

TEACHERS' RETIREMENT BOARD

REGULAR MEETING

SUBJECT: Strategic Directions for Addressing Unfunded Actuarial Obligation

ITEM NUMBER: 5

CONSENT:

ATTACHMENT(S):

ACTION: X

DATE OF MEETING: December 8, 2005

INFORMATION:

PRESENTER(S): Ed Derman

PURPOSE OF THE ITEM

The purpose of this item is to provide information on the current unfunded actuarial obligation, and detail the implications of options available to the Board to address it. Ultimately, the Board needs to develop a strategy to address the unfunded actuarial obligation, which would have to be enacted into legislation.

SUMMARY

Earlier this year, the Board adopted an actuarial valuation of the Defined Benefit (DB) Program that indicated that the program was experiencing a long-term funding deficiency that would not likely be addressed without changes to the existing financing and/or benefit structure. The purpose of this item is to identify the options available to have a material impact on the funding deficiency over time, and provide an opportunity for the Board to provide more specific direction on the type of options it wants staff to develop more fully to address the funding deficiency.

Although there are many options available that would contribute to the resolution of this deficiency, no single approach will fully address this issue other than increasing contributions paid by members, employers and/or the state. Such increases, however, would have a significant impact on the stakeholder facing the increased contributions. In addition, although the issue could be addressed by a combination of benefit reductions, these reductions would have a substantial impact on future members, reduce the financial security of benefit recipients and probably undermine efforts to attract and retain a qualified educator workforce in the public schools.

BACKGROUND

Current Benefits Paid to DB Members

Currently, members of the DB Program, which include all full-time and most part-time educators, receive two benefits at retirement or disability. The first is the monthly DB benefit. This retirement benefit is based on the member's age, years of service credit and final compensation at the time of retirement. That amount is increased by a longevity bonus if the

member has at least 30 years of service credit prior to 2011. The monthly retirement and disability benefit is increased by 2 percent of the original benefit each year as a hedge against inflation. In addition, subject to the availability of funds for this purpose, if inflation has eroded the purchasing power of the current benefit to a level that is less than 80 percent of the value of the original benefit, the member receives a quarterly supplemental benefit that brings the current benefit up to the 80 percent level. DB members who retire before July 1, 2006 and are not eligible for Medicare Part A (hospital) without payment of a premium may have that premium paid by CalSTRS. Members who terminate service can receive a refund of member contributions and associated interest in return for terminating all rights under the program.

DBS is the second benefit program, and was established to provide supplemental benefits to members of the DB Program. Beginning in January 2001, 25 percent of a member's retirement contributions were redirected to the DBS Program. This redirection of member contributions to the member's DBS account will remain in effect until January 1, 2011. Additional member and employer contributions are added to a member's DBS account for compensation earned either from (1) service in one school year that exceeds 1.000 year of service credit or (2) limited term enhancements. At retirement, death or disability, the DBS account may be distributed either as a lump-sum distribution, or, if the member has at least \$3,500 in his or her DBS account, as an annuity, or both. Members who receive a refund of their DB contributions also receive a termination benefit of their DBS funds if no creditable service is performed for 12 consecutive months. (This waiting period is reduced to 6 months beginning in 2006.)

Current Funding Status of the DB Program

On June 2, 2005, the Teachers' Retirement Board adopted the June 30, 2004 Actuarial Valuation of the DB Program. That valuation identified the level of assets and liabilities associated with the DB Program as of June 30, 2004, and evaluated whether there are sufficient resources available to the program to fund the liabilities the program is expected to incur in the future. This analysis of the DB Program was based on economic and demographic assumptions adopted by the Board March 4, 2004.

The valuation, with respect to the entire DB Program, concluded that:

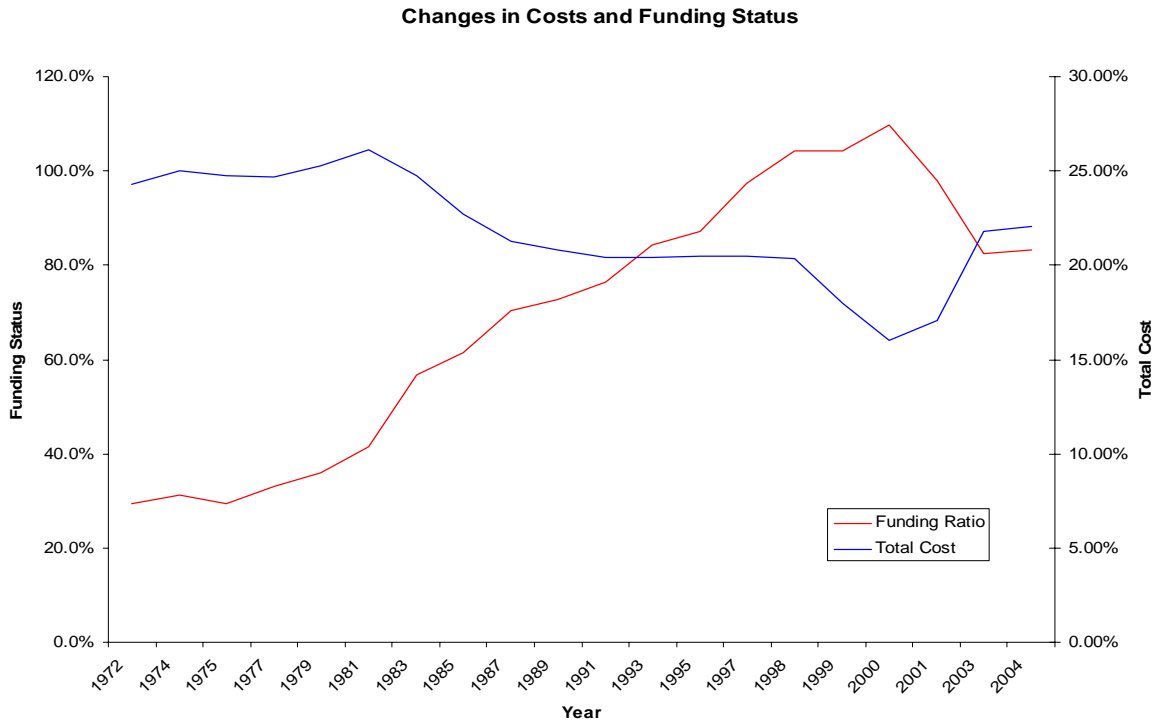
- There is an unfunded actuarial obligation in the DB Program of \$24.16 billion as of June 30, 2004. The cost of amortizing this obligation over a 30-year period is the equivalent of 5.235 percent of creditable salary each year. This means that if this unfunded actuarial obligation was to be paid entirely from a new source of revenue, such as increased contributions, the contribution rate on compensation covered by the DB Program would have to be increased by 5.235 percent. Alternatively, if the cost was to be paid by reducing liabilities, the savings would have to be equal to 5.235 percent of annual covered compensation.
- The normal cost of the program, which represents the average cost of the program over the member's career, as a percentage of salary is 16.827 percent of creditable salary. This amount is 0.672 percent less than the 17.499 percent of creditable salary that will be contributed to the DB Program over the next 30 years. This 0.672 percent excess can

offset a portion of the amount needed to amortize the unfunded actuarial obligation, but the resources needed to amortize the remaining unfunded actuarial obligation over 30 years is equal to 4.563 percent of creditable salary.

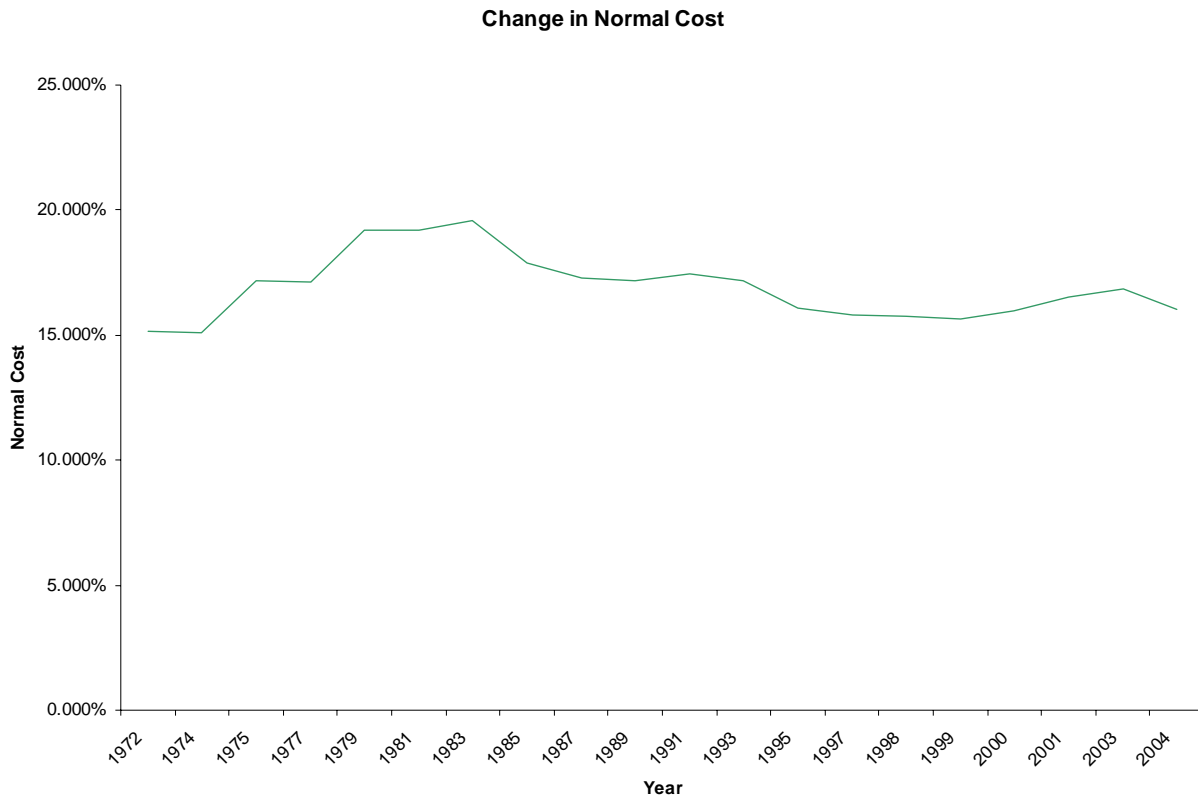
- Because the amount of contributions currently available to the DB Program are less than the amount needed to fund current and future program liabilities, the unfunded actuarial obligation is never amortized, and continues to increase. By June 30, 2034, the unfunded actuarial obligation will have increased to \$212 billion, if all the Board's actuarial assumptions are realized. Based on current assumptions, there would be a time in the future when the program would not have the resources to pay its liabilities.

The future financial status of the DB Program could be affected by proposals currently before the Legislature. Assembly Constitutional Amendment 23 (Richman), which was introduced earlier this year and is discussed in more detail in Item 6 of this Board meeting, requires all new state, school and local public employees to participate in either a defined contribution or hybrid retirement plan provided through existing public retirement systems. As a result, the current DB Program would be closed, and the means by which the current unfunded actuarial obligation could be addressed by reducing liabilities would be reduced. In addition, the elimination of new DB Program members would result in reduced cash flows to the existing DB Program. Consequently, the Board would have to adopt a more liquid asset allocation than would otherwise be needed. This could affect the actuarially assumed rate of investment return, resulting in an increase in the cost of the current program.

Historical Trends in Program Financing. The chart below indicates the change in the funding status of the DB Program and the total cost of the DB Program since 1972. The funding status indicates the percent of current program liabilities that are covered by current assets. The total cost is the total percentage of member payroll that would have to be paid over the amortization period to retire the unfunded actuarial obligation and fund ongoing benefit accruals, as identified in the actuarial valuation for that year.



This chart indicates two significant facts. First, the funding status of the program, although it is at a lower level than it was after 1993, is considerably higher than it had been prior to that date. In addition, although there have been significant increases in benefits since 1998, the total cost of the program is less than it was prior to 1987. The chart below shows the change in the normal cost of the DB Program since 1972. This chart indicates that the ongoing, normal cost of the program is lower now than it was prior to 1995, despite the substantial benefit enhancements enacted in 1998 and 2000. This stability in normal costs, even with the increased benefits, is a result of declines in both inflation and wage increases.



Although the financial health of the program is better than it has been during most of its history, changes are needed to address the current funding situation. According to Milliman, CalSTRS' Consulting Actuary, a retirement board that is facing a significant funding deficiency has four general possible responses:

- Increase in contributions
- A change in assets, either through a change in the allocation of assets or investment management, or the issuance of pension obligation bonds
- Change in benefits
- Merge with other retirement plans

Not all of the responses that might be available to other retirement systems would be applicable to CalSTRS. For example, in 2004, the Board reviewed the opportunities for reallocating assets and determined that the opportunities to invest its way entirely out of the situation were not available. Moreover, merging with another retirement plan is not practical for a plan as large as the DB Program, nor would it affect the funding of the current plan.

CONSIDERATIONS IN ADDRESSING UNFUNDED ACTUARIAL OBLIGATION

In characterizing how the Board should approach the funding situation facing the DB Program, CalSTRS' Consulting Actuary from Milliman suggested three long-term considerations. They are:

- The asset side of the equation, including the impact of allocation decisions on investment return and variability, and intergenerational equity impact of any increased employer contributions;
- The liability side of the equation, such as the impact of benefit changes on the level of income replaced by the benefit program, and how changes in demographics affect liabilities; and
- Maintaining a creative balanced approach, so that the burden does not entirely fall on only one party.

There are two fundamental approaches available to address the current funding situation. First, there could be no change made to the funding and liabilities of the DB Program. Under this option, one of two results would occur. First, there could be a significant enough change in program experience, such as a dramatic increase in investment returns, that the unfunded actuarial obligation is eliminated without any change in the program structure. The analysis completed last year by Milliman, however, indicated that the likelihood of realizing sufficient investment returns to eliminate the unfunded actuarial obligation was very low.

For example, if the assumed rate of investment return was increased from 8 percent to 8.25 percent, the size of the funding deficiency would be reduced by over 36 percent. However, in order to achieve a higher assumed rate of return, the allocation of CalSTRS investments would have to be modified to place a greater emphasis on private equity, alternative investments and hedge funds. CalSTRS could not prudently invest in those asset classes at that higher level to achieve a rate of return that could be reasonably assumed to be 25 basis points higher than the current assumed rate.

Alternatively, at the point in the future that the program did not have sufficient resources available to pay current benefits, additional funds would have to be paid by the state; the benefits themselves could not be reduced. Under this scenario, the DB Program would be funded on a pay-as-you-go basis, in a manner similar to Social Security, and the method of financing the state maintained with the DB Program until 1972. Financing a retirement system on a pay-as-you-go basis is the most expensive approach because a larger burden is placed on contributions made to the program, while investment return represents a much smaller resource.

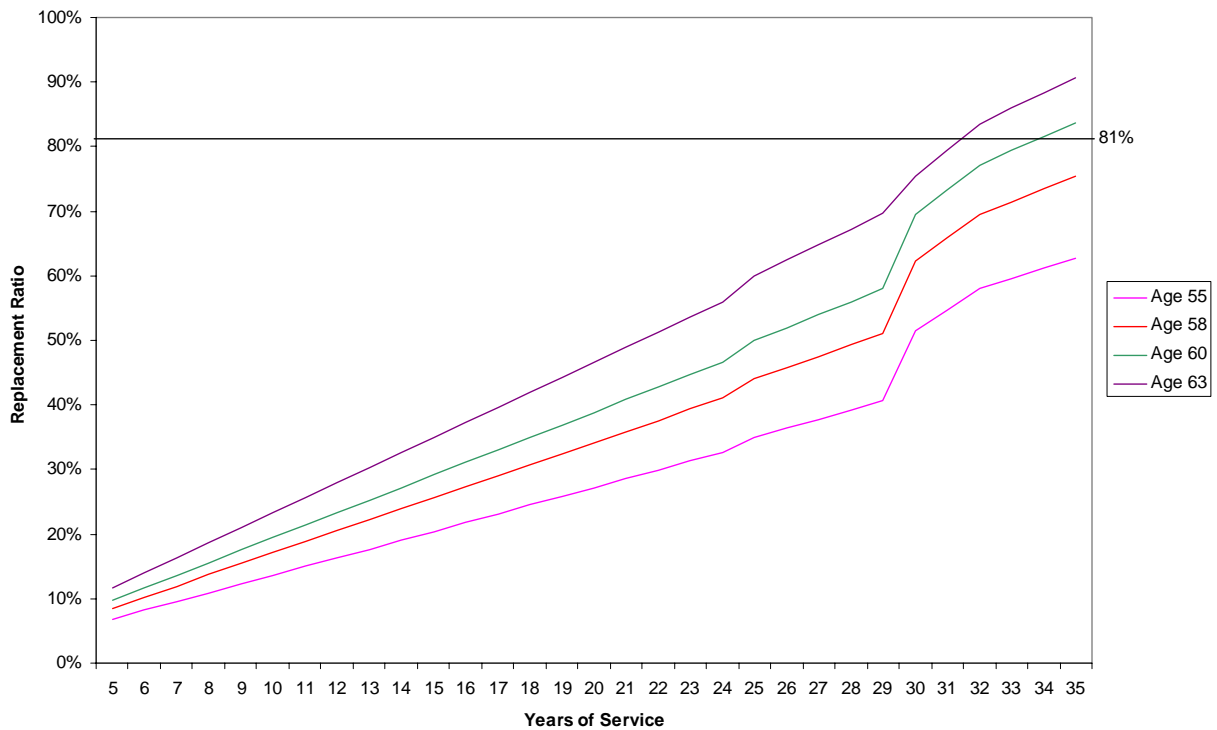
The alternative approach available to address the funding situation is to make appropriate long-term changes to the structure of the DB Program to permit the problem to be resolved over time. These changes could reflect additional resources, reduced liabilities or a combination of the two. This approach, using time as a factor, results in a much higher likelihood that the funding

deficiency is resolved with the lowest impact on stakeholders. The purpose of this report is to identify the options available to have a material impact on the funding deficiency over time, and enable the Board to give direction to the staff on which options to pursue further.

In reviewing approaches that affect benefits paid to members, the Board should take into account two considerations: the extent to which such changes affect the financial security of the member and the extent to which the change affects workforce policies adopted by the state on behalf of school employers.

Impact on Members. Analyses by CalSTRS indicate that if 81 percent to 88 percent of a member's employment income was paid to the member in retirement, the member could maintain in retirement the standard of living he or she experienced while employed, assuming the member continued to receive other benefits, particularly health benefits, that were received while working. The following chart shows how this replacement ratio increases in the DB Program with years of service and different ages, based on a \$5,900 per month final salary and 3 percent annual salary increases in the final years of the career.

Replacement Ratios At Different Ages of Retirement and Years of Service



The table below indicates the distribution of the percentage of final compensation paid in retirement for members retiring in 2003-04 with at least 20 years of service.

Unmodified Allowance as Percent of Final Compensation	Percent of Members Retiring in 2003-04 with 20+ Years of Service
Under 30%	Less than 1%
30% to 40%	4%
40% to 50%	8%
50% to 60%	13%
60% to 70%	15%
70% to 80%	19%
80% to 90%	19%
90% to 100%	14%
Over 100%	7%

This table indicates that for 40 percent of the members who retired in 2003-04 with at least 20 years of service credit, the benefit paid by the DB Program is sufficient to replace at least 80 percent of final compensation.

The adequacy of benefits paid by the DB Program has increased significantly since 1998 as a result of enhancements enacted in 1998 and 2000. The enhancements that had the most significant impact on the benefits were:

- An increase in the age factor for members retiring after age 60
- A career factor that is added to the age factor for members retiring with 30 or more years of service and
- A longevity bonus paid to members who retire with at least 30 years of service.

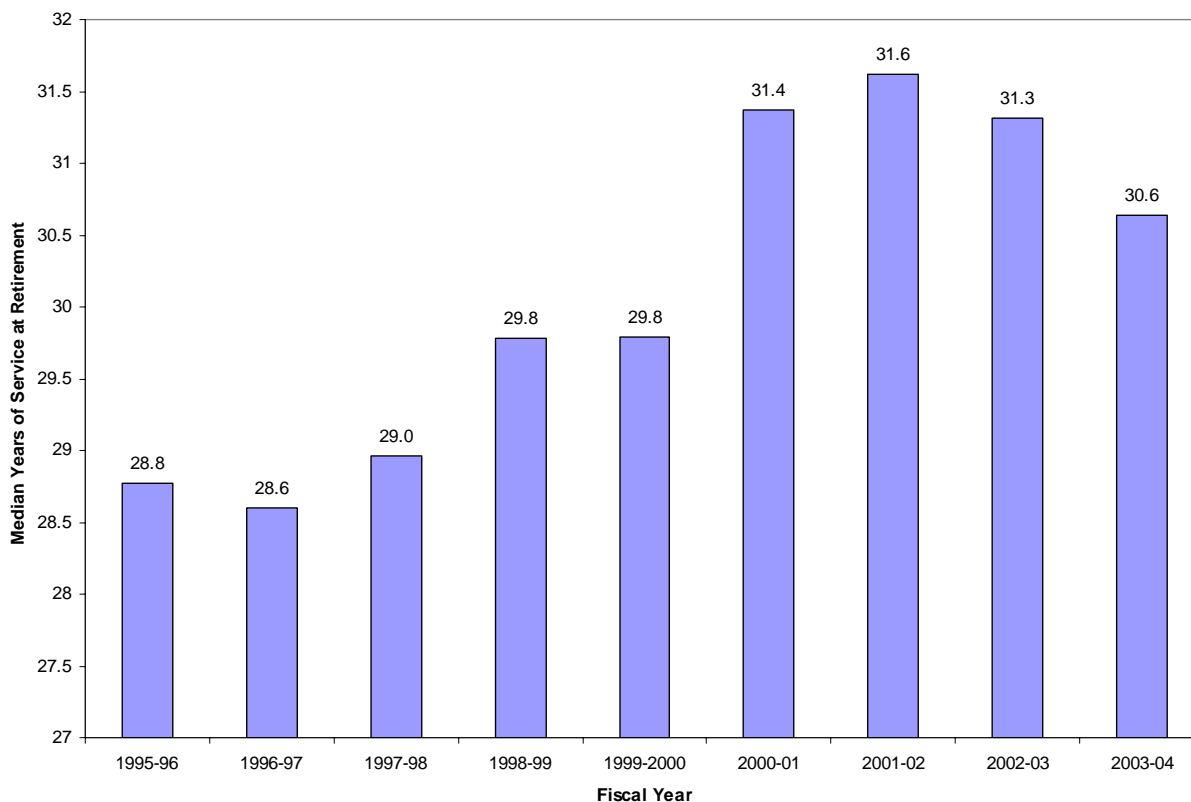
Improvements in how final compensation is determined for members with at least 25 years of service and the conversion of unused sick leave to service credit have had a lesser impact on member benefits, on average.

The adequacy of DB benefits will be somewhat lower for members whose benefits may be subject to change to address the unfunded actuarial obligation. This is because, as will be discussed in greater detail later, such changes will primarily affect only future members, and very few future members will be eligible to receive the longevity bonus. If the determination of the replacement ratio for those retiring in 2003-04 was modified to reflect the lack of a longevity bonus, the distribution of the replacement ratio would have been different. As the following table indicates, the percentage of members with at least 20 years of service credit who retired in 2003-04 with a replacement ratio of at least 80 percent would have declined from 40 percent to 28 percent.

Unmodified Allowance as Percent of Final Compensation	Percent of Members Retiring in 2003-04 with 20+ Years of Service (with longevity bonus)	Percent of Members Retiring in 2003-04 with 20+ Years of Service (without longevity bonus)
Under 30%	Less than 1%	Less than 1%
30% to 40%	4%	4%
40% to 50%	8%	9%
50% to 60%	13%	17%
60% to 70%	15%	19%
70% to 80%	19%	23%
80% to 90%	19%	17%
90% to 100%	14%	9%
Over 100%	7%	2%

Impact on Workforce Policy

The enhancements to the DB Program that were enacted in 1998 and 2000 not only increased benefits paid to members, but were targeted to encourage educators to stay in the workforce longer. The chart below indicates that this strategy has worked. This chart displays the median service credit worked by members retiring in each year since 1995-96, three years before the benefit enhancements were enacted. The benefit enhancements of 1998, which consisted of increasing the age factor for those over age 60, providing an additional improvement in the age factor for those with 30 or more years of service, and the conversion of unused sick leave to service credit, immediately increased the median service credit from 29 years to 29.8 years of service.



The enhancements in 2000, which enacted the longevity bonus for those with 30 years or more of service, and provided a more favorable determination of final compensation for those with at least 25 years of service, further increased the median service credit from 29.8 years in 1999-2000, before the latter enhancements took effect, to 31.4 years in 2000-01, the first year the changes were in effect, a gain of 1.6 years of service in one year. This increased median service credit has sustained itself at a median of over 31 years since then, except in 2003-04, when the median service credit declined to 30.6 years. This presumably reflects the increased number of early retirement incentives offered by many school districts that made retiring sooner more viable for members.

To the extent that these enhancements need to be scaled back as part of the effort to address the unfunded actuarial obligation in the DB Program, there could be a reduction in the amount of service that members are willing to provide before retirement, because there is less incentive to work for 30 or more years.

POTENTIAL FUNDING CHANGE OPTIONS

Funding is a major concern across the country. In an effort to address their funding status, a number of states issued pension obligation bonds in 2003. States did not authorize pension obligation bonds in 2004, although Kansas completed the authorization it initiated in 2003 with

the issuance of bonds, and the 2003 authorization in West Virginia continued to work its way through the courts.

Pension obligation bond legislation was enacted in California in 2004 for use by CalPERS. This legislation established a unique funding method for the proposed bonds. New California state employees are members of an alternative retirement plan instead of CalPERS for their first 24 months of employment, after which they begin making contributions to the CalPERS defined benefit plan. The state does not make contributions on their behalf during the first 24 months, providing potential funding for pension bonds.

There were other approaches applied besides issuing bonds to refinance the unfunded actuarial obligation in other states. Colorado and South Dakota limited some former employee benefits. A number of states statutorily increased employer contribution rates. Employee contribution rates generally continued unchanged, although Nebraska levied a one-year employee contribution increase in response to poor investment returns, and the Arizona State Retirement System announced an increase in both employee and employer contribution rates for the fiscal years following July 1, 2005. South Carolina prepared for future state fiscal difficulties by providing that employees who are furloughed in the course of the fiscal year will continue to accrue retirement benefits as well as receive any other employee benefits. The furloughing agency will pay the employee's share of the costs as well as the employer's share, in most cases.

Options Before the Board

Staff has identified 12 different options to address the funding situation facing the DB Program. These options reflect the considerations suggested by the Consulting Actuary. These options are evaluated in this section.

Except for the first option, the impact of each option is expressed as a percentage of creditable payroll statewide, and is based on the June 30, 2004 Actuarial Valuation. The impact assumes that the option is implemented on January 1, 2007. The fiscal impacts that are indicated below reflect only the impact if that specific option is implemented. There are some options, such as those dealing with the calculation of final compensation and the application of the age factor, which, if both were implemented, would have an impact that is greater than the sum of each option implemented alone. Consequently, once a set of options is identified for the Board to pursue, the entire set will have to be evaluated to determine the impact that overall proposal has on the amortization of the unfunded actuarial obligation.

For purposes of illustration, the percent of members affected, based on experience in 2003-04, and the impact of each option on a member's benefit is identified. Obviously, the impact will be different for each member, depending on his or her individual circumstances, and may have no impact at all if the member is not eligible for the benefit being affected. These illustrations give an idea, however, of the relative impact of each option on an individual. For the purpose of illustrating the impact of those options that are applicable to members who are retired or retire in the future, we assume the member retired:

- With 31 years of service (the median service credit for those retiring in 2003-04)
- With 1 year of unused sick leave (members with unused sick leave average 0.698 years of service credit from the unused leave)
- At age 62 (the average member retires at age 61.2)
- With \$5,900 in monthly final compensation (the average final compensation for retiring members)
- With 3 percent annual salary increases in the two years prior to retirement
- After earning \$3,000 in excess earnings for each of the first 10 years of teaching
- With 5 percent annual interest on Defined Benefit Supplement (DBS) account balances (the minimum interest rate for DBS accounts this year)

In addition, the impact of increased contributions on employers and the General Fund are based on the 2003-04 creditable compensation of \$23.8 billion.

The options presented also reflect the legal constraints that limit the available alternatives. For example, it is staff's view that the benefits of the existing DB Program, with very few exceptions, cannot be reduced for current members, without an offsetting benefit. Similar contractual rights of existing members prohibit increasing the contribution rate paid by current members, although other counsel may have a different view of this issue. As a result, the impact of most of the options affecting benefits is limited to people who become members of the DB Program after the effective date of the proposed change.

In addition, the impact of some changes is limited because some existing benefit provisions already have an expiration date. Specifically, the existing 2 percent contribution to DBS accounts is discontinued after 2010. Beginning in 2011, those contributions will be credited to the DB Program. Consequently, the savings to the DB Program from eliminating that contribution earlier is very limited. Similarly, only members who have at least 30 years of service credit by 2011 receive the longevity bonus. Because, as indicated above, benefits can only be reduced for new members, and no person who became a member now could be credited with 30 years of service by 2011 except under very unusual circumstances, accelerating the final eligibility date for the longevity bonus is not a viable option.

Finally, in July, staff identified for the Board 12 options that were adopted by other retirement systems or suggested by employers. These included increasing the smoothing period for gains and losses in market value, establishing corridor limits within which the actuarial value of assets or the funded status would exist before contribution rates changed and establishing pension contribution stabilization accounts. The staff's conclusion was that these options were either

- Inapplicable to CalSTRS, based on the current plan design
- Would be very difficult to administer, or
- Would only affect future conditions, not the current unfunded actuarial obligation.

As a result, they are not included in this analysis.

1. Issue Pension Obligation Bonds to Finance Unfunded Actuarial Obligation

Most of the options identified to the Board for amortizing the unfunded actuarial obligation do so by increasing the resources available to the DB Program over time, or reducing its liabilities. An additional option retires all or a portion of the unfunded actuarial obligation immediately by having the state issue what is known as a pension obligation bond. A pension obligation bond is a taxable bond that is issued by the plan sponsor and backed by resources dedicated for its amortization. These resources could be payment directly from the plan sponsor to the bondholder, or contributions to the pension fund that exceed the amount needed to maintain the actuarial funding of the pension program.

This differs from the pension obligation bonds the state seeks to issue with respect to CalPERS. In that case, the proceeds of the bonds will be used to pay the current year contributions owed by the state for CalPERS benefits. Some of these contributions are amortizing an unfunded actuarial obligation of CalPERS benefits, but the contributions also finance the ongoing, normal cost of the benefit. Under the option discussed here, and consistent with how pension obligation bonds have been used elsewhere, the bond proceeds would be used only to amortize the unfunded actuarial obligation of the DB Program. The normal cost of the program would continue to be paid by the contributions provided under current law.

Sonoma County started the first wave of pension obligation bond in 1993 with its \$97.4 million financing. According to a 2005 study prepared by Lehman Brothers, 20 different California local governments issued \$2.3 billion of pension obligation bond in 2004. Among the reasons why such bonds have become more prevalent:

- The rapid growth in unfunded liabilities for public pension funds over the last few years, driven by less than stellar investment returns, benefit enhancements, and greater longevity of pension plan participants and beneficiaries;
- The relatively low interest-rate environment, which widens the spread between the pension obligation bond interest costs paid by the issuer/employer and the assumed investment return rate of the pension systems, making the economics of the transaction more attractive; and
- The potential cost savings from a pension obligation bond, as many state and local employers struggle with budgetary imbalances and other savings alternatives become scarce.

As is evident above, issuing a pension obligation bond doesn't eliminate the need for a restructuring of pension fund financing; resources still will be needed to pay off an obligation, although that obligation has been shifted from the pension fund to the plan sponsor. Although a pension obligation bond presents an opportunity for less restructuring of fund financing, implementation of at least some of the options presented earlier will still have

to take place. In identifying the \$24 billion unfunded actuarial obligation, the actuary used the Board's adopted assumption that the DB Program would earn 8 percent on its investments. In effect, the DB Program is amortizing its \$24 billion debt at 8 percent. If resources can be made available to the DB Program at less than 8 percent, such as by issuing a pension obligation bond at an interest rate of five percent to 5.5 percent, then the amount needed over time to amortize the unfunded actuarial obligation could be less. For example, restructuring the entire unfunded actuarial obligation through the issuance of a pension obligation bond would cost between 3.52 percent and 5.28 percent of DB Program payroll to amortize over 20 to 30 years, assuming bond interest rates of five percent to 5.5 percent.

The amount of a pension obligation bond that can be issued at a given cost to the plan sponsor depends on the amortization period and the interest rate. The table below shows how much could be issued over differing amortization periods and interest rates, generating a bond amortization cost equal to one percent of DB Program payroll.

Amortization period	5 percent interest	5.25 percent interest	5.5 percent interest
20 years	\$4.813 billion	\$4.692 billion	\$4.575 billion
25 years	\$5.856 billion	\$5.677 billion	\$5.506 billion
30 years	\$6.863 billion	\$6.617 billion	\$6.383 billion

If pension obligation bonds were issued equal to the unfunded actuarial obligation, then the unfunded actuarial obligation is eliminated, and the DB Program is fully funded. The obligation has shifted from the DB Program to the issuer of the bond, the state. In addition, however, CalSTRS has received \$24 billion in bond proceeds to invest at once. This is in addition to the \$4.9 billion in additional revenue CalSTRS receives each year from contributions, and the \$3.7 billion from dividends and other transactions. If the unfunded actuarial obligation was amortized in increased contributions, those increased resources would be made available over a period of time.

Increasing the amount that CalSTRS must invest at one time by \$24 billion could have an impact on the return that CalSTRS receives, because such an investment could affect market prices, and could require CalSTRS to acquire less desirable investments. In addition, by infusing resources at one time into the program, there will be an impact to program financing, depending on future investment returns. If the market were in a continuing upward trend, as it was in the 1990's, investing a large amount at once, while the market is increasing, can have a beneficial result on program financing. If, on the other hand, the market were to decline after the bond was issued, and the funds invested, the DB Program would have been better off if increased resources were received, and invested, as the market was declining, and not at a market high. This is the benefit of dollar-cost averaging, which CalSTRS effectively practices as it receives contributions over the course of time.

If CalSTRS earns its 8% assumed rate on investment return over the funding period, the funding status of the DB program would be the same whether the unfunded actuarial obligation was amortized with a one-time infusion of pension obligation bond proceeds or an increase in contributions received on a regular basis. During the funding period, however, the funding status of the DB Program would be better or worse if a pension obligation bond was issued, depending on whether CalSTRS has been earning more or less than 8 percent since the bond was issued. These concerns could be mitigated by having less than the entire unfunded actuarial obligation refinanced by bonds, but that would reduce the value of this option in addressing the funding situation.

The decision to amortize the unfunded actuarial obligation through the issuance of a pension obligation bond is not an actuarial decision, but an investment decision which depends on whether CalSTRS can reasonably invest a large infusion of resources at one time. Clearly, the bond and equity markets are large and liquid and the funds could be invested rapidly. However such an infusion of funds would dilute the returns of the higher yielding asset classes (such as alternative investments and real estate) and thus has the potential to negatively affect overall Fund performance. There is the possibility of spreading bond issuance out over a period of a few years. Such a solution would entail less pressure on the asset allocation, but could result in higher issuance costs.

There is also the issue about how to invest the bond proceeds. Most pension funds, being long-term investors, have stayed with their traditional allocations for proceeds, eschewing market timing strategies. Alternatively, bond proceeds could be invested according to a special allocation strategy because of current market conditions or expectations. The strategy, whatever it might be, would need to be fully vetted before the pension obligation bond sale.

There was some concern expressed about the AA rating that CalSTRS currently enjoys as part of its credit enhancement program. A move to issue pension obligation bonds could be seen by the rating agencies as a good thing for CalSTRS (i.e., addressing the funding shortfall). It is doubtful, however, at this time that a ratings upgrade would occur. On the other hand, the effects of such a large cash infusion could be perceived by the agencies as a negative in terms of asset allocation and an ultimate “fix.” CalSTRS staff intends to discuss this issue informally with the rating agencies.

A review of taxable bonds yield curves shows that 10 year taxable bonds yield between 5.15% and 5.25% and that 30 year bonds between 5.45% and 5.50%. However, staff suspect that most investment banks may be looking to include a sizable tranche of floating rate debt with either weekly, monthly, or quarterly resets. These rates can be as low as 4.5% or perhaps lower. A review of information from Lehman Brothers indicated that there were a number of other ways to structure the deal using zero coupon bonds and tranching the debt in a number of other creative ways using zeros or floaters. Therefore fixed rate levels, while presenting a good indication of the basic level of rates, can be tinkered with by a good investment bank looking to structure a deal. Of course each of these structures has its own

unique risk characteristics not only for the investor but for the issuer as well. Therefore, more caution and concern has to be undertaken when dealing with structured debt of any kind.

Another consideration is the capacity of the state to issue a multibillion bond for this purpose. As of November 1, there was almost \$80 billion in general obligation bonds that were not self-liquidating that the state was authorized to issue. Issuing a major pension obligation bond could affect the state's ability to issue bonds for other purposes.

Finally, issuing pension obligation bonds is not a "fix it and forget about it" solution. Should returns dip again, the unfunded actuarial obligation would continue to grow and the pressure for more bond issuance or other solutions would continue.

2. Amortize the Unfunded Actuarial Obligation Over 40 Years

Current Law: There is no statutory requirement that establishes the period of time over which the unfunded actuarial obligation must be amortized. In determining the cost of benefit improvements, CalSTRS actuaries generally assume a 30-year period to amortize the unfunded actuarial obligation of enhancements that are being paid to members who have not yet retired, to reflect the length of an average career, and a 15-year period for enhancements paid to members who have already retired, to reflect the remaining lifespan of currently retired members. The valuation identified the cost of amortizing the unfunded actuarial obligation over 30 years to be 5.235 percent.

Impact on Program Funding: Amortizing the unfunded actuarial obligation over 40 years would reduce the annual amortization cost by 0.869 percent.

Impact on Member Benefit: Changing the amortization period would have no impact on member benefits.

Percent of Members Affected: No members would be affected by changing the amortization period.

Discussion: Amortizing the unfunded actuarial obligation is analogous to paying for a home mortgage. Just as a homeowner can pay less money per month by having a 30 year mortgage, rather than 15 year mortgage, a lesser amount would be paid each year if the unfunded actuarial obligation was amortized over 40 years, rather than 30 years. Similar to the lengthening of a mortgage term, although extending the amortization period reduces the annual cost of amortizing the unfunded actuarial obligation, it also increases the total cost, as interest is paid over a longer period. In addition, as indicated, there is no statutory requirement concerning the period of time over which an unfunded actuarial obligation in the DB Program must be amortized, but there certainly is guidance. The Employee Retirement Income Security Act (ERISA) of 1974 is not applicable to CalSTRS, but does impose maximum periods of time in which unfunded actuarial obligations must be amortized. The

periods vary depending on the reason for the unfunded actuarial obligation, but it doesn't exceed 30 years, other than for liabilities that existed at the time ERISA became effective.

In addition, the Government Accounting Standards Board (GASB) requires that the financial statements of a public pension fund identify the annual contributions required to fund an obligation over a 30 year period. If the unfunded actuarial obligation is amortized over a longer period, that fact would be disclosed as a footnote in the pension fund financial statements. By itself, this disclosure would not necessarily have an impact on CalSTRS. However, it is possible that this disclosure in the financial statements that the unfunded actuarial obligation is not being amortized in accordance with GASB could affect the credit rating of CalSTRS or, perhaps, the state, which is the sponsor of the DB Program. (On the other hand, the system's credit rating would have to be better under this circumstance than if it didn't attempt to amortize the unfunded actuarial obligation at all.) It also is possible that a negative impact on CalSTRS credit rating could affect the value of CalSTRS credit enhancements on borrowers who utilize that program. If the state's credit rating were affected, it would increase the cost of borrowing by the state.

3. Base Final Compensation on the Highest 3 Consecutive School Years

Current Law: Final compensation, which is used in the calculation of a member's retirement allowance, disability benefit or benefit paid to a survivor, is the highest average annual earnable salary for a period of 12 consecutive months for those members who have 25 years or more of service credit. Final compensation is the highest average earnable salary for a period of 3 consecutive school years for those members who have less than 25 years of service credit.

History: Determining final compensation based on the highest average annual earnable salary for a period of 12 consecutive months for those members who have 25 years or more of service credit became effective in 2001.

Impact on Program Funding: This change in final compensation for new members would reduce the amortization cost by 0.187 percent.

Impact on Member Benefit: Basing final compensation on the average of three years, rather than one year earnable salary, would reduce the monthly benefit by \$134.

Percent of Members Affected: Although this proposal would apply only to new members, as an indication of the impact of this proposal, 64 percent of the members currently retire with final compensation based on 12 consecutive months of annual earnable salary.

Discussion: California is one of the very few states whose pension systems base final compensation on a single year of compensation. More common is an average of 3 or 5 years of compensation. When final compensation is based on a single year, there is more

opportunity for compensation to be manipulated for that year in order to enhance the member's benefit. Although the law provides that such manipulated compensation would be reflected in a higher DBS benefit, rather than a higher DB benefit, this often relies on CalSTRS' ability to detect such manipulation.

4. Eliminate the Addition of the Career Factor to the Age Factor

Current Law: The age factor is a percentage of pay for service credit that is used to calculate a service retirement benefit. The career factor adds 0.2 percent or two-tenths of one percent to the age factor once an educator has earned 30 years of service credit. For example, an educator at age 60 with 30 or more years of service credit would have an age factor, including the career factor, of 2.2 percent, rather than 2 percent. The combined age factor and career factor cannot exceed 2.4 percent.

History: CalSTRS added the career factor in 1999.

Impact on Program Funding: Eliminating the career factor for new members would decrease the amortization cost by 0.177 percent.

Impact on Member Benefits: Eliminating the addition of the career factor would reduce the monthly benefit by \$378.

Percent of Members Affected: Although this proposal would apply only to new members, as an indication of the impact of this proposal, 43 percent of the members currently retiring have the career factor added to the age factor.

5. Reduce Age Factor to 2 Percent after Age 60

Current Law: The age factor increases incrementally from 2 percent at age 60 to a maximum of 2.4 percent at age 63. From age 55 to 60, the age factor is reduced by 0.01 for each month in which the member is under 60 years of age. Between age 60 and 63, the 2 percent age factor is increased by 0.033 for each quarter of year of age that the member is over age 60, up to a maximum of 2.4 percent.

History: The age factor was increased from 2 percent at age 60 to a maximum of 2.4 percent at age 63 beginning in 1999.

Impact on Program Funding: Eliminating the increased age factor for new members would decrease the amortization cost by 0.701 percent.

Impact on Member Benefit: Eliminating the increase in the age factor after age 60 would reduce the monthly benefit by \$504.

Percent of Members Affected: Although this proposal would apply only to new members, as an indication of the impact of this proposal, 59 percent of the members currently retire after age 60.

6. Do Not Convert Unused Sick Leave to Service Credit

Current Law: Members may convert the amount of their accumulated unused sick leave to service credit at the time of retirement. Beginning on January 1, 2005, up to 0.200 years of unused sick leave can be used to qualify for highest year final compensation, the career factor and the longevity bonus. Service credit from unused sick leave is computed by dividing the amount of unused sick leave earned by the member's annual contract.

History: Educators who became members of the DB Program prior to July 1, 1980 were allowed to convert unused sick leave to service credit at the time of retirement. This benefit was extended to all members who retired after 1998.

Impact on Program Funding: Eliminating the conversion of unused sick leave for new members would decrease the amortization cost by 0.160 percent.

Impact on Member Benefit: Eliminating the conversion of unused sick leave would reduce the monthly benefit by \$146.

Percent of Members Affected: Although this proposal would apply only to new members, as an indication of the impact of this proposal, 87 percent of the members retire with unused sick leave.

7. Eliminate 2 Percent Member Contribution to DBS

Current Law: The Defined Benefit Supplement Program (DBS) is a special account created to give members additional funds upon retirement. One quarter of a member's 8 percent contribution, equal to 2 percent of the member's compensation, have been redirected and placed in the member's DBS account beginning January 1, 2001. This redirection of contributions is scheduled to remain in effect until January 1, 2011.

Impact on Program Funding: Eliminating this contribution to DBS for new members would decrease the amortization cost by 0.032 percent.

Impact on Member Benefit: Eliminating the 2 percent member contribution to DBS would reduce the DBS lump sum benefit at retirement by \$11,653, equal to a monthly reduction of \$81.

Percent of Members Affected: Although this proposal would apply only to new members, as an indication of the impact of this proposal, 100 percent of the active members accrue DBS account balances from the diversion of their contributions.

8. Reduce or Eliminate Employer Contributions to DBS for Excess Service, and Credit Contribution to the DB Program

Current Law: Members who perform service in excess of 1.000 year within a school year, or are paid compensation for a limited period of time receive an additional contribution to their DBS account, equal to the contributions they pay on that compensation and an equal amount contributed by the employer.

History: Prior to 2002, the compensation paid for service in excess of 1.000 year within a school year, or compensation paid for the purpose of enhancing a member's DB benefit was not subject to CalSTRS contributions, and did not factor into any retirement benefit paid by CalSTRS. Beginning in 2002, additional service, such as summer school and intersession, became creditable, and the type of compensation subject to contribution by CalSTRS broadened. In order to maintain the integrity of DB Program financing, the short-term compensation is not credited to DB, but is reflected in increased DBS contributions.

Impact on Program Funding: Eliminating the crediting of the entire 8 percent contribution to DBS for excess service and limited term compensation for new members would reduce the amortization cost by 0.152 percent.

Impact on Member Benefit: Each 1 percent reduction in the employer contribution rate credited to the DBS account, and instead crediting the contributions to the DB Program would reduce the DBS lump sum benefit at retirement by \$958, equal to a monthly reduction of \$7. Eliminating the crediting of the 8 percent employer contribution to DBS entirely would reduce the DBS lump sum benefit at retirement by \$7,663, equal to a monthly reduction of \$54.

Percent of Members Affected: Although this proposal would apply only to new members, as an indication of the impact of this proposal, 62 percent of active members annually accrue DBS account balances from the performance of excess service or payment of limited duration compensation.

9. Eliminate Annual 2 Percent Benefit Adjustment

Current Law: Beginning with the October benefit check paid one year after initially receiving a DB benefit, the benefit is adjusted by 2 percent of the initial benefit amount. The increase is not compounded.

Impact on Program Funding: Eliminating the 2 percent benefit adjustment for all current and future active members would reduce the amortization cost by 2.421 percent. Eliminating the adjustment only for new members would reduce the amortization cost by 0.938 percent.

Impact on Benefits: Eliminating the 2 percent annual benefit adjustment reduces the monthly benefit paid after the first year by \$93 per month, and by \$1,863 per month after the 20th year. This would be at least partially offset by an earlier receipt of the quarterly supplemental payment paid to members when the current benefit paid is less than 80 percent of the value of the initial benefit.

Percent of Members Affected: 100 percent of the benefit recipients receive annual benefit adjustments.

Discussion: This option can be applied to a broader population than the other benefit options. Section 22140 of the Education Code reserves the right of the Legislature to adjust the amount of the benefit adjustment up or down as economic conditions dictate. Arguably, the current funding situation of the DB Program could permit the Legislature to eliminate or at least modify the amount of annual adjustment. In addition, this change could be applied to all current recipients, or all members and beneficiaries whose initial benefit is paid after the effective date of the change.

As indicated above, eliminating the 2 percent annual benefit adjustment would result in an earlier receipt of purchasing power funds. This is because the purchasing power benefit is not received until the member's current benefit, including the 2 percent annual benefit adjustment, is less than 80 percent of the value of the initial benefit. If the 2 percent annual benefit adjustment is no longer being paid, the member will reach that 80 percent level sooner. Under the current assumption of 3.25 percent annual inflation, the existing 2 percent annual benefit adjustment delays the initial receipt of the purchasing power benefit by a member retiring this year for 16 years. Without that adjustment, the member would begin to receive the purchasing power benefit after seven years.

Although the earlier receipt of purchasing power benefits would appear to mitigate the effect of this option, the receipt of the purchasing power funds is vested only to the extent that funds in the Supplemental Benefit Maintenance Account (SBMA) are available to pay that benefit, and increasing the liability of that program through this option would shorten the lifespan of those resources. Once those resources are insufficient to maintain an 80 percent purchasing power level, lower quarterly payments would be made, and once the funds in SBMA were completely exhausted, benefit recipients would begin to receive only the monthly benefit.

10. Do Not Extend the Medicare Premium Payment Program

Current Law: Eligible members who retire before July 1, 2006 and are not otherwise eligible for premium-free Part A Medicare benefits and enroll in both Medicare Part A and Part B, may have their Medicare Part A premium paid by CalSTRS. The Board has the authority to extend the date by which members must retire in order to be eligible for this program.

Impact on Program Funding: Not extending the program for future retired members, and redirecting those saved assets to the DB Program, would reduce the amortization cost by 0.140 percent.

Impact on Member Benefits: In 2005, the Part A premium was \$375 per month, and will increase to \$393 in 2006. Members who retire on or after July 1, 2006 would either have to pay this premium themselves, or not be eligible for the hospitalization benefits provided by Part A.

Percent of Members Affected: Currently, about 5 percent of the members who retire each year become eligible for CalSTRS payment of the Part A premium. This percentage will decline in future years as fewer members retire who were hired prior to the April 1, 1986 date at which payment of Medicare payroll taxes became mandatory for newly-hired California public educators.

Discussion: Unlike most other options, this option can be implemented within the Board's current statutory authority. In addition, if the Board does not elect to extend the program to members retiring on or after July 1, 2006 at this time, it can do so at a later date, and apply the extension to members who had already retired prior to that Board action. However, members will be responsible for paying the premium for the period of time prior to the Board action.

If the member elects not to enroll in Part A until the Board extends the benefit, and the member has passed age 65 by the time he or she actually enrolls, the member would be subject to a surcharge equal to 10 percent of the Part A premium. As a result, if the Board has not extended the program to include a specific member who is turning age 65, the member could elect to enroll in Part A at age 65, and pay the premium, hoping the Board extends the program at a later date, or wait until the Board extends the program, and be subject to a surcharge when the member does enroll after age 65.

11. Impose Employer Contributions When Members Work After Retirement

Current Law: Employers contribute an amount equal to 8.25 percent of the amount of creditable compensation paid to an active DB member. Because members do not pay contributions to CalSTRS for employment after retirement, employers also do not pay contributions. Members also do not accrue any additional retirement benefit for working after

retirement, but generally are subject to a limitation on the amount paid for service in the public schools after retirement.

Impact on Program Funding: Imposing employer contributions for post-retirement employment would reduce the amortization cost by 0.066 percent.

Impact on Member Benefit and Employer Contributions: The contributions paid by the employer would be credited to the DB Program in general, and not affect any benefits accrued by the member on whose compensation the contribution was based. The increased contributions would cost employers about \$17 million annually.

Percent of Members Affected: About 15 percent of members who are retired perform creditable service.

Discussion: Imposing employer contributions for post-retirement compensation would reduce a distortion that may exist under current law. Because employers have to pay contributions on the compensation paid to active members, but not retired members, there may be an incentive for employers to hire retired members, due to the lower cost. As a result, the DB Program may not be getting the resources it otherwise would receive. This could be mitigated by the fact that retired members have limits on how much they can earn from working after retirement, but many members are not currently subject to those limits. Imposing the same contributions on employers, whether they hire retired or active members, may reduce that distortion and, in fact, the DB Program would end up as a net beneficiary, because the retired member would not be imposing any additional liability on the DB Program, while the active member would.

12. Increase the Contribution Rate

Current Law: Currently, members pay a contribution rate of 8 percent on the compensation they earn that is creditable to CalSTRS. Employers pay a contribution rate of 8.25 percent on that same compensation. The General Fund pays a contribution rate of 2.017 percent, but that is on the creditable compensation paid two fiscal years earlier. The General Fund pays an additional 2.5 percent on that same prior compensation to fund purchasing power protection for DB Program benefits.

History: The current member contribution rate was established in 1972. An 8 percent employer rate was also established in 1972, and increased to 8.25 percent in 1990. The General Fund was contributing 4.3 percent of the prior calendar year's compensation from 1992 until 1998, when it was decreased to 3.102 percent of the prior calendar year compensation. The General Fund contribution rate was decreased in 2000 to 2.535 percent of the prior calendar year, and to 1.975 percent of the prior calendar year in 2001. The current General Fund contribution rate of 2.017 percent of the compensation paid two fiscal years

earlier is actuarially equivalent to 1.975 percent of the prior calendar year (the rate imposed in 2001), and was established in 2002.

Impact on Program Funding:

Each 1 percent increase in the contribution rate paid by new members -0.359 percent

Each 1 percent increase in the contribution rate paid by the employer -1 percent

Each 1 percent increase in the contribution rate paid by the General Fund -0.898 percent

Impact on Member Benefit and Employer/State Contribution: Increasing any of the contribution rates does not affect the benefit paid to a member. Each 1 percent increase in the member contribution rate would result in an increased monthly contribution of \$59, for a member earning \$5,900 per month. For most members, this reduction in their take-home compensation would be partially offset by a reduction in withholdings for state and federal income tax. Each 1 percent increase in employer contributions would cost the district about \$240 million annually. Each 1% increase in the General Fund contribution would cost the state about \$220 million annually.

Percent of Members Affected: All future members would experience an increase in their contributions if the member contribution rate was increased. During the last three years, the number of new DB members averaged slightly over 30,000 each year.

Discussion: Tier I State Miscellaneous CalPERS members contribute 5 percent of salary, and Classified School employees contribute 7 percent of salary. In comparison to the steady CalSTRS member and employer contribution rates, and the lowering of the General Fund contribution rates paid to CalSTRS, CalPERS employers have experienced the following changes in contribution rates beginning in 1989-90:

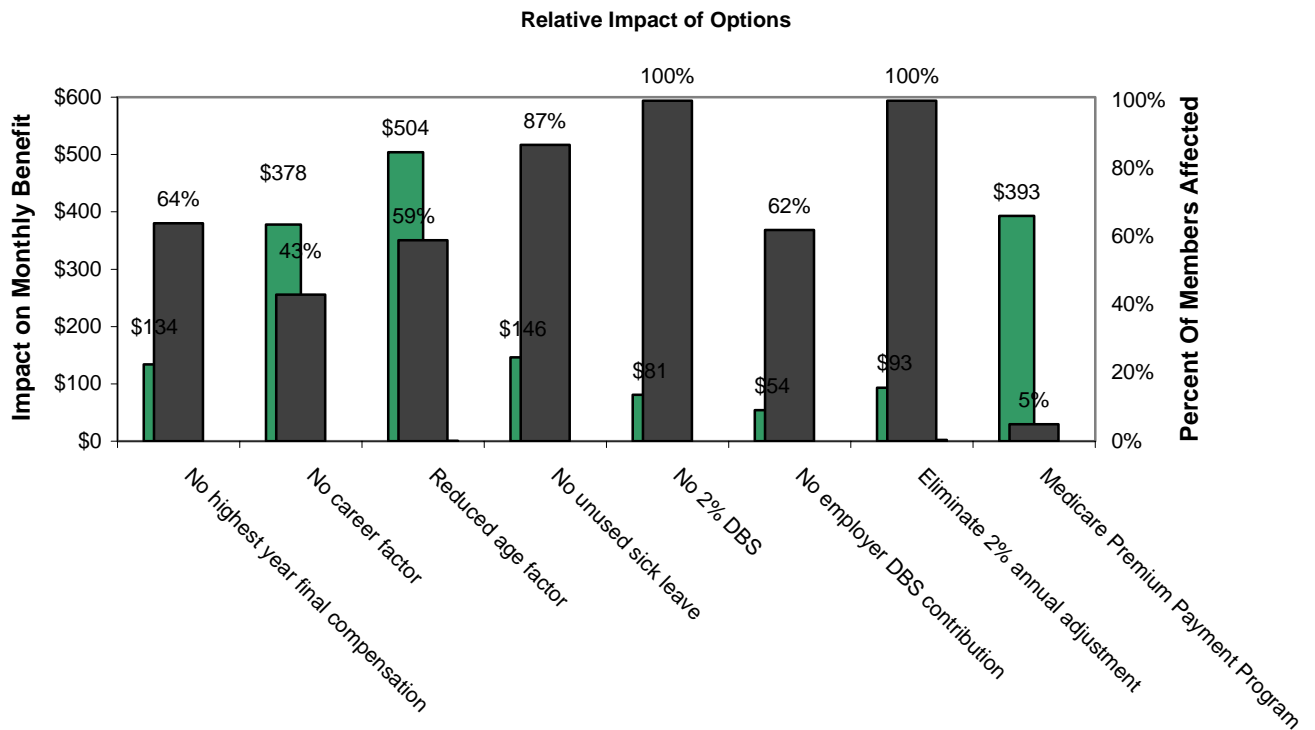
Fiscal Year	State Miscellaneous Tier I	Classified School
1989-90	13.224 percent	8.210 percent
1990-91	12.878 percent	7.282 percent
1991-92	11.804 percent	8.162 percent
1992-93	10.266 percent	7.273 percent
1993-94	9.939 percent	7.066 percent
1994-95	9.934 percent	3.849 percent
1995-96	12.350 percent	6.979 percent
1996-97	13.106 percent	7.787 percent
1997-98	12.721 percent	6.172 percent
1998-99	8.541 percent	0.000 percent
1999-00	1.491 percent	0.000 percent
2000-01	0.000 percent	0.000 percent
2001-02	4.166 percent	0.000 percent
2002-03	7.143 percent	2.894 percent

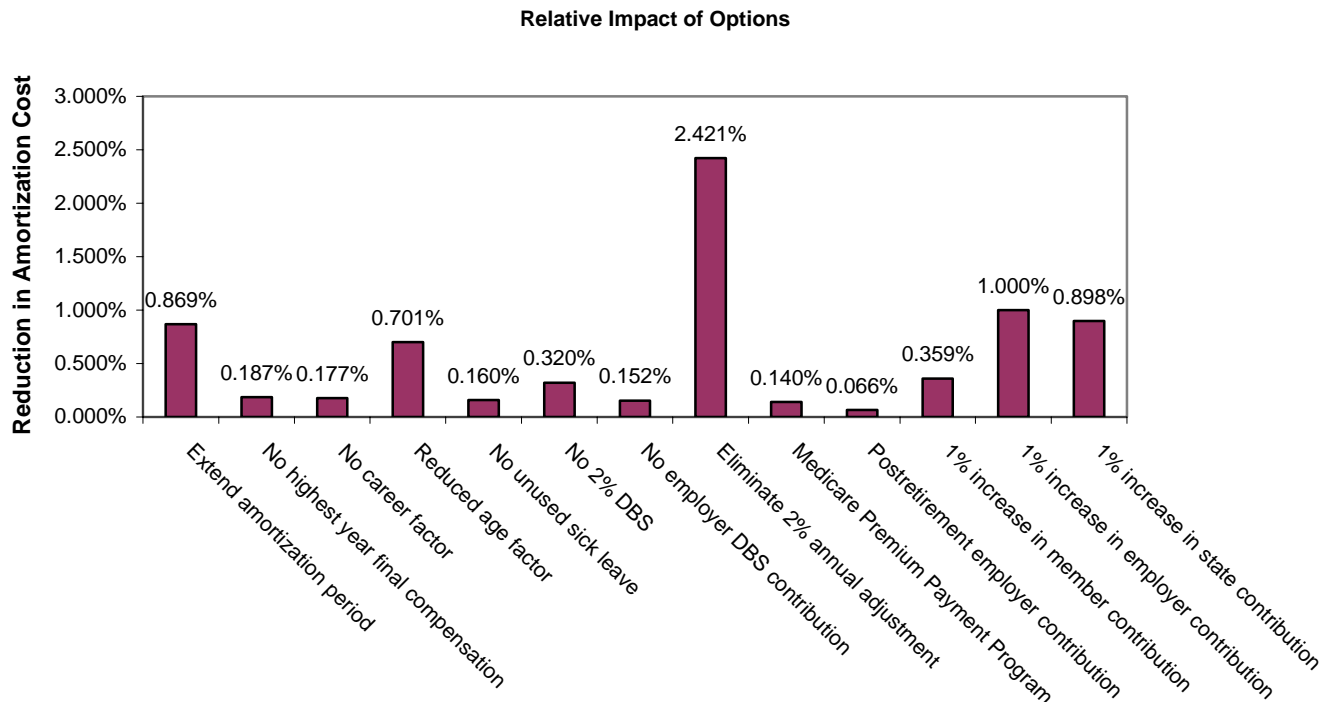
2003-04	14.843 percent	10.420 percent
2004-05	17.022 percent	9.952 percent
2005-06	15.942 percent	9.116 percent

In addition, classified and state employees, and their employers, each pay 6.2 percent for Social Security, which CalSTRS members and their employers do not. As a result, CalSTRS members and their employers contribute considerably less than do their classified and state counterparts for their total retirement benefits. CalSTRS members pay a total of 8 percent, while state and school CalPERS members pay 11.2 percent and 13.2 percent, respectively. CalSTRS employers pay 8.25 percent, while CalPERS state and school employers have contributed an average total of 16.52 percent and 10.8 percent, respectively, since 1989-90.

IMPACTS OF INDIVIDUAL OPTIONS

The charts below summarize the impact of each of the potential options to permit a comparison among options. The first chart shows how much each option that would affect member benefits would reduce the benefit each month (as indicated by the green column), and the percentage of members that would be affected (as indicated by the red column). The second table indicates how much of an impact each option would have on the unfunded actuarial obligation.





ADDRESSING THE FUNDING DEFICIENCY

The Board needs to develop a strategy to address the long-term funding needs of the DB program. In developing this strategy, the Board needs to consider

- The distribution of the impact among members, employers and the state
- The distribution of the impact between member contributions and benefits
- The distribution of changes in member benefits among different benefit programs

The biggest issue to confront is how to allocate the responsibility for addressing the problem between increased contributions and reduced benefits, primarily to future members. The entire unfunded obligation could be eliminated by increasing contributions paid by members, employers and/or the General Fund. However, all three stakeholders are confronting their own budget issues. If the primary focus to address the problem is to reduce benefits, the objective should be to minimize the impact on member's long-term financial security. In doing so, the Board should consider minimizing the impact on the core monthly benefit, paid by the DB Program, and direct more attention to changes in the DBS Program. This is because the DBS benefit was intended to supplement the DB benefit, and if something is going to be reduced, it might make more sense to reduce the supplemental benefit, all other things being equal.

If it is necessary to maintain the core of the benefits paid by CalSTRS, including rewarding service after age 60 and with 30 or more years of service in order to secure the economic security of educators in retirement and attract and retain a qualified educator workforce, the entire burden cannot fall only on reduced benefits. As an example, if the objective was to minimize the net impact on member core benefits, the following changes would have to occur

- Eliminate the 2 percent contribution to DBS
- Eliminate the entire 8 percent employer contribution credited to DBS for excess service and limited term compensation
- Do not extend the Medicare Premium Payment Program to members retiring after 2005
- Do not convert unused sick leave to service credit at retirement
- Eliminate the annual 2 percent benefit adjustment for all benefit recipients
- Base final compensation on the highest 3 years of compensation earnable, rather than 12 months for members with 25 or more years of service

Even if the unfunded actuarial obligation was amortized over 40 years, there still would be a remaining unfunded actuarial obligation equivalent to about 0.6 percent of creditable compensation. In addition, the member's initial DB benefit would be reduced by \$279 per month, plus a \$135 reduction in the monthly DBS annuity. Moreover, over 60 percent of the reduction in the annual amortization cost of the approach just outlined is attributable to the elimination of the annual benefit adjustment for all benefit recipients. The benefits paid to recipients are protected only if there are sufficient funds in the SBMA to maintain purchasing power payments in order to offset the effect of eliminating the annual adjustment. Increasing the reliance on the SBMA reduces the lifespan of resources in that account, and once the resources are no longer available in the SBMA, even those payments would cease. In addition, if this option were implemented, benefit recipients would still realize a reduced income compared to the income they would have received under current law during the initial years of their monthly benefit.

CONCLUSIONS

The Board has many options that could be implemented to address the long-term financial needs of the DB Program, but there are not sufficient options available that present a painless road out of this funding deficiency. At this time, staff is seeking direction from the Board on which options the Board wishes to pursue further, in order to permit the staff to develop a comprehensive strategy to address the problem.