustment
- 50% industrial disability benefits for safety employees
- Ordinary disability benefits

For a full listing of the benefits, please refer to Attachment 3.

Finally, for the cost comparison provided below, it is assumed that employer and employee would divide the costs of both the defined benefit and defined contribution components of the proposed hybrid plan equally.

v. Costs

The proposed hybrid plan is composed of a defined contribution component and a defined benefit component. This cost analysis is based on a defined contribution plan with an annual contribution of 6.4% of salary for miscellaneous employees and 11% of salary for safety employees. If the costs are to be divided equally between the employer and employee, the defined contribution component would result in an employer cost of 3.2% of salary for miscellaneous employees and 5.5% of salary for safety employees.

For the defined benefit component of the proposed hybrid plan, the total normal cost was calculated for several existing groups. The groups selected for the comparison were, State Miscellaneous, Schools, State Police Officers and Firefighters (POFF), and California Highway Patrol (CHP). Comparisons were also made for a few Local Agency Miscellaneous and Safety Plans. Attachment 3 includes a description of the proposed benefits for new hires that were used for the analysis.

The Entry Age Normal Cost method was used to calculate the cost of service accrual (i.e. normal cost) for the proposed benefits. An important feature of this method is that the cost of service accrual is dependent on the age of hire for an employee. Younger

hire ages allow for more time to prefund benefits, and, to accumulate investment earnings. Therefore, the younger the employee is at the time of hire the lower the cost of service accrual. In performing this analysis, we assumed that new hires will have an average age at hire similar to the average age at hire of current employees.

Next are two tables comparing the average age at hire and estimated total normal cost under the proposed benefits for the various State groups, Schools as well as two local agencies. To the extent future hires have a higher or lower age at hire, the cost could be greater or lesser than the cost shown below. Note that the figures below are the estimated Total Normal Costs that are expected to be shared equally between the employer and employee.

Proposed Miscellaneous Benefits
Estimated Total Normal Cost as a % of Payroll

Groups	Average Age at Hire	Estimated Total Normal Cost under Proposed 25% Target Benefits (0.714% at Age 67)	Estimated Total Normal Cost under Proposed 50% Target Benefits (1.429% at Age 67)
State Miscellaneous	35	3.9%	7.1%
Schools	37	3.8%	7.0%
Local Agency #1	35	3.8%	7.1%
Local Agency #2	35	3.7%	7.0%

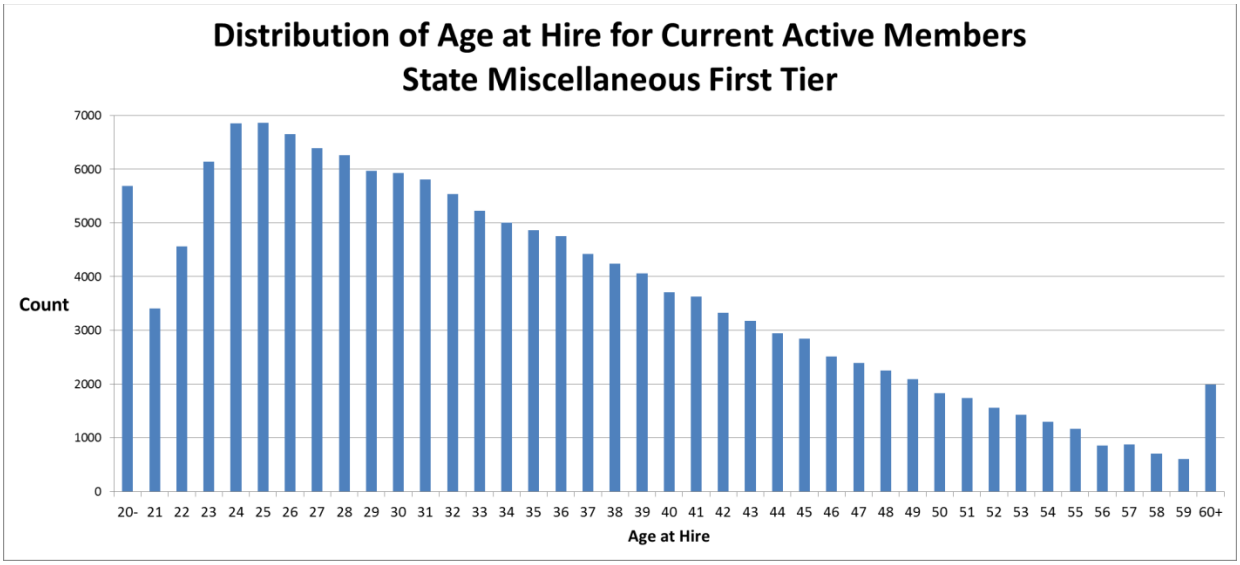
Proposed Safety Benefits
Estimated Total Normal Cost as a % of Payroll

Groups	Average Age at Hire	Estimated Total Normal Cost under Proposed 25% Target Benefits (0.833% at Age 57)	Estimated Total Normal Cost under Proposed 50% Target Benefits (1.667% at Age 57)
California Peace Officer Fire Fighter (POFF)	30	10.5%	15.5%
California Highway Patrol (CHP)	26	10.8%	13.9%
Local Agency #1	30	10.1%	14.9%
Local Agency #2	29	10.2%	15.1%

As discussed previously, if the industrial disability benefits remain unchanged, it is likely that the incidence of disability retirement would increase under the proposed hybrid plan. If such increase occurs, the cost of the proposed benefits could be greater than shown above. An analysis was performed to attempt to quantify the potential effect of an increase in the incidence of industrial disability retirement.

For this analysis, the California Peace Officer Fire Fighter Plan and the California Highway Patrol Plan were selected for illustration purposes. This does not imply that it is more likely for these groups to see an increase in the incidence of industrial disability retirement. From this analysis, it was determined that an increase of 10% in the incidence of industrial disability retirement could increase the total normal cost by 0.3% to 0.4% of payroll.

As mentioned above, the age at hire plays a significant role in the total normal cost for a defined benefit plan. For the State Miscellaneous plan, the age at hire is 35 on average but as can be seen on the chart on the next page, many of the current employees on the plan were hired in their 20's as well as 40's and 50's.



To better illustrate the impact age at hire has on total normal cost, below are two tables providing approximate ranges for total normal cost for sample entry ages. These are based on normal cost for a small sample of individuals and plans.

Miscellaneous Members

Total Normal Cost (as a % of Payroll)	Estimated Total Normal Cost under Proposed 25% Target Benefits (0.714% at Age 67)	Estimated Total Normal Cost under Proposed 50% Target Benefits (1.429% at Age 67)
Entry Age 27	2.8 – 3.4%	5.1 – 5.9%
Entry Age 29	3.1 – 3.6%	5.6 – 6.2%
Entry Age 32	3.5 – 4.0%	5.9 – 7.1%
Entry Age 35	3.7 – 4.4%	6.8 – 7.8%

Safety Members

Total Normal Cost (as a % of Payroll)	Estimated Total Normal Cost under Proposed 25% Target Benefits (0.833% at Age 57)	Estimated Total Normal Cost under Proposed 50% Target Benefits (1.667% at Age 57)
Entry Age 27	9.2 - 9.6%	13.8 - 14.4%
Entry Age 29	9.8 - 10.3%	14.5 - 15.4%
Entry Age 31	10.4 - 10.9%	15.3 - 16.1%

As can be seen from the above table, the lower the age at hire, the lower the expected total normal cost.

Potential Cost Savings

The final part of this analysis is regarding potential cost savings from the proposed hybrid plan when compared to the benefits currently provided to new hires. Please note that since retirement benefits provided to local agencies as well as the costs vary greatly, the cost comparison is limited to State and Schools members only. However, a general discussion of potential cost savings for local agencies can be found at the end of this section.

The tables below show an estimated employer savings based on formulas for current new hires for State Miscellaneous, Schools, POFF, and CHP. When comparing the proposed hybrid plan to the existing benefit, the reader should be aware that the proposed hybrid benefit will generally result in a benefit reduction to new hires.

AQs requested by Committee staff, the total normal cost for the proposed benefits was assumed to be shared equally between employer and employee. The tables below reflect the employer portion only. Note that assuming an equal sharing of cost between members and employers will result in a lower member contribution for some of the State groups. To the extent member contributions for these groups are kept at their current levels under the proposed hybrid plan, the savings shown below would be greater.

Since most State Miscellaneous members and Schools members are covered by Social Security, the comparison for these groups was done based on the benefits proposed for members covered by Social Security. For POFF and CHP, the comparison assumes these members are not covered by Social Security.

State Miscellaneous
Members Covered by Social Security

	Current Employer Normal Cost for New Hires in (2% at Age 60)	Estimated Employer Normal Cost for New Hires (0.714% at Age 67) (DB)	Estimated Employer Cost for Defined Contribution (DC)	Estimated Total Employer Cost for Hybrid (DB+DC)	Estimated Employer Savings
Employer Cost (as a % of Payroll)	5.8%	2.0%	3.2%	5.2%	0.6%

Schools
Members Covered by Social Security

	Current Employer Normal Cost for New Hires in (2% at Age 55)	Estimated Employer Normal Cost for New Hires (0.714% at Age 67) (DB)	Estimated Employer Cost for Defined Contribution (DC)	Estimated Total Employer Cost for Hybrid (DB+DC)	Estimated Employer Savings
Employer Cost (as a % of Payroll)	7.1%	1.9%	3.2%	5.1%	2.0%

California Peace Officer Fire Fighter
Members Not Covered by Social Security
(For New Hires Currently Subject to the 2.5% at Age 55 Formula)

	Current Employer Normal Cost for New Hires in BU other than BU 8 (2.5% at Age 55)	Estimated Employer Normal Cost for New Hires (1.667% at Age 57) (DB)	Estimated Employer Cost for Defined Contribution (DC)	Estimated Total Employer Cost for Hybrid (DB+DC)	Estimated Employer Savings
Employer Cost (as a % of Payroll)	11.2%	7.8%	5.5%	13.3%	-2.1%

California Peace Officer Fire Fighter
Members Not Covered by Social Security
(For New Hires Currently Subject to the 3% at Age 55 Formula)

	Current Employer Normal Cost for New Hires in BU 8 (3% at Age 55)	Estimated Employer Normal Cost for New Hires (1.667% at Age 57) (DB)	Estimated Employer Cost for Defined Contribution (DC)	Estimated Total Employer Cost for Hybrid (DB+DC)	Estimated Employer Savings
Employer Cost (as a % of Payroll)	14.0%	7.8%	5.5%	13.3%	0.7%

California Highway Patrol
Members Not Covered by Social Security

	Current Employer Normal Cost for New Hires (3% at Age 55)	Estimated Employer Normal Cost for New Hires (1.667% at Age 57) (DB)	Estimated Employer Cost for Defined Contribution (DC)	Estimated Total Employer Cost (DB+DC)	Estimated Employer Savings
Employer Cost (as a % of Payroll)	12.0%	7.0%	5.5%	12.5%	-0.5%

As mentioned above, cost savings for local agency plans are not easily quantified. Current local agency plans have differing benefit formulas and many have enacted lower levels of benefits for new hires. Because of the varying benefit levels from plan to plan, an analysis has not been presented here.

However, since most miscellaneous members working for local agencies are currently subject to the same or better retirement benefits than State Miscellaneous members and that they contribute on average less, we would expect the savings to be larger for local agency employers with respect to their miscellaneous members than for the State. Similarly, since most safety members working for local agencies are currently subject to the same or better retirement benefits than the State POFF and CHP members and that they contribute on average less, we would expect the savings to be larger for local agency employers with respect to their safety members than for the State.

Also, note that plans with significant numbers of part-time employees may see slight normal cost differences than those presented above.

ATTACHMENT 1
Defined Contribution Plans Sensitivity Analysis

Attachment 1
Defined Contribution Plans Sensitivity Analysis

DC plans do not provide guaranteed benefits. Retirement benefits are based solely on the value of a participant's individual retirement account at the time of payment (or purchase of an annuity), which in turn depends on the level of contributions (made to an individual account by the participant and employer) and investment earnings.

The income replacement ratio is the percentage of the employee's annual salary that is replaced at retirement. The main factors, which affect the income replacement ratio under a defined contribution plan, are:

- Return on assets
- Age at hire
- Age at retirement
- Salary increases received throughout someone's career
- Annuitization option chosen by the employee

In this attachment, we attempt to illustrate how variations in these parameters can have a material implict on the benefits payable to the member at retirement from the DC component of the proposed hybrid plan.

The sensitivity analysis was performed based on a total contribution of 6.4% of salary for the miscellaneous employees and 11% of salary for safety employees. The sensitivity analysis of the DC component of the hybrid plan focuses on the expected replacement ratio at retirement assuming the member will annuitize the DC balance at retirement.

We have assumed for the sensitivity analysis that members will purchase an annuity from a private insurance company. Please refer to section III of the main analysis entitled "Discussion – Caveats and Assumptions" for more details and Attachment 3 for a full listing of the assumptions used in the calculations. The sensitivity analysis is also based on the hypothetical members described in the main body analysis.

Return on Assets

In a DC plan, the benefit at the time of retirement is determined by the amount of assets accumulated in the retirement account. The retirement account balance at retirement depends heavily on the investment returns throughout the employee's career. The higher the returns during the employee's career, the higher the retirement account balances will be at retirement. Conversely, lower returns lead to lower retirement account balances at retirement. For the sensitivity analysis, we are comparing the impact on the expected replacement ratio under three separate asset return scenario. The first one is assuming the proposed DC plan assets will earn 100 basis points less

than the discount rate (7.75%) used for the CalPERS DB plans, i.e. 6.75%. the other two scenarios are 5.75% and 4.75%. Note that recent studies show DC plans underperform DB plans by 80 to 180[4] basis points. The following two tables show how the return on assets in a DC plan can affect the expected replacement ratio.

Miscellaneous Member

	Member A	Member B	Member C
Assumed Contributions	6.4%	6.4%	6.4%
Age at Hire	32	32	32
Age at Retirement	67	67	67
Years of Service	35	35	35
Asset Returns	6.75%	5.75%	4.75%
Projected Salary Increase	Current Actuarial Assumptions	Current Actuarial Assumptions	Current Actuarial Assumptions
Annuity Payout	J&S 25% with a 2% COLA	J&S 25% with a 2% COLA	J&S 25% with a 2% COLA
Expected Replacement Ratio	25%	21%	18%

Safety Member

	Member A	Member B	Member C
Assumed Contributions	11%	11%	11%
Age at Hire	27	27	27
Age at Retirement	57	57	57
Years of Service	30	30	30
Asset Returns	6.75%	5.75%	4.75%
Projected Salary Increase	Current Actuarial Assumptions	Current Actuarial Assumptions	Current Actuarial Assumptions
Annuity Payout	J&S 50% with a 2% COLA	J&S 50% with a 2% COLA	J&S 50% with a 2% COLA
Expected Replacement Ratio	25%	21%	18%

[4]Below is a list of recent studies comparing DB and DC plans including discussions on the returns on assets in DC versus DB.
"Analysis of Defined Benefit Plan Efficiency - July 25, 2011" by Pension Trustee Advisors, Inc.
http://www.texpers.org/documents/TEXPERS-DBDCAnalysis-Revised.pdf
"DC Plans Underperformed DB Funds" by CEM Benchmarking, Inc.
http://www.cembenchmarking.com/Files/Documents/Research/DC/DCUnderPerformedDBWeb.pdf
"DB Versus DC Plan Investment Returns", Towers Watson
http://www.towerswatson.com/assets/pdf/mailings/TW_20643-April-Insider.pdf

Age at Hire

The length of an employee's career plays a significant role in the amount of benefits that can be received from a DC plan. Younger members who have more time for their investments to grow tend to build larger retirement accounts. For example, assuming a retirement age of 67, a member hired at age 32 has 35 years to invest while someone hired at age 37 has 30 years to invest, a much shorter investment horizon. As can be seen in the two tables below, members hired at younger ages end up with higher replacement ratios at retirement compared to members that retire at the same age but hired at an older age. Put another way, if the target income replacement ratio is 25% at retirement, then members hired at older ages will have to contribute more to achieve that goal while members hired at younger ages will have to contribute less.

Miscellaneous Member

	Member A	Member B	Member C
Assumed Contributions	6.4%	6.4%	6.4%
Age at Hire	32	35	38
Age at Retirement	67	67	67
Years of Service	35	32	29
Asset Returns	6.75%	6.75%	6.75%
Projected Salary Increase	Current Actuarial Assumptions	Current Actuarial Assumptions	Current Actuarial Assumptions
Annuity Payout	J&S 25% with a 2% COLA	J&S 25% with a 2% COLA	J&S 25% with a 2% COLA
Expected Replacement Ratio	25%	22%	19%

Safety Member

	Member A	Member B	Member C
Assumed Contributions	11%	11%	11%
Age at Hire	27	29	31
Age at Retirement	57	57	57
Years of Service	30	28	26
Asset Returns	6.75%	6.75%	6.75%
Projected Salary Increase	Current Actuarial Assumptions	Current Actuarial Assumptions	Current Actuarial Assumptions
Annuity Payout	J&S 50% with a 2% COLA	J&S 50% with a 2% COLA	J&S 50% with a 2% COLA
Expected Replacement Ratio	25%	23%	20%

Age at Retirement

The age at retirement also impacts the length of someone's career and therefore plays a significant role in the amount of benefits that can be received from a DC plan. Monthly benefit amounts can differ substantially based on a member's retirement age. For example, assuming same age hire dates, a member who retires earlier than 67, say age 64, has 32 years to build their retirement account, while a member who retires later, say age 70, has more time (38 years) to grow their account.

As can be seen in the two tables below, members that retire at later ages end up with a higher replacement ratio at retirement compared to someone that retires at an earlier age and that was hired at the same age. Put another way, if the target income replacement ratio at retirement is 25%, then members retiring at earlier ages will have to contribute more to achieve the same goal.

Miscellaneous Member

	Member A	Member B	Member C
Assumed Contributions	6.4%	6.4%	6.4%
Age at Hire	32	32	32
Age at Retirement	67	64	70
Years of Service	35	32	38
Asset Returns	6.75%	6.75%	6.75%
Projected Salary Increase	Current Actuarial Assumptions	Current Actuarial Assumptions	Current Actuarial Assumptions
Annuity Payout	J&S 25% with a 2% COLA	J&S 25% with a 2% COLA	J&S 25% with a 2% COLA
Expected Replacement Ratio	25%	20%	32%

Safety Member

	Member A	Member B	Member C
Assumed Contributions	11%	11%	11%
Age at Hire	27	27	27
Age at Retirement	57	55	60
Years of Service	30	28	33
Asset Returns	6.75%	6.75%	6.75%
Projected Salary Increase	Current Actuarial Assumptions	Current Actuarial Assumptions	Current Actuarial Assumptions
Annuity Payout	J&S 50% with a 2% COLA	J&S 50% with a 2% COLA	J&S 50% with a 2% COLA
Expected Replacement Ratio	25%	22%	31%

Salary Increases

The salary increases that a member receives throughout his/her career play an important role in the projected retirement account balance. Generally, the quicker someone's salary increases during their career (referred to as a member on a fast track), the lower the replacement ratio will be at retirement. As can be seen in the tables below, a member on a fast track, say member C will need to contribute more money to achieve a 25% replacement ratio.

Miscellaneous Member

	Member A	Member B	Member C
Assumed Contributions	6.4%	6.4%	6.4%
Age at Hire	32	32	32
Age at Retirement	67	67	67
Years of Service	35	35	35
Asset Returns	6.75%	6.75%	6.75%
Projected Salary Increase	Current Actuarial Assumptions	1% Below Current Actuarial Assumptions	1% Above Current Actuarial Assumptions
Annuity Payout	J&S 25% with a 2% COLA	J&S 25% with a 2% COLA	J&S 25% with a 2% COLA
Expected Replacement Ratio	25%	31%	21%

Safety Member

	Member A	Member B	Member C
Assumed Contributions	11%	11%	11%
Age at Hire	27	27	27
Age at Retirement	57	57	57
Years of Service	30	30	30
Asset Returns	6.75%	6.75%	6.75%
Projected Salary Increase	Current Actuarial Assumptions	1% Below Current Actuarial Assumptions	1% Above Current Actuarial Assumptions
Annuity Payout	J&S 50% with a 2% COLA	J&S 50% with a 2% COLA	J&S 50% with a 2% COLA
Expected Replacement Ratio	25%	30%	21%

Pay Out Options

We have assumed for this analysis that the DC component would be paid in the form of an annuity which would be purchased from a private insurance company. There are several types of annuity options. Retirees in traditional defined benefit (DB) plans generally choose between single life annuities (which provide regular payments until the death of the pension recipient) and, joint and survivor annuities (which continue to make payments to the spouse after the death of the pension recipient). These lifetime annuities can also provide cost of living adjustments.

Most public plans in California offer the combination of inflation and survivorship protection. Employers contracting with CalPERS have the option of electing a survivor continuance benefit, generally 25% or 50%. The standard cost of living adjustment is 2%.

As can be seen in tables below, purchasing an annuity at retirement that provides both inflation protection and survivor protection will require more contributions to the DC plan. Put another way, a member electing to purchase an annuity that provides for no inflation and survivor protection will need to contribute less money to achieve a 25% replacement ratio.

Miscellaneous Member

	Member A	Member B	Member C
Assumed Contributions	6.4%	6.4%	6.4%
Age at Hire	32	32	32
Age at Retirement	67	67	67
Years of Service	35	35	35
Asset Returns	6.75%	6.75%	6.75%
Projected Salary Increase	Current Actuarial Assumptions	Current Actuarial Assumptions	Current Actuarial Assumptions
Annuity Payout	J&S 25% with a 2% COLA	Life Only with No COLA	Life Only with 2% COLA
Expected Replacement Ratio	25%	31%	27%

Safety Member

	Member A	Member B	Member C
Assumed Contributions	11%	11%	11%
Age at Hire	27	27	27
Age at Retirement	57	57	57
Years of Service	30	30	30
Asset Returns	6.75%	6.75%	6.75%
Projected Salary Increase	Current Actuarial Assumptions	Current Actuarial Assumptions	Current Actuarial Assumptions
Annuity Payout	J&S 50% with a 2% COLA	Life Only with No COLA	Life Only with 2% COLA
Expected Replacement Ratio	25%	34%	28%

ATTACHMENT 2
Defined Benefit versus Proposed Hybrid
Costs versus Risks

Attachment 2

Defined Benefit versus Proposed Hybrid
Costs versus Risks

What is the difference between a DB plan and a Hybrid plan?

A DB plan is a traditional pension plan that provides guaranteed annual pension benefits. Typically, the amount of the retirement benefit is determined by the retirement age benefit factor (depends on the benefit formula and retirement age), a participant's years of service, and the highest salary over a specified number of years. Most public employers provide employees with a DB pension plan. Most public employees share in the cost of this benefit by contributing a specified percentage of compensation that is set by statute. The employer pays the remaining portion of the cost. Assumptions are made to model the ultimate cost of these plans. If reality differs from the assumptions, also known as actuarial gains/losses, then additional cost/savings will arise. The employer bears all of the risk of events not occurring as expected. For example, the employer bears all of the risk of investment losses while reaping all of the rewards of investment gains.

A hybrid plan strikes a balance between a guaranteed benefit and a benefit subject to investment risk. Generally, a hybrid plan will include a reduced DB component and a DC component.

Cost

One key aspect to keep in mind when a hybrid plan is being considered is the fact that lowering the risk for an employer in a hybrid plan does not necessarily mean lowering the cost. To illustrate that point, we compared the cost of providing a retirement benefit targeting 50% or 75% for the hypothetical member using a hybrid plan versus a pure DB plan.

The cost of providing such a benefit through a hybrid plan is higher than an alternative DB plan. The benefit to the employer of using a hybrid plan is to transfer a portion of the contingency risk to the employee. The overall risk to the employer is significantly reduced. More on that can be found in the risk section that follows.

Next are two tables that compare the cost of providing retirement benefits using an alternative pure DB plan versus the proposed hybrid plan. The first table focuses on members not covered by Social Security i.e. the goal would be for the hybrid or DB plan to provide a 75% replacement ratio to the hypothetical member. The second table focuses on a member covered by Social Security i.e.

the goal would be for the hybrid or DB plan to provide a 50% replacement ratio to the hypothetical member.

Member Not Covered by Social Security – 75% Goal

Cost Comparison				
	Alternative DB Plan	Hybrid Plan Target		
	75% of Final Compensation	50% of Final Compensation Target DB	25% of Final Compensation Target DC	Total Hybrid 75% Target
Miscellaneous Member	10.3%	7.1%	6.4%	13.5%
Safety member	20.4%	15.5%	11%	26.5%

Member Covered Social Security – 50% Goal

Cost Comparison				
	Alternative DB Plan	Hybrid Plan Target		
	50% of Final Compensation	25% of Final Compensation Target DB	25% of Final Compensation Target DC	Total Hybrid 50% Target
Miscellaneous Member	7.1%	3.9%	6.4%	10.3%
Safety member	15.5%	10.5%	11%	21.5%

Risk

In a defined benefit plan, the employer bears all of the risk of events not occurring as expected. These risks can be felt in the form of the volatility in annual employer rates required to properly fund a defined benefit plan.

The main driver of employer contribution rate volatility is the level of assets accumulated in the defined benefit plan. Since this is expected to be proportional to the total normal cost (in the long term), one can compare the DB total normal cost to get an understanding of the relative level of risk inherent in different plan designs.

For example, as shown above, the expected total normal cost to provide a 75% replacement income to a miscellaneous employee is 10.3% is payroll under the pure DB and the total normal cost of the DB component of the proposed hybrid is 7.1% of payroll. This is a 31% reduction. Therefore, we would expect over time a reduction in risk of about 31%. At the same time, the cost was estimated to be about 31% higher under the hybrid plan.

The table below shows the expected reduction in volatility between providing retirement benefits of similar levels using a pure DB plan to using the proposed hybrid plan. It also shows the expected relative increase in cost that would result if the proposed hybrid plan was selected over the use of a pure DB plan.

Under the proposed hybrid, the 75% replacement target is achieved by using a DB component that provides 50% and a DC component that provides 25%. The 50% replacement target is achieved by using a DB component that provides 25% and a DC component that provides 25%.

DB Versus Hybrid - Cost Versus Risk

Group	Expected Relative Reduction in Risk For Using a Hybrid Plan	Expected Relative Increase In Cost for Using a Hybrid Plan
Miscellaneous Member (75% Replacement Target)	31%	31%
Miscellaneous Member (50% Replacement Target)	45%	45%
Safety member (75% Replacement Target)	24%	30%
Safety member (50% Replacement Target)	32%	39%

ATTACHMENT 3
Actuarial Disclosure for the Proposed Hybrid Plan

Attachment 3

Actuarial Disclosure for the Proposed Hybrid Plan

As requested by Committee staff, the proposed hybrid plan contains two components, a defined benefit component which is intended to replace either 25% (member is participating in Social Security) or 50% (member is not participating in Social Security) of final compensation. The second component is a defined contribution component intended to replace 25% of final compensation. The defined contribution component requires assumptions relating to accumulating an account balance and converting that balance into a life annuity. Below is a summary of the assumptions, methods and benefits used in determining costs and replacement ratio levels for the proposed hybrid plan.

Defined Benefit Component

Membership Data

The membership data used to determine the expected total normal cost is identical to the data used in the June 30, 2010 State and Schools actuarial valuation and June 30, 2010 annual valuations for local agencies.

Actuarial Methods and Assumptions

The actuarial methods and assumptions used were the ones used for the June 30, 2010 actuarial valuations for State, Schools and local agencies. Note that the CalPERS Board will be considering changes to some of the economic assumptions, including price inflation, wage inflation and discount rate in March 2012. Any changes to these assumptions would impact the information presented in this analysis.

The service retirement rates were modified from existing Miscellaneous and Safety formulas. The new formulas listed below reflect the expectation that by reducing the retirement benefits for new hires, these new hires would be expected to work longer before electing to file for service retirement.

To the extent the actual retirement experience is different than assumed in this cost analysis, the savings could be higher or lower than shown in this analysis.

Retirement Assumption and Benefit Factors for Miscellaneous Members

The service retirement assumptions that were used for the cost analysis of the proposed 25% and 50% replacement ratio defined benefit formulas are as follows:

Service Retirement Assumption

Attained Age	Years of Service						
	5	10	15	20	25	30	35
50	0.000	0.000	0.000	0.000	0.000	0.000	0.000
52	0.000	0.000	0.000	0.000	0.000	0.000	0.000
54	0.000	0.000	0.000	0.000	0.000	0.000	0.000
56	0.000	0.000	0.000	0.000	0.000	0.000	0.000
58	0.012	0.031	0.043	0.053	0.065	0.076	0.088
60	0.022	0.059	0.082	0.102	0.124	0.145	0.168
62	0.037	0.098	0.138	0.170	0.209	0.244	0.282
65	0.051	0.138	0.194	0.238	0.292	0.341	0.394
70	0.048	0.127	0.179	0.219	0.270	0.314	0.364
75	1.000	1.000	1.000	1.000	1.000	1.000	1.000

The proposed benefit factors as defined by Committee staff for miscellaneous new hires are as follows:

Attained Age	25% target 0.714% @ 67 (With Social Security)	50% Target 1.429% @ 67 (Without Social Security)
50	0.000%	0.000%
51	0.000%	0.000%
52	0.000%	0.000%
53	0.000%	0.000%
54	0.000%	0.000%
55	0.000%	0.000%
56	0.000%	0.000%
57	0.399%	0.798%
58	0.423%	0.846%
59	0.448%	0.896%
60	0.475%	0.950%
61	0.504%	1.007%
62	0.534%	1.068%
63	0.566%	1.132%
64	0.600%	1.199%
65	0.636%	1.271%
66	0.674%	1.348%
67	0.714%	1.429%
68	0.757%	1.514%
69	0.803%	1.605%
70 & up	0.851%	1.701%

The 0.714% at age 67 formula would be applicable to members covered by Social Security while the 1.429% at age 67 formula would be applicable to members not covered by Social Security.

Ancillary Benefits

For this analysis, we were asked by Committee staff to assume that all ancillary benefits would remain the same as those in place today for new hires. Below is a list of the ancillary benefits used in estimating the cost of the defined benefit component of the proposed hybrid plan. For a more detailed description of the ancillary benefits valued below please see Appendix B of the June 30, 2010 State and Schools actuarial valuation, State Miscellaneous Tier 1 section.

- Final 3 Year Compensation
- 5 Year Vesting
- 25% Post Retirement Survivor Allowance for members covered by Social Security
- 50% Post Retirement Survivor Allowance for members not covered by Social Security
- Non-Industrial (Non-Job Related) Disability Retirement
- $2,000 Post-Retirement Death Benefit
- 1957 Survivor Pre-Retirement Death Benefit
- Optional Settlement 2W Death Benefit
- Purchasing Power Protection Allowance (PPPA)
- 2% Cost-of-Living Adjustments (COLA)
- Employee Contributions (50% of Normal Cost)
- Refund of Employee Contributions

Retirement Assumption and Benefit Factors for Safety Members

The service retirement assumptions that were used for the cost analysis of the proposed defined benefit component of the hybrid plan are as follows. Note that since CHP currently has a mandatory retirement at age 60, different retirement assumptions were used for CHP.

The new estimated assumptions for the proposed formulas are as follows:

All Safety Members (Except CHP)

Attained Age	Years of Service						
	5	10	15	20	25	30	35
50	0.000	0.000	0.000	0.000	0.000	0.000	0.000
52	0.006	0.021	0.028	0.033	0.054	0.085	0.098
54	0.015	0.050	0.068	0.078	0.129	0.203	0.235
56	0.020	0.067	0.089	0.104	0.172	0.270	0.314
58	0.019	0.063	0.085	0.098	0.162	0.254	0.295
60	0.019	0.064	0.086	0.100	0.165	0.259	0.301
62	0.033	0.110	0.149	0.172	0.286	0.448	0.522
65	0.037	0.125	0.169	0.196	0.324	0.592	0.592
70	1.000	1.000	1.000	1.000	1.000	1.000	1.000

CHP

Attained Age	Years of Service						
	5	10	15	20	25	30	35
50	0.000	0.000	0.000	0.000	0.000	0.000	0.000
52	0.012	0.012	0.012	0.012	0.035	0.066	0.076
54	0.028	0.028	0.028	0.028	0.084	0.160	0.184
56	0.026	0.026	0.026	0.026	0.077	0.146	0.169
58	0.022	0.022	0.022	0.022	0.065	0.124	0.142
60	1.000	1.000	1.000	1.000	1.000	1.000	1.000

The proposed benefit factors as defined by Committee staff for safety new hires are as follows:

Attained Age	25% target 0.833% @ 57 (With Social Security)	50% Target 1.667% @ 57 (Without Social Security)
50	0.000%	0.000%
51	0.000%	0.000%
52	0.623%	1.245%
53	0.660%	1.320%
54	0.700%	1.399%
55	0.742%	1.483%
56	0.786%	1.572%
57	0.833%	1.667%
58	0.883%	1.767%
59	0.936%	1.873%
60 & Up	0.992%	1.985%

The 0.833% at age 57 formula would be applicable to members covered by Social Security while the 1.667% formula would be applicable to members not covered by Social Security.

Ancillary Benefits

For this analysis, we were asked by Committee staff to assume that all ancillary benefits would remain the same as those in place today for new hires. Below is a list of the ancillary benefits used in estimating the cost of the defined benefit component of the proposed hybrid plan. For a more detailed description of the ancillary benefits valued below please see Appendix B of the June 30, 2010 State and Schools actuarial valuation, State Peace Officer and Firefighter section or California Highway Patrol section.

- Final 3 Year Compensation
- 5 Year Vesting
- 50% Post Retirement Survivor Allowance for members not Covered by Social Security
- Non-Industrial (Non-Job Related) Disability Retirement
- 50% of Salary Industrial (Job Related) Disability Retirement
- $2,000 Lump Sum Post-Retirement Death Benefit
- 1957 Survivor Pre-Retirement Death Benefit
- Optional Settlement 2W Death Benefit
- Special Death Benefit
- Purchasing Power Protection Allowance (PPPA)
- 2% Cost-of-Living Adjustments (COLA)
- Employee Contributions (50% of Normal Cost)
- Refund of Employee Contributions

Defined Contribution Component

The following are the assumptions used in calculating the hypothetical member's account balance at retirement and annuitizing that balance into a life annuity.

Miscellaneous Member Assumptions – Hypothetical Member

Age at Hire:	32
Age at Retirement:	67
Asset Returns:	6.75% per year
Projected Salary Increase:	Current Assumptions used in June 30, 2010 State and School and Local Agencies Actuarial Valuations
Annuity Interest Rate:	4.5%
Annuity Mortality:	CalPERS mortality table from the 1997-2007 experience study

Annuity COLA:	2%
Annuity Continuance:	25% survivor continuance
Spousal Age difference:	Males are 4 years older than females
Male/Female Blend:	50/50

Contribution Rate for New Miscellaneous Hires

Contribution Rate: 6.4% of salary

This is the contribution rate that was determined to be necessary for the hypothetical member to achieve a replacement income of 25% of salary at retirement based on the assumptions listed above.

Safety Member Assumptions - Hypothetical Member

Age at Hire:	27
Age at Retirement:	57
Asset Returns:	6.75% per year
Projected Salary Increase:	Current Assumptions used in June 30, 2010 State and School and Local Agencies Actuarial Valuations
Annuity Interest Rate:	4.5%
Annuity Mortality:	CalPERS mortality table from the 1997-2007 experience study
Annuity COLA:	2%
Annuity Continuance:	50% survivor continuance
Spousal Age difference:	Males are four years older than females
Male/Female Blend:	85% Male/15% Female

Contribution Rate for New Safety Hires

Contribution Rate: 11% of salary

This is the contribution rate that was determined to be necessary for the hypothetical member to achieve a replacement income of 25% of salary at retirement based on the assumptions listed above.

ATTACHMENT 4
Replacement Ratio Comparison for the Proposed Hybrid Plan

Attachment 4
Replacement Ratio Comparison for the Hybrid Plan Proposal

The purpose of this attachment is to compare benefits and expected replacement ratios between the proposed hybrid plan, and the current defined benefit applicable to new hires today. For comparison purposes only, the State Miscellaneous plan and the State Peace Officers and Firefighters plan (POFF) were selected.

Plan Design Comparison

We have selected State Miscellaneous and State Peace Officers and Firefighters (POFF) for various reasons. First, they represent the two largest groups of employees for the State plans. Also, the 2% at age 60 miscellaneous benefit formula and the 3% at age 55 safety benefit formula for new hires under these plans are the two most common formulas for the lower tier of benefits that have recently been adopted by local agencies. Over the last two years, lower benefits for new hires have been adopted for more than 200 local agency plans. For miscellaneous, 70% of the lower tiers provide the 2% at age 60 and 70% of the lower tiers for safety plans provide 3% at 55. The 3% at age 55 formula also applies to all new CHP employees.

Below are tables comparing the benefit factors under the 2% at age 60 formula applicable to State Miscellaneous new hires and the 3% at age 55 formula applicable to POFF members to the benefit formulas under the proposed hybrid plan for certain ages. For this comparison, we are assuming miscellaneous members are covered by Social Security and that safety members are not covered by Social Security. Note that not all the ages are included in the table below. The ages listed were selected based on the hypothetical member described in the main analysis and based on the current averages at retirement for the members of these two groups.

Miscellaneous Benefit Factors		
Age	2% at Age 60	Hybrid DB Component 0.714% at Age 67
61	2.134%	0.504%
67	2.418%	0.714%

Safety Benefit Factors			
Age	2.5%at Age 55	3% at Age 55	Hybrid DB Component 1.667% at Age 57
55	2.500%	3.000%	1.483%
57	2.500%	3.000%	1.667%

For the defined contribution portion of the proposed hybrid plan, as stated in the main analysis, it was determined that for the hypothetical members using the assumptions defined in Attachment 3 that a total contribution of 6.4% of salary for the miscellaneous employees and 11% of salary for safety employees would be needed to generate a replacement ratio of about 25% of salary at retirement

Further details about the assumptions and benefits of the plans can be found in Attachment 3.

Plan Benefit Comparison

The two tables below contain expected replacement ratios for the hypothetical employee and the average employee for State Miscellaneous and POFF plans under the existing plan as well as the proposed hybrid plan. As a result of recent negotiations, the POFF plan has two different formulas for current new hires depending on the bargaining unit so two tables are presented. The wage replacement ratio represents what percentage of a member's final salary will be received in retirement.

For simplicity, the replacement ratios were calculated based on the expected final salary at the time of retirement. Since benefits are expected to be based on a 3 year Final Average Compensation, we would expect 1-3% lower wage replacement ratios across all plans, but it would be dependent on plan specific salary scales which is beyond the scope of this analysis.

Below is the table for State Miscellaneous members.

State Miscellaneous				
Member	Defined Contribution	Defined Benefit	Total	Current New Hire 2% at Age 60
Hypothetical	25%	25%	50%	85%
Average	12%	13%	25%	53%

For State Miscellaneous, the hypothetical member is assumed to be hired at age 32 and work full time until age 67, retiring with 35 years of service. A current average State Miscellaneous employee currently retires at age 61 with 25 years of service.

As can be seen in the table above, the benefit levels that would be provided by the proposed hybrid plan are lower than the benefit currently applicable to new hires.

Next is the table for POFF members.

California Peace Officer and Firefighter (POFF) Comparison to Current 2.5% at Age 55 Benefit Formula				
Member	Defined Contribution	Defined Benefit	Total	Current New Hire 2.5% at Age 55
Hypothetical	24%	50%	75%	75%
Average	17%	37%	54%	63%

California Peace Officer and Firefighter (POFF) Comparison to Current 3% at Age 55 Benefit Formula				
Member	Defined Contribution	Defined Benefit	Total	Current new Hire 3% at Age 55
Hypothetical	24%	50%	75%	90%
Average	17%	37%	54%	75%

For Peace Officers and Firefighters (and all safety members), the hypothetical member is hired at age 27 and work full time until age 57, retiring with 30 years of service. A current average Police Officer or Firefighter employee retires at age 55 with 25 years of service.

As can be seen in the table above, the benefit levels that would be provided by the proposed hybrid plan are lower than the benefit currently applicable to new hires.

Twelve Point Pension Reform Plan

October 27, 2011

The pension reform plan I am proposing will apply to all California state, local, school and other public employers, new public employees, and current employees as legally permissible. It also will begin to reduce the taxpayer burden for state retiree health care costs and will put California on a more sustainable path to providing fair public retirement benefits.

1. Equal Sharing of Pension Costs: All Employees and Employers

While many public employees make some contribution to their retirement – state employees contribute at least 8 percent of their salaries – some make none. Their employers pay the full amount of the annual cost of their pension benefits. The funding of annual normal pension costs should be shared equally by employees and employers.

My plan will require that all new and current employees transition to a contribution level of at least 50 percent of the annual cost of their pension benefits. Given the different levels of employee contributions, the move to a contribution level of at least 50 percent will be phased in at a pace that takes into account current contribution levels, current contracts and the collective bargaining process.

Regardless of pacing, this change delivers real near-term savings to public employers, who will see their share of annual employee pension costs decline.

2. "Hybrid" Risk-Sharing Pension Plan: New Employees

Most public employers provide employees with a defined benefit pension plan. The employer (and ultimately the taxpayer) guarantees annual pension benefits and bears all of the risk of investment losses under those plans. Most private sector employers, and some public employers, offer only 401(k)-type defined contribution plans that place the entire risk of loss on investments on employees and deliver no guaranteed benefit.

I believe that all public employees should have a pension plan that strikes a fair balance between a guaranteed benefit and a benefit subject to investment risk. The "hybrid" plan I am proposing will include a reduced defined benefit component and a defined contribution component that will be managed professionally to reduce the risk of employee investment loss. The hybrid plan will combine those two components with Social Security and envisions payment of an annual retirement benefit that replaces 75 percent of an employee's salary. That 75 percent target will

be based on a full career of 30 years for safety employees, and 35 years for non-safety employees. The defined benefit component, the defined contribution component, and Social Security should make up roughly equal portions of the targeted retirement income level. For employees who don't participate in Social Security, the goal will be that the defined benefit component will make up two-thirds, and the defined contribution component will make up the remaining one-third, of the targeted retirement benefit.

The State Department of Finance will study and design hybrid plans for safety and non-safety employees, and will fashion a cap on the defined benefit portion of the plans to ensure that employers do not bear an unreasonable liability for high-income earners.

3. Increase Retirement Ages: New Employees

Over time, enriched retirement formulas have allowed employees to retire at ever-earlier ages. Many non-safety employees may now retire at age 55, and many safety employees may retire at age 50, with full retirement benefits. As a consequence, employers have been required to pay for benefits over longer and longer periods of time.

The retirement age for non-safety workers in 1932, when the state created its retirement system, was 65. The retirement age for a state highway patrol officer in 1935 was 60. The life expectancy of a twenty-year old who began working at that time was mid-to-late 60s, meaning that life expectancy beyond retirement was a relatively short period of time. Now with a growing life expectancy, pensions will pay out not just for a few years, but for several decades, requiring public employers to pay pension benefits over much longer periods of time. Under current conditions, many years can separate retirement age from the age when an employee actually stops working. No one anticipated that retirement benefits would be paid to those working second careers.

We have to align retirement ages with actual working years and life expectancy. Under my plan, all new public employees will work to a later age to qualify for full retirement benefits. For most new employees, retirement ages will be set at the Social Security retirement age, which is now 67. The retirement age for new safety employees will be less than 67, but commensurate with the ability of those employees to perform their jobs in a way that protects public safety.

Raising the retirement age will reduce the amount of time retirement benefits must be paid and will significantly reduce retiree health care premium costs. Employees will have fewer, if any, years between retirement and reaching the age of Medicare eligibility, when a substantial portion of retiree health care costs shift to the federal government under Medicare.

4. Require Three-Year Final Compensation to Stop Spiking: New Employees

Pension benefits for some public employees are still calculated based on a single year of "final compensation." That one-year rule encourages games and gimmicks in the last year of employment that artificially increase the compensation used to determine pension benefits. My plan will require that final compensation be defined, as it is now for new state employees, as the highest average annual compensation over a three-year period.

5. Calculate Benefits Based on Regular, Recurring Pay to Stop Spiking: New Employees

Where not controlled, pension benefits can be manipulated by supplementing salaries with special bonuses, unused vacation time, excessive overtime and other pay perks. My plan will require that compensation be defined as the normal rate of base pay, excluding special bonuses, unplanned overtime, payouts for unused vacation or sick leave, and other pay perks.

6. Limit Post-Retirement Employment: All Employees

Retirement with a pension should not translate into retiring on a Friday, returning to full-time work the following Monday, and collecting a pension and a salary. Retired employees often have experience that can deliver real value to public employers, though, so striking a reasonable balance in limiting post-retirement employment is appropriate. Most employees who retire from state service, and from other CalPERS member agencies, are currently limited to working 960 hours per year for a public employer, and do not earn any additional retirement benefits for that work. My plan will limit all employees who retire from public service to working 960 hours or 120 days per year for a public employer. It also will prohibit all retired employees who serve on public boards and commissions from earning any retirement benefits for that service.

7. Felons Forfeit Pension Benefits: All Employees

Although infrequent, recent examples of public officials committing crimes in the course of their public duties have exposed the difficulty of cutting off pension benefits those officials earned during the course of that criminal conduct. My plan will require that public officials and employees forfeit pension and related benefits if they are convicted of a felony in carrying out official duties, in seeking an elected office or appointment, or in connection with obtaining salary or pension benefits.

8. Prohibit Retroactive Pension Increases: All Employees

In the past, a number of public employers applied pension benefit enhancements like earlier retirement and increased benefit amounts to work already performed by current employees and retirees. Of course, neither employee nor employer pension contributions for those past years of work accounted for those increased benefits. As a result, billions of dollars in unfunded liabilities continue to plague the system. My plan will ban this irresponsible practice.

9. Prohibit Pension Holidays: All Employees and Employers

During the boom years on Wall Street, when unsustainable investment returns supported "fully-funded" pension plans, many public employers stopped making annual pension contributions and gave employees a similar pass. The failure to make annual contributions left pension plans in a significantly weakened position following the recent market collapse. My plan will prohibit all employers from suspending employer and/or employee contributions necessary to fund annual pension costs.

10. Prohibit Purchases of Service Credit: All Employees

Many pension systems allow employees to buy "airtime," additional retirement service credit for time not actually worked. When an employee buys airtime, the public employer assumes the full risk of delivering retirement income based on those years of purchased service credit. Pensions are intended to provide retirement stability for time actually worked. Employers, and ultimately taxpayers, should not bear the burden of guaranteeing the additional employee investment risk that comes with airtime purchases. My plan will prohibit them.

11. Increase Pension Board Independence and Expertise

In the past, the lack of independence and financial sophistication on public retirement boards has contributed to unaffordable pension benefit increases. Retirement boards need members with real independence and sophistication to ensure that retirement funds deliver promised retirement benefits over the long haul without exposing taxpayers to large unfunded liabilities.

As a starting point, my plan will add two independent, public members with financial expertise to the CalPERS Board. "Independence" means that neither the board member nor anyone in the board member's family, who is a CalPERS member, is eligible to receive a pension from the CalPERS system, is a member of an organization that represents employees eligible to or who receive a pension from the CalPERS system, or has any material financial interest in an entity that contracts with CalPERS. My plan also will replace the State Personnel Board representative on the CalPERS board with the Director of the California Department of Finance.

True independence and expertise may require more. And while my plan starts with changes to the CalPERS board, government entities that control other public retirement boards should make similar changes to those boards to achieve greater independence and greater sophistication.

12. Reduce Retiree Health Care Costs: State Employees

The state and the nation have seen the costs of health care skyrocket. The state's retiree health care premium costs have increased by more than 60 percent in the last five years and will almost double over ten years. This approach has to change.

My plan will reduce the taxpayer burden for health care premium costs by requiring more state service to become eligible for health care benefits at retirement. New state employees will be required to work for 15 years to become eligible for the state to pay a portion of their retiree health care premiums. They will be required to work for 25 years to become eligible for the maximum state contribution to those premiums. My plan also will change the anomaly of retirees paying less for health care premiums than current employees.

Contrary to current practice, rules requiring all retirees to look to Medicare to the fullest extent possible when they become eligible will be fully enforced.

Local governments should make similar changes.