Study of the Feasibility of an Optional Retirement Plan for University of Hawaii Faculty

A Report to the Governor and the Legislature of the State of Hawaii

Report No. 97-8
March 1997

THE AUDITOR
STATE OF HAWAII

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Conducted by

The Auditor
State of Hawaii
and
Deloitte & Touche LLP

Submitted by

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Foreword

This report on the feasibility of an optional retirement plan for University of Hawaii faculty was prepared in response to the Legislature's request in House Concurrent Resolution No. 276, House Draft 1, Senate Draft 1 of the 1996 Regular Session. The report provides background information on retirement plans and our analysis, conclusions, and recommendation.

The study was conducted by the Office of the Auditor and Deloitte & Touche LLP, which provided us with actuarial and related services.

We appreciate the cooperation extended to us by officials, faculty, and staff of the University of Hawaii, the Department of Budget and Finance, and the Employees' Retirement System and its actuary, The Segal Company. We also wish to acknowledge the assistance provided by others in Hawaii and across the nation during the course of our study.

Marion M. Higa
State Auditor

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Introduction

University faculty may serve at several higher education institutions throughout their career. Retirement benefits for University of Hawaii faculty are currently provided by the state Employees' Retirement System. Under this system, vesting—the right to a retirement benefit—generally occurs at ten years of service. Some believe the ten-year vesting requirement hinders faculty recruitment at the university.

For this reason, the possibility of offering an optional retirement plan for university faculty as an alternative to the current system has been discussed in recent years, mirroring national trends. Such a move would provide faculty with earlier vesting and the ability to transfer retirement benefits to other higher education institutions nationwide. It has been suggested that such a plan would help the university become more competitive in attracting qualified faculty.

The Hawaii State Legislature asked the State Auditor to conduct a study on the feasibility of an optional retirement plan for University of Hawaii employees. The study was requested by House Concurrent Resolution No. 276, House Draft 1, Senate Draft 1 of the 1996 Regular Session. The resolution focuses on university faculty.

The resolution requested an assessment of the impact on the Employees' Retirement System, an examination of comparable plans and experiences in other states, an identification of public policy issues, and an estimation of future costs to the State. The resolution asked the Auditor to obtain an actuary in conducting the study and to submit a report with findings and recommendations to the Legislature.

Background

Retirement benefits for eligible employees of Hawaii state government, including eligible faculty members of the University of Hawaii, are currently provided by the Employees' Retirement System, established by Chapter 88, Hawaii Revised Statutes (Pension and Retirement Systems). The Employees' Retirement System is a "defined benefit" plan in which employees receive retirement benefits based on formulas specified in the law. About 58,000 active state employees participate in the system.

Most faculty of the University of Hawaii are members of bargaining unit 7 and are exclusively represented by the University of Hawaii Professional Assembly (the faculty union), which in FY1995-96 had about 3,200 members. The collective bargaining agreement defines faculty members as instructional faculty (including those working in the medical and law schools), researchers, specialists, librarians, county extension agents, and community college faculty. With the exception of most community college recruiting, the university recruits faculty from higher education institutions nationwide.

Retirement benefits are excluded from collective bargaining. University faculty must participate in the Employees' Retirement System as a condition of their employment. Faculty may voluntarily participate in two additional plans, the State of Hawaii Deferred Compensation Plan and the University of Hawaii Tax Deferred Annuity Plan.

The optional retirement plan supported by the faculty union and the university is presented as a "defined contribution" plan, in which contributions toward retirement are deposited into a separate retirement account for each participant. Retirement benefits would be based on accumulated contributions plus actual investment earnings. Earlier vesting and the ability to transfer employee retirement benefits to another employer—referred to as "portability"—are key features desired by the faculty.

Approach to Technical Terms

This report contains many technical terms familiar to specialists in retirement benefits, actuarial science, and related subjects. To assist the general reader, we have tried to explain key technical terms in the text where they appear, in the Glossary (pp. 47 through 50), or in the introduction to the Appendixes (pp. 51-52).

Objectives of the Study

The objectives of this study were to:

1. Assess the demand, need, and justification for an optional retirement plan for faculty members of the University of Hawaii.

2. Assess the costs, benefits, and impact of offering such a plan.

3. Assess other key issues and features relating to such a plan.

4. Make recommendations as appropriate.

Scope and Methodology

Our study examined the feasibility of an optional retirement plan for all members of public employee bargaining unit 7 throughout the entire university system who are eligible for the existing state retirement system. The term "University of Hawaii faculty" in this study includes only those in bargaining unit 7.

The university system includes the comprehensive university campus at Manoa, the two baccalaureate-granting institutions at Hilo and West Oahu, the institutions that constitute the community college system (Hawaii Community College, Honolulu Community College, Kapiolani Community College, Kauai Community College, Leeward Community College, Maui Community College, and Windward Community College), and the Employment Training Center.

The Office of the Auditor obtained general background information and performed fieldwork for Objective 1. We interviewed chancellors and a sample of deans and directors, representing the humanities, sciences, and professional schools throughout the University of Hawaii system, and also the chair of the faculty senate. We also interviewed a system-wide sample of faculty consisting of newly hired faculty, newly tenured faculty (who have worked with the university/State fewer than ten years), and faculty vested in the Employees' Retirement System (that is, they have been with the university/state government for ten or more years).

We reviewed studies prepared by the University of Hawaii on employee retention and resignations, a recent report by the Teachers' Insurance and Annuity Association College Retirement Equities Fund (TIAA-CREF)[1] recommending an optional retirement plan for the university, legislative bills proposing an optional retirement plan for the faculty, and related testimony from the 1996 legislative session. We interviewed representatives of the faculty union and the Hawaii Government Employees' Association. We reviewed documentation on the Employees' Retirement System, the Deferred Compensation Plan, and the University of Hawaii Tax Deferred Annuity Plan, and interviewed their officials. We examined studies, audit reports, and journal articles on optional retirement plans and interviewed plan administrators from other states. Reports valuable in preparing our study included, *A Study of the Feasibility of Implementing an Alternative Retirement Program for Certain Employees of Ohio's Universities and Colleges*,[2] and *The Fiscal Impact of an Optional Retirement Plan (ORP) for Illinois' Higher Education Faculty and Administrators*.[3]

We reviewed relevant state statutes regarding University of Hawaii faculty, collective bargaining, and public employees' retirement plans.

To obtain assistance with Objectives 2, 3, and 4, the State Auditor engaged the services of Deloitte & Touche LLP, which provided actuarial and related services. Among other things, actuaries calculate employer contributions necessary to systematically fund pension obligations, which are typically expressed as a percent of employer's payroll.[4]

The firm assisted us in performing an assessment of the costs, benefits, and impact of an optional retirement plan with respect to the university and the Employees' Retirement System; and in assessing other key issues and features of various alternatives such as appropriate employer contributions, eligibility, and portability. The firm also assisted in identifying the key elements and costs of actually establishing an optional retirement plan.

To project costs of an optional retirement plan, the firm relied, in part, on the most recent cost information prepared by The Segal Company, actuaries for the Employees' Retirement System. The actuarial assumptions used in the firm's analysis are the same as those used in Segal's latest actuarial valuation. The firm used the 1995 *Survey of State and Local Government Employee Retirement Systems* by the Public Pension Coordinating Council to assist us in obtaining information relating to retirement practices in other public employee retirement systems. The firm followed widely accepted actuarial procedures.

For purposes of this analysis, we assumed that health benefits for all retirees covered under an optional retirement plan would remain the same as under the Employees' Retirement System. Also, our study included only faculty who are members of bargaining unit 7, a readily definable faculty group. This excludes some individuals such as executive and managerial personnel who might be recruited on a national basis. However, we concluded that this exclusion makes little difference to the overall analysis because of the relatively small number involved.

Our work was performed from June 1996 through March 1997 in accordance with generally accepted government auditing standards.

Chapter 2

Background on Retirement Plans

In this chapter, we describe national trends in optional retirement plans for public higher education. We discuss key differences, features, and types of defined benefit and defined contribution plans. We also summarize the retirement plans currently available to faculty in bargaining unit 7 at the University of Hawaii. The information in this chapter serves as a foundation for our analysis, conclusions, and recommendation in Chapter 3.

National Trends in Optional Retirement Plans for Public Higher Education Faculty

A significant national trend in higher education is the push to move from defined benefit (Employees' Retirement System-type) plans to defined contribution plans for faculty employees. Most public employee retirement plans are defined benefit plans. However, defined contribution plans are much more common in higher education than in state employment overall. Currently, 45 states have some form of an optional retirement plan for their public higher education faculty or are about to implement one. Five states—Hawaii, Missouri, Ohio, South Dakota, and Wisconsin—do not have one.

In some states, participation in an "optional" retirement plan has actually been mandatory for all university faculty, while others have made it mandatory for new faculty only. In other states, participation is truly an option, that is, an alternative that may be chosen instead of, or in addition to, participation in the existing state retirement system.

Faculty recruitment and pension portability

Proponents of optional retirement plans say that adopting such plans will make the State more attractive as an academic employer because the plans provide faculty with pension portability. If plan participants terminate employment before retirement, savings accumulated in an optional plan sometimes can be transferred to comparable plans at other higher education institutions. This feature makes the optional plan "portable."

However, a recent Ohio study noted that some retirement administrators in other states doubt that the connection between recruiting and portable pension benefits is strong enough to warrant establishing an optional retirement plan. One state's retirement system administrator believes that the optional retirement plan was adopted in response to "dissatisfaction of a few newly hired university presidents" who were accustomed to such benefits, rather than a widespread recruiting problem.[1]

Vesting is an important aspect of portability. It is a legal entitlement to receive benefits earned under the plan. Employees who leave the State's non-contributory plan before vesting forfeit all retirement benefits. Most optional plans feature immediate vesting of both employer and employee contributions. Some states—such as, Arkansas, New Jersey, and Texas—have a one-year delay on vesting of the employer contribution. In New Jersey, significant turnover occurs during the first year of employment, and the state did not want employees who stay for such a short time to have a vested right to the employer's contribution. Optional retirement plans in North Carolina, Connecticut, and Arizona have five-year vesting periods for the employer contribution. Arizona and New York grant immediate vesting to new employees who have already vested in another state's optional retirement plan.

Eligibility and enrollment experiences

Eligibility for optional retirement plan membership varies from state to state, but generally includes faculty and administrators. For instance, Nevada, Michigan, South Carolina, Wyoming, and Maryland allow university faculty and administrators at all levels to enroll in their plans. New Mexico's optional plan is open to faculty, administrators, and researchers who are recruited nationally.

Most of the states contacted in the Ohio study reported that a majority of eligible, newly hired employees selected the optional retirement plan. States also reported that employees who select the optional retirement plan had not worked in the state for long and did not plan to stay for many years. The percentage of eligible employees electing to participate in an optional retirement plan instead of the existing state retirement system varies from a low of 33 percent in Louisiana, which implemented its plan in 1990, to more than 80 percent in Texas, which established its optional retirement plan in 1969.[2]

Usually the decision whether to participate in an optional retirement plan or a state retirement system is a one-time, irrevocable choice. However, there are exceptions. For instance, Louisiana, Maryland, and Tennessee permit employees to move to an optional plan, but do not permit a return to the state retirement system.[3]

Approaches to optional retirement plan administration

States administer their optional retirement plans differently. Some involve the existing state retirement system, while others do not. In New Jersey, the Division of Pensions has oversight and coordination responsibilities for the optional retirement plan, but the colleges and universities handle day-to-day administration including making deductions, sending funds to the retirement plan companies, and monitoring contribution and compensation limits. In Arizona and Montana, the optional retirement plan is administered by the Board of Regents. In Georgia, the Board of

Regents makes policy decisions for the operation of the optional retirement plan, but the universities perform most administrative duties.[4]

States generally use a request-for-proposal process to select optional retirement plan vendors. Nearly all states that have implemented optional retirement plans since 1983 have contracted with multiple vendors. Several states—Alaska, Florida, Idaho, Louisiana, Minnesota, Mississippi, Nevada, New York, North Carolina, and Tennessee—allow participants to split their contributions among two or more vendors simultaneously. States that have only one vendor—Maryland, Montana, and New Jersey—will soon go to multiple vendors.[5]

Plan features

Some optional retirement plans for public higher education faculty were established over 20 years ago, while others were implemented during the 1980s and early 1990s. Two states—California and Illinois—are preparing to implement their optional retirement plans.

We identified some key characteristics of recently implemented optional retirement plans:

- immediate vesting
- employee contribution
- employer contribution
- Internal Revenue Code 401(a) money purchase defined contribution plans

Highlighted below are two states' optional retirement plans.

State of New Mexico

New Mexico has allowed public university faculty and administrators to participate in an optional retirement plan since July 1991. Only employees hired after July 1, 1991 are eligible to participate, and election to participate must be made in the first 90 days of employment. Employees not electing the optional plan become members of the New Mexico Educational Retirement System.

New Mexico's optional retirement plan is a money purchase plan administered by the university system. It is an Internal Revenue Code 401(a) plan. Benefits are immediately vested. The employer contribution is 8.65 percent of payroll, and employees contribute 7.6 percent of payroll.

State of Virginia

Virginia established an optional retirement plan for university faculty and administrators in 1986. New employees are given 90 days to elect to participate. Employees who do not elect the optional plan become members of the Virginia Retirement System. When the option was established, members of the existing system could take a refund of their own contributions and transfer to the option at any time. However, in 1990, eligible employees were given 90 days to elect to transfer, with those not electing given no further opportunities to transfer to the optional plan.

Virginia's optional retirement plan is administered by the Virginia Retirement System. Benefits are immediately vested under the optional plan. The employer contributes 9.85 percent of payroll. There is no employee contribution. Virginia's optional plan is also an Internal Revenue Code 401(a) money purchase plan.

Key Differences and Features of Defined Benefit and Defined Contribution Plans

Retirement and savings plans currently available to University of Hawaii faculty include both defined benefit and defined contribution plans. Optional retirement plans considered for the faculty in this study also include both types of plans.

Retirement, termination-of-employment, disability, and pre-retirement death/survivor benefits

Retirement benefits are payable under the terms of a defined benefit or defined contribution plan when the employee has met certain minimum age and service requirements. Termination-of-employment benefits are provided if the employee terminates service after working a minimum number of years but before meeting the minimum age and service requirements for retirement benefits. Disability and pre-retirement death/survivor benefits are significant additional benefits often provided by defined benefit and defined contribution plans.

Retirement benefits

Retirement benefits under a traditional defined benefit plan are determined by a formula which usually takes into account the employee's years of service and compensation at or near the time of retirement. Usually benefits are payable in monthly payments over the life of the participant or the life of the participant and spouse.

Retirement benefits under a defined contribution plan are based on a participant's account balance at the time of retirement. The account balance consists of accumulated employer contributions, employee contributions (or both), and actual investment earnings (or losses) during the years of plan participation. Depending on the terms of the plan, the account balance may be distributed as a lump sum or a series of monthly payments (an annuity).

Termination-of-employment benefits

Termination-of-employment (pre-retirement) benefits under a defined benefit plan are determined by a formula which usually takes into account years of service and compensation at the time of termination. A minimum number of years of service is usually required before this benefit becomes available (vested). Five or ten years of service are the most common. Payment of the termination-of-employment benefit is normally deferred to the participant's early or normal retirement age as defined by the plan and payable in the form of a series of monthly payments.

Termination-of-employment benefits under a defined contribution plan are based on the participant's vested account balance at the time of termination. The account balance is commonly payable as a lump sum upon termination, but payment may be deferred to early or normal retirement age with investment earnings continuing to be credited to the account balance in the meantime. At the early or normal retirement age, account balances may be distributed as a lump sum or converted to a series of monthly payments.

Disability and pre-retirement death and survivor benefits

Disability and pre-retirement death and survivor benefits under a defined benefit plan are often calculated either as a percentage of the retirement benefit, or as a percentage of salary earned as of the date of disability or death. The plan may require a minimum number of years of service to be eligible for disability and death benefits. Disability payments continue until the employee dies or recovers from the disability. Survivor benefits normally continue until the death of the beneficiary, or, in the case of payments to child beneficiaries, until an age specified by the plan.

Disability and pre-retirement death and survivor benefits under a defined contribution plan are generally limited to the participant's account balance at the time of disability or death, and payable in a lump sum amount. Some plans allow employees to purchase additional disability or death benefits (or both) with a portion of the contributions made to the plan.

Plan contributions

Employer and employee contributions made to defined benefit plans and investment earnings based on these contributions must be sufficient over time to cover benefits specified by the plan, and plan administration and investment expenses. Employer contributions made to state retirement systems are typically based on state statutes and guidelines relating to actuarial methods, procedures, and assumptions. Employee contributions, when required, are generally at a fixed rate. The actual contribution levels may vary depending on the funding policy and the actuarial methods, procedures, and policies chosen.

Contributions made to defined contribution plans may be fixed at a specified rate, for example 5 percent of pay per year, or may be discretionary on the part of the employer or employee on a year-to-year basis. Typically, public sector employer contributions made to a defined contribution plan are at a fixed rate.

A key point is that contribution rates to a defined benefit plan are based on *specified benefits*, but a *fixed contribution level* will ultimately determine benefits payable under a defined contribution plan.

Investment risk and investment management

In defined benefit plans, the employer retains the risk involved in the investment of plan assets. Regardless of investment earnings levels, the employer must provide specific levels of retirement benefits. If investment earnings exceed actuarially assumed rates, future contribution levels will be lower. If investment earnings are less than assumed, future contribution levels will be higher. A board of trustees is normally responsible for investing plan assets. Typically, state statutes provide guidance regarding investment.

In defined contribution plans the employee retains the investment risk. Actual investment gains (or losses) are credited to individual participants' account balances. A board of trustees typically will establish a range of investment options. Participants allocate contributions between investment options and re-allocate existing account balances as their personal investment strategies dictate. Ultimately, benefits are limited to the participant's account balance at retirement. This account balance can be paid in a lump sum or used to purchase an annuity to provide guaranteed, periodic payments.

Portability

"Portability," for purposes of the following discussion, refers to the rate at which benefits are earned (accrued) under the plan and the rate at which the participant's benefits become vested. The faster that plan benefits are earned and vested, the more "portable" the benefits are. Portability also refers to the ability of plan participants, upon retirement or termination of employment, to transfer plan values (benefits) out of the plan. Defined benefit and defined contribution plans typically differ in these portability provisions. Defined contribution plans are generally considered to be more portable than traditional defined benefit plans.

Rate of benefit accumulation

The rate at which benefits accumulate under a defined benefit plan depends on the benefit formula specified in the plan. For example, for a 40-year-old participant with five years of service, applying the formula might result in an accumulated benefit of $200 per month payable at age 65.

The rate at which benefits accumulate under a defined contribution plan depends on the contributions made and investment earnings credited to a participant's account. For example, for a 40-year-old participant with five years of service, employer contributions made and investment earnings credited may have accrued an account balance of $15,000.

The rate at which benefits accumulate in a defined benefit plan typically increases as the age and length of service of the plan participant increases, and, as a result, tends to favor older, longer service employees.

Defined contribution plans typically build up greater benefit amounts at younger ages and shorter service durations than a defined benefit plan with the same overall cost to the employer. Younger, shorter-service employees who leave employment prior to retirement will typically receive higher termination-of-employment benefits than they would under a defined benefit plan. As a trade-off, employees who remain in a defined contribution plan until retirement will likely receive lower benefits than those provided by a defined benefit plan.

While the pattern of benefit accumulation differs, these plans can be implemented at approximately the same cost to the employer.

Vesting

"Vesting" refers to an employee's right to receive benefits accrued under a plan. The sooner an employee becomes vested in his or her accrued benefit, the more "portable" the benefit becomes. Using the above example, a 40-year-old participant with five years of service who terminates employment would not be eligible to receive the accrued benefit of $200 per month payable at age 65, if the plan required ten years to vest; however, the participant would be eligible to receive the benefit if the plan required only five years to vest.

Defined benefit plans most typically have five or ten year vesting requirements. While federal statutes do not require that vesting schedules differ for defined benefit and defined contribution plans, defined contribution plans typically have earlier vesting requirements than defined benefit plans.

Ability to transfer plan values from one plan to another

Upon termination of employment (pre-retirement), most public sector defined benefit plans allow employees to take only their own contributions and interest credited. The employer's contributions are generally not distributed upon termination of employment. Instead, these contributions are payable as a series of monthly payments (an annuity) at the plan's early or normal retirement age. Defined benefit plans also will not generally accept transfers from other retirement plans.

Defined contribution plans typically allow lump sum distributions of account balances upon termination of employment. The plan participant has several options to choose from. These include:

- Taking the lump sum distribution as taxable income at the time of distribution;
- Rolling the distribution to an individual retirement account; or
- Rolling the distribution to the qualified plan of the new employer, assuming the new plan would accept the transfer.

To encourage portability, defined contribution plans commonly accept transfers from other qualified plans.

Post-retirement increases

Public sector defined benefit plans often include post-retirement benefit increases. The increases may be automatic or granted by legislative action on a year-to-year basis. Automatic increases typically are related to increases in the consumer price index, often with a cap on the maximum increase allowed each year.

Defined contribution plans generally do not provide post-retirement increases. To safeguard one's retirement savings from inflation, a plan participant could use his or her account balance upon retirement to purchase a fixed or variable annuity that increases on a year-to-year basis. The provision for post-retirement increases is left up to the participant rather than automatically provided for under the terms of the plan.

Unfunded liability

Unfunded liabilities commonly exist among government-sponsored defined benefit plans. Unfunded liabilities result because plan liabilities as of a given date have not been fully funded by plan contributions and earnings on plan assets. Typically, as part of the annual contribution requirement to a defined benefit plan, an amount is contributed to "amortize" any existing unfunded liability (that is, to systematically pay off the liability).

Unfunded liabilities do not exist in defined contribution plans because the employer has fulfilled its obligation by contributing to employees' retirement accounts.

Types of Defined Benefit and Defined Contribution Plans

Defined benefit and defined contribution are terms which are used to broadly classify various types of retirement plans. Exhibit 2.1 classifies specific types of defined benefit or defined contribution plans considered in this study.

Exhibit 2.1
Types of Defined Benefit and Defined Contribution Plans

Defined Benefit	Defined Contribution
Traditional* (IRC Section 401(a))	Money Purchase • Age-weighted • Non-age-weighted (IRC Section 401(a))
Cash Balance (IRC Section 401(a))	Tax Deferred Annuities* (IRC Section 403(b))
	Deferred Compensation* (IRC Section 457)

*Currently available to University of Hawaii Faculty.
IRC = U.S. Internal Revenue Code

The current Employees' Retirement System of the State of Hawaii provides a traditional defined benefit plan providing monthly retirement benefits based on a formula which reflects an employee's years of service and the highest three years of compensation under both the contributory and non-contributory plans. Final retirement benefits cannot be calculated until the time of retirement when these variables can be determined.

A cash balance plan is a defined benefit plan designed to readily communicate its value to plan participants. Each year "contribution credits" are determined for a plan participant, for example, 8 percent of pay. These "contribution credits" are credited with interest each year at a specified rate or tied to an index rate, for example, 30-day treasury bill rates. The accumulated credits with interest can be paid out as a lump sum or used to purchase a retirement annuity at the time of termination of employment or retirement.

A cash balance plan is like a defined benefit plan because:

- "Contribution credits" are not necessarily matched dollar for dollar by contributions made to the plan at the time the "contribution credits" are granted, but instead the plan is funded according to funding policies established by the plan sponsor;

- Interest is credited on "contribution credits" at a specified rate, rather than the actual rate earned on plan assets; and

- The employer must provide the benefit specified by the plan formula independent of financial market fluctuations.

Money purchase-type defined contribution plans specify *fixed* contribution rates, for example, 5 percent of pay. The contribution rates are fixed until such time as the plan is modified to change the rate. The rates may be the same regardless of the age of the plan participant (non-age-weighted) or may vary depending on the age (and sometimes length of service) of the participant (age-weighted).

Most government employees can choose to participate in deferred compensation plans established by a state or other government jurisdiction. Tax deferred annuity plans, however, are limited by the U.S. Internal Revenue Code to covering employees of educational institutions, hospitals, and health service agencies.

Current Retirement Plans for University of Hawaii Faculty

University of Hawaii faculty currently are covered by or eligible to participate in various retirement plan arrangements:

- Employees' Retirement System of the State of Hawaii
- University of Hawaii 403(b) Tax Deferred Annuity Plan
- State of Hawaii 457(b) Deferred Compensation Plan
- Social Security

Overview

The Employees' Retirement System of the State of Hawaii is the primary retirement plan for State of Hawaii employees, including university faculty. The system provides a traditional defined benefit plan. Prior to July 1, 1984, the plan required employee contributions. On July 1, 1984, a second tier non-contributory system was added. All employees hired on or after July 1, 1984 are automatically members of the non-contributory system while employees participating in the contributory system were given the option of transferring to the non-contributory system. As of March 31, 1995, 540 faculty members participated in the contributory system while 2,775 participated in the non-contributory system. The State of Hawaii makes contributions to the system based on the determination of funding requirements by the Employees' Retirement System.

In general, members of the *contributory* plan of the Employees' Retirement System are required to contribute, through payroll deductions, 7.8 percent of their monthly gross salary. The employees' contributions are credited to their Employees' Retirement System account and earn 4½ percent interest compounded annually. These contributions are tax deferred until retirement or upon terminating employment. In addition, members are required to contribute to Social Security.

Normal retirement eligibility in the contributory plan is age 55 or five years of credited service. The benefit is calculated by multiplying 2 percent of average final compensation, times years of credited service. Average final compensation is an average of the highest salaries during any three years of credited service.

The State, as the employer, pays for the entire cost of the *non-contributory* plan of the Employees' Retirement System. No retirement contributions are deducted from the members' salaries. Members of the non-contributory plan do not make contributions to the Employees' Retirement System and are covered by Social Security.

Normal retirement eligibility in the non-contributory plan is age 62 and 10 years of credited service, or age 55 with 30 or more years of credited service. The benefit is calculated by multiplying 1.25 percent of average final compensation, times years of credited service. As with the contributory plan, average final compensation is an average of the highest salaries during any three years of credited service.

The University of Hawaii 403(b) Tax Deferred Annuity Plan is available to all University of Hawaii faculty and employees. This is a defined contribution-type plan governed by the rules of Internal Revenue Code Section 403(b). University of Hawaii faculty and employees may voluntarily elect to participate in the plan through payroll deductions. As of March 31, 1996, there were 1,391 University of Hawaii faculty participating in the plan out of a total of 3,206 eligible faculty.

The State of Hawaii Deferred Compensation Plan is available to all State of Hawaii employees. It is a defined contribution type plan governed by Section 457(b) of the Internal Revenue Code. State employees participate in the plan on a voluntary basis through payroll deductions and investment options made available under the plan. The total number of faculty participating in this plan is not readily available.

University of Hawaii faculty and essentially all State of Hawaii employees are covered by the Social Security retirement system. The Employees' Retirement System and Social Security combine to provide basic retirement coverage for university faculty.

Key features and provisions of current plans

Exhibit 2.2 describes key features and provisions of the retirement plans currently available to University of Hawaii faculty.

The general structure of the Employees' Retirement System is typical of other state retirement systems with respect to the coverage of state employees. However, the absence of employee contributions to the Employees' Retirement System (in the non-contributory plan) is not consistent with general practices in defined benefit plans covering government employees. The Public Pension Plan Coordinating Council's *1995 Survey of State and Local Government Employee Retirement Systems* reported that of 408 public employee retirement systems, 347 (85 percent) required employee contributions. Chapter 3 of our report illustrates that the lack of an employee contribution influences the design of alternative retirement plan arrangements.

Significant restrictions on "portability" of benefits, a key issue raised by proponents supporting the development of an alternative retirement plan for University of Hawaii faculty, do exist within the Employees' Retirement System. The ten-year requirement for vesting and the fact that plan participants cannot transfer plan values to another retirement system upon termination of employment restrict portability. However, these are not uncommon plan design features among defined benefit plans covering government employees. With respect to vesting, the Public Pension Plan Coordinating Council survey indicated that of 367 defined benefit plans covering government employees, 149 plans (41 percent) had a ten-year vesting requirement while 133 (36 percent) had a five-year vesting requirement. These features of the Employees' Retirement System are consistent with the philosophy that the system exists to provide retirement benefits, and not significant benefits in the case of termination of employment prior to retirement.

Exhibit 2.2
Key Features of Retirement Plans Currently Available to University of Hawaii Faculty

	ERS Non-contributory Plan	ERS Contributory Plan	University of Hawaii 403(b) Tax Deferred Annuity Plan	State of Hawaii 457(b) Deferred Compensation Plan
Plan Type	*Defined Benefit*	*Defined Benefit*	*Defined Contribution*	*Defined Contribution*
Administrator	ERS Board of Trustees	ERS Board of Trustees	University of Hawaii	Deferred Compensation Plan Board of Trustees
Number of Participants	43,749 as of 3/31/95	14,749 as of 3/31/95	1,391 participants out of 3,206 eligible as of 3/31/96	Information not readily available
Investment Risk	State of Hawaii taxpayers	State of Hawaii taxpayers	Employee	Employee
Employee Investment Direction	No	No	Yes	Yes
Employee Contributions	No employee contributions	7.8% of salary	Voluntary elective deferrals	Voluntary elective deferrals
Employer Contributions	Yes	Yes	No	No
Normal Retirement				
Eligibility	Age 62 & 10 years service or age 55 & 30 years service	Age 55 & 5 years service	Any age	Any age
Benefit	1-1/4% of average final salary times years of service (average final salary or AFS is the average of highest salaries during any three years of service, excluding any salary paid in lieu of vacation).	2% of average final salary times years of service (average final salary or AFS is the average of highest salaries during any three years of service, excluding any salary paid in lieu of vacation).	Account balance	Account balance
Deferred Vesting Upon Termination of Employment				
Eligibility	10 years service	5 years service and leave contributions in System	Immediate vesting	Immediate vesting

Exhibit 2.2
Key Features of Retirement Plans Currently Available to University of Hawaii Faculty (con't.)

	ERS Non-contributory Plan	ERS Contributory Plan	University of Hawaii 403(b) Tax Deferred Annuity Plan	State of Hawaii 457(b) Deferred Compensation Plan
Plan Type	*Defined Benefit*	*Defined Benefit*	*Defined Contribution*	*Defined Contribution*
Benefit	Accrued normal benefit payable at age 65	Accrued normal benefit payable at age 55	Account balance	Account balance
Annual Post-Retirement Benefit Increases	2-1/2% of original benefit amount not compounded	2-1/2% of original benefit amount not compounded	None, except to extent account balance at retirement invested to provide post-retirement increases	None, except to extent account balance at retirement invested to provide post-retirement increases
Post-Retirement Health Insurance	Yes	Yes	N/A	N/A
Transfers ("rollovers") From/ To Other Plans	Not permitted	Not permitted	Individual contracts held in employee's name are generally transferable	Not permitted

Chapter 3

Analysis, Conclusions, and Recommendation

This chapter presents our assessment of the feasibility of an optional retirement plan for University of Hawaii faculty. We examine the need, demand, and justification for such a plan, and identify public policy issues. In the event the Legislature chooses to adopt an optional retirement plan, we present several plan alternatives and analyze their benefits, costs, and other considerations. Each of the alternatives will require trade-offs. The chapter concludes with an overview of the steps to establish an optional retirement plan.

Summary of Conclusions

1. Perspectives vary on the importance of adopting an optional retirement plan for faculty of the University of Hawaii, the appropriateness of modifying the existing state retirement system's emphasis on rewarding long-term service, and the fairness of providing university faculty with a retirement benefit that is not available to other state employees.

2. If the State wishes to offer an optional retirement plan for university faculty, various alternatives are available. Each alternative has advantages and disadvantages in benefits, costs, and other considerations.

3. Establishing an optional retirement plan is a complex process that carries administrative costs and consists of four phases: final plan design and administrative decisions; vendor search and selection; implementation; and ongoing plan management.

Perspectives Differ on the Importance of an Optional Retirement Plan

Perspectives differ on the importance of an optional retirement plan for University of Hawaii faculty. University administrators and the University of Hawaii Professional Assembly (the faculty union) support an optional retirement plan, believing the plan would help the university to successfully recruit top faculty from a nationwide pool. They seek an alternative retirement plan with earlier vesting, an employer's contribution, and portable benefits. However, the Employees' Retirement System supports the philosophy that retirement plans are established to reward long-term, not short-term, employees. The Hawaii Government Employees' Association—which represents a wide range of state employees including university personnel other than faculty—opposes an optional retirement plan for university faculty on the grounds that this benefit would not be available to all state employees. Concerns about what approach is most fair and equitable have been raised by both proponents and opponents.

We identified instances in which the lack of an optional retirement plan may have adversely affected the university's recruiting efforts. The lack of such a plan appears to be more of an issue for mid-career or senior-level faculty or administrators, than for entry-level faculty. The lack of an optional plan is also more of a recruiting issue than a retention issue.

Other factors, such as salary, the cost of living, and the cost of housing, may affect recruitment and retention decisions more than retirement benefits affect those decisions. However, an optional retirement plan would probably assist somewhat in recruiting faculty who already have portable optional retirement benefits from another higher education institution.

Primary impetus comes from faculty union and the university

The faculty union and the university administration have been the primary proponents of an optional retirement plan for faculty. Both groups have drafted legislation or submitted testimony in support of an optional plan. The faculty union maintains that the Employees' Retirement System's non-contributory plan does not meet faculty's needs and does not recognize the mobile career path of higher education faculty. The union contends the system lacks early vesting periods, and the ability to transfer retirement balances to or from retirement plans at other higher education institutions. While the majority of administrators and faculty favor an optional plan, neither group was aware of a *demand* for a plan among their colleagues. We found limited activity, such as petitions, indicating strong "grass-roots" support coming from individual faculty members.

University may have lost recruits due to lack of an optional plan

Some university administrators indicated that the lack of an optional retirement plan has hurt recruitment of mid-career and senior level faculty. Deans and directors added that it is important for the university to be able to recruit mid-career faculty and top scholars to maintain or improve the quality of their unit. In some instances, administrators have been able to fill vacancies with lower ranked candidates, or have raised a faculty member's salary to compensate for the lack of vested retirement benefits.

However, other administrators stated that the lack of an optional retirement plan has not hurt their efforts to hire entry-level faculty. The administrators report that other issues are more important to entry-level faculty at this point in their career compared to mid-career or senior level faculty.

Faculty salaries apparently have been increased as compensation

Some university administrators stated that the lack of a portable employer's contribution toward faculty retirement led them to increase prospective candidates' salaries. In addition, two of the faculty we interviewed said they negotiated higher salaries to make up for what they perceive as the lack of an employer's contribution to their retirement plan. One administrator commented that salary flexibility is a poor way to compensate for the perceived lack of an employer's contribution toward retirement, noting that salary flexibility introduces inequities in salary level, for example, new faculty versus existing faculty who are already vested in the Employees' Retirement System.

Aspects of university faculty profession are cited in support of optional plan

University faculty must earn tenure in order to be assured of a permanent position. Like university faculty, public school teachers also earn tenure. However, the tenure process for teachers generally takes two years, while the tenure process for university faculty generally takes between five and seven years. In contrast, other state employees are generally assured of a permanent position after their six-month probationary period. One key administrator noted that if a faculty member is not tenured within seven years, that person has no reason to stay at the university.

Many interviewees saw mobility as a fact of faculty life that sets faculty apart from other state employees. Career advancement often necessitates accepting positions at different institutions throughout one's career. Thus, a portable retirement plan is believed to be an important recruiting tool. Faculty for the university's graduate level and baccalaureate level institutions are recruited from a nationwide labor pool. However, the University of Hawaii community college faculty are generally recruited from the local community and tend to stay with the university.

University administrators and the faculty union believe that benefit portability is an important feature to attract faculty from the mainland who already have retirement savings in an optional retirement plan through their prior university. Over one-third of the faculty we interviewed stated that they have retirement savings in an optional retirement plan. These funds were invested prior to accepting a position with the University of Hawaii. Several administrators interviewed indicated that they had retirement savings with an optional retirement plan prior to accepting a position with the University of Hawaii.

Some university faculty and administrators believe the faculty tenure requirement and a multi-institution faculty career path prevent many faculty from working at the university long enough to receive a retirement benefit. Many faculty and administrators we interviewed had worked at other higher education institutions before accepting a position with the University of Hawaii.

Most university faculty are members of the Employees' Retirement System non-contributory plan and must work for the university, or state government, for ten years in order to "vest" and be entitled to receive a retirement benefit. If a faculty member terminates employment with the university with fewer than ten years of service, that individual will not receive any state retirement benefits. In such cases, the Employees' Retirement System has explained that the State's contributions are kept by the retirement system and are used to reduce the State's retirement cost for its other employees in subsequent years. University faculty and administrators, the faculty union, and the Hawaii Government Employees' Association agree that it is not fair for employees to lose out on their retirement benefits. These parties believe that the system's ten year vesting period is too long.

Data raise questions about length of service

The average length of service for current faculty may not be significantly different from that of all Employees' Retirement System members. This calls into question assumptions of short-term service.

Although the data we reviewed are limited, overall the average length of service among faculty does not appear to be materially different from members of the Employees' Retirement System generally (approximately 12 years). If the faculty were more mobile than the other state employees, we would expect that the average length of service for faculty would be lower than for other Employees' Retirement System members. While we did not analyze definitive information on faculty turnover, available information suggests that, in the aggregate, there is not a significant difference in turnover rates between faculty and other Employees' Retirement System members. Detailed information on faculty turnover rates was not readily available from the Employees' Retirement System's most recent experience study.

Other factors are more likely to improve recruitment and retention

The link between retirement benefits, and recruiting and retention, has been discussed in Hawaii and on the mainland. The Ohio study found that "opinions on the link between pensions and recruiting problems vary widely." It concluded that many factors in addition to retirement plans go into an individual's decision to accept a position.[1]

In Hawaii, faculty, administrators, and the faculty union agree that other factors are likely to have a greater impact on faculty recruitment and retention than the type of retirement plan offered. Key issues include Hawaii's lower university salaries, high cost of living, and costly housing.

Opinions are equally divided on aiding faculty retention

Opinions were about equally divided on whether an optional retirement plan would help the university retain faculty once hired. About half of the administrators felt that a plan would help to keep faculty at the university.

The other half commented that an optional plan is not nearly as important an issue for faculty retention as for recruitment. Several noted that no one ever left the university because the university lacks an optional retirement plan.

However, nearly two-thirds of the faculty we interviewed stated that retirement benefits will be a factor in their decision to stay with the university. Some faculty expect to compare the benefits offered elsewhere, such as the employer's contribution and portability. Some stated that salary will be the major factor in deciding whether to remain at the university.

We found that retirement benefits are a more significant issue for recruiting than for retention. A recent university study on resignations found that most University of Hawaii faculty left due to salary considerations.[2] A multi-year study on barriers to retention and tenure at the university's Manoa campus found that other economic issues lead the list of concerns among tenure-track faculty. Retirement benefits were not among the key reasons for leaving the university.[3]

Equity is a major concern

Both supporters and opponents of an optional retirement plan for university faculty raise equity issues in support of their position. Supporters believe that retirement benefits should compensate employees for years of service to date. They add that the State should not gain by employees leaving state employment early. Opponents believe that pension benefits are a reward for long-standing service to the State. They argue that short-term employees should not be allowed to take the employer's contribution when they leave. While acknowledging shortcomings of the existing non-contributory plan, the Hawaii Government Employees' Association questions the fairness of conferring a retirement benefit on university faculty, but not on other state employees.

Establishing an alternative plan sets a precedent for other employee groups

Establishing an optional retirement plan for University of Hawaii faculty would be a significant policy decision. The Employees' Retirement System is concerned that allowing an optional plan would set a precedent for other employee groups to seek this benefit as well and that legislation enabling all other employee groups to switch to a defined contribution plan would represent a complete restructuring of the system. The Hawaii Government Employees' Association—the largest state employees' union—would support an optional retirement plan if this benefit were available to all other state employees.

If university faculty were permitted to participate in an optional retirement plan, would other groups of state and local employees also demand the right to participate? The Ohio study investigated this issue and found that this effect "has not been a widespread phenomenon" in other states.[4] Many states have optional retirement plans side-by-side with existing state retirement plans.

Participating in two existing supplemental retirement plans has limited advantages

In addition to participating in the Employees' Retirement System, university faculty can participate in two other retirement savings plans. Faculty can voluntarily participate in the State of Hawaii Deferred Compensation Plan, which is available to all state employees, and the University of Hawaii Tax Deferred Annuity Plan, which is available only to University of Hawaii employees.

Having these additional retirement savings plans is not a significant advantage for university faculty. The Internal Revenue Code limits the amounts that can be deferred when employees participate in both the Deferred Compensation Plan and the university's Tax Deferred Annuity Plan. And neither the Deferred Compensation Plan nor the Tax Deferred Annuity Plan has an employer's contribution.

Various Optional Retirement Plan Alternatives Are Available

If the State wishes to adopt an optional retirement plan for the University of Hawaii faculty, various models are feasible. Here we present some alternatives for consideration by the Legislature and other interested parties. The alternatives provide greater "portability" features than the Employees' Retirement System, but vary in the level of retirement benefits they offer. Our analysis of the four alternatives and their trade-offs follows the descriptions of the alternative plans.

Key features of alternatives

Whichever alternative were to be made available, *current* university faculty would be given the option of remaining in the Employees' Retirement System or enrolling in the alternative plan.

For *new* faculty, we present two of the alternative plans as options; that is, new faculty would choose to enroll in the retirement plan that best suits their needs (the Employees' Retirement System or the alternative that may be adopted). Each of the other two alternative plans, if adopted, would be mandatory for new faculty.

Three of the alternatives are designed to keep the State's costs of the alternative approximately the same as if the university faculty members continued to be covered under the state Employees' Retirement System.

In contrast, one model is designed to illustrate the cost to the State of having a plan that requires no employee contributions yet provides greater pre-retirement benefits, and retirement benefits approximately the same as the Employees' Retirement System.

Even if one of the four alternatives were adopted, the current University of Hawaii Tax Deferred Annuity Plan and the State of Hawaii Deferred Compensation Plan would continue to be available to university faculty as voluntary retirement plans.

Exhibit 3.1 describes the four optional retirement plan alternatives that we are presenting. A brief discussion and rationale for each alternative follows.

Alternative A - a non-contributory plan providing a greater pre-retirement benefit

Alternative A is a money purchase-type defined contribution plan. Money purchase plans are the most common type of optional plan implemented in recent years for higher education faculty. In Alternative A, there is no employee contribution. In this respect, Alternative A mirrors the State's current non-contributory plan. The State's contribution rate would be 6.11 percent of pay. This alternative provides greater pre-retirement benefits at the cost of providing a much smaller post-retirement benefit than the Employees' Retirement System.

Current University of Hawaii faculty members would be given a one-time option to retain membership in the Employees' Retirement System or transfer to the new optional retirement plan. The option to transfer could be limited to faculty with less than 20 years of service at the time the option is granted, or the option could be given to all university faculty regardless of service. Faculty with more than 20 years of service are more likely to accumulate higher plan values by remaining in the Employees' Retirement System than by transferring to the optional retirement plan.

Key arguments for Alternative A might include the following:

- There is no employee contribution requirement, which mirrors the current Employees' Retirement System.
- Accelerated vesting and the availability of lump sum distributions at the time of termination of employment would improve "portability."
- The money purchase-type defined contribution plan is the most common type of optional retirement plan established in recent years for higher education faculty.

Exhibit 3.1
Key Features of Retirement Plan Alternatives to Employees' Retirement System (ERS)

	Alternative A	Alternative B	Alternative C	Alternative D
Plan Type	***Defined Contribution (Money Purchase)***	***Defined Contribution (Money Purchase)***	***Defined Benefit (Cash Balance)***	***Defined Contribution (Money Purchase)***
Administrator	Separate Board of Trustees	Separate Board of Trustees	Separate Board of Trustees	Separate Board of Trustees
Eligible Employees	Bargaining Unit 7	Bargaining Unit 7	Bargaining Unit 7	Bargaining Unit 7
Investment Risk	Employee	Employee	Employer	Employee
Employee Investment Direction	Yes	Yes	No	Yes
Employee Contributions	No	Age / % of Pay < 35: 1.0% 35-39: 1.5% 40-44: 2.0% 45-49: 3.0% 50-54: 3.5% 55-59: 4.0% 60 +: 5.0%	% of Pay • New Faculty: .5% • Non-Contributory ERS Plan Transfers: 1.1% • Contributory ERS Plan Transfers: 8.9%	No
Employer Contributions	6.11% of pay	6.11% of pay	6.11% of pay (estimate)	Age / % of Pay < 35: 7.11% 35-39: 7.61% 40-44: 8.11% 45-49: 9.11% 50-54: 9.61% 55-59: 10.11% 60 +: 11.11%
Contribution Credit Formula	Not applicable	Not applicable	Age / % of Pay < 40: 7.0% 40-45: 8.5% 46-51: 10.0% 52-55: 11.5% 56-61: 13.0% 62 +: 14.5%	Not applicable

Exhibit 3.1
Key Features of Retirement Plan Alternatives to Employees' Retirement System (con't.)

	Alternative A	Alternative B	Alternative C	Alternative D
Plan Type	*Defined Contribution (Money Purchase)*	*Defined Contribution (Money Purchase)*	*Defined Benefit (Cash Balance)*	*Defined Contribution (Money Purchase)*
Normal Retirement				
Eligibility	Age 62 and 3 years of service	Age 62 and 3 years of service	Age 62 and 3 years of service or age 55 and 30 years of service	Age 62 and 3 years of service
Benefit	Account balance	Account balance	Cash balance, or, if greater, current ERS plan benefit (applicable to B.U.7 employees transferring from ERS only)	Account balance
Termination of Employment				
Eligibility	Immediate, no service requirement	Immediate, no service requirement	3 years of service with service in ERS included	Immediate, no service requirement
Benefit	Account balance payable upon termination	Account balance payable upon termination	Cash balance payable upon termination	Account balance payable upon termination
Annual Post-Retirement Increases	To extent provided by account balance	To extent provided by account balance	To extent provided by cash balance, or if greater, current ERS plan benefit (for only Bargaining Unit 7 employees transferring from ERS)	To extent provided by account balance
Post-Retirement Health Insurance				
Eligibility	Same as ERS members	Same as ERS members	Same as ERS members	Same as ERS members
Benefit	Same as ERS members	Same as ERS members	Same as ERS members	Same as ERS members
Transfers ("rollovers") From/ To Other Plans	Permitted	Permitted	Permitted	Permitted
Participation in ERS Optional for Future Bargaining Unit 7 Employees	Yes	No	No	Yes

Exhibit 3.1
Key Features of Retirement Plan Alternatives to Employees' Retirement System (con't.)

	Alternative A	Alternative B	Alternative C	Alternative D
Plan Type	***Defined Contribution (Money Purchase)***	***Defined Contribution (Money Purchase)***	***Defined Benefit (Cash Balance)***	***Defined Contribution (Money Purchase)***
Transfer Option Provision for Current Bargaining Unit 7 Members of ERS				
Eligibility	*Option 1:* All B.U.7 employees *Option 2:* All B.U.7 employees with less than, for example, 20 years of service	All B.U.7 employees	All B.U.7 employees	All B.U.7 employees
Transfer Basis	*Option 1:* - Accrued benefit at time of transfer retained in ERS - Future service included for vesting purposes only *Option 2:* - Lump sum value of accrued benefit determined at time of transfer is transferred to new plan after 10 years of vesting service in ERS - Future service included for vesting purposes only	*Option 1:* - Accrued benefit at time of transfer retained in ERS - Future service included for vesting purposes only *Option 2:* - Lump sum value of accrued benefit determined at time of transfer is transferred to new plan after 10 years of vesting service in ERS - Future service included for vesting purposes only	*Option 1:* - Accrued benefit at time of transfer retained in ERS - Future service included for vesting purposes only *Option 2:* - Lump sum value of accrued benefit determined at time of transfer is transferred to new plan after 10 years of vesting service in ERS - Future service included for vesting purposes only	*Option 1:* - Accrued benefit at time of transfer retained in ERS - Future service included for vesting purposes only *Option 2:* - Lump sum value of accrued benefit determined at time of transfer is transferred to new plan after 10 years of vesting service in ERS - Future service included for vesting purposes only
Other Features	One-time election at time of new plan establishment	One-time election at time of new plan establishment	One-time election at time of new plan establishment	One-time election at time of new plan establishment

Alternative B - using employee contributions to increase post-retirement benefits

Alternative B is also a money purchase-type defined contribution plan. While Alternative A will likely provide smaller retirement benefits than the Employees' Retirement System, Alternative B, by requiring employee contributions, is designed to better ensure that career faculty have adequate savings upon retirement. Employer contributions are required at 6.11 percent of pay. Employee contributions are required with the rate of contributions increasing with age.

Alternative B would be mandatory for future employees. If Alternative B were optional for these persons, many faculty might elect to participate in the existing Employees' Retirement System because of the non-contributory nature of the plan without weighing or considering other differences between the two plans.

Current University of Hawaii faculty members would be given a one-time option to retain membership in the Employees' Retirement System or transfer to the new optional retirement plan.

Key arguments for Alternative B might include:

- The inclusion of an employee contribution requirement assures to some extent that adequate retirement benefits will be available for those faculty who continue to work for the university until retirement.
- Accelerated vesting and the availability of lump sum distributions at the time of termination of employment would improve "portability."
- The money purchase type defined contribution plan is the most common type of optional retirement plan in higher education.

Alternative C - a contributory defined benefit plan providing greater pre-retirement benefits

Alternative C is a cash balance-type defined benefit plan under which participating employees are required to contribute a percentage of their salaries. Employer costs are estimated to be 6.11 percent of pay, approximately the cost of covering the same University of Hawaii faculty group under the Employees' Retirement System. Employee contributions would vary depending on whether the employee is a new faculty member or a transfer from the Employees' Retirement System's contributory or non-contributory plan. Employee contributions under this defined benefit plan would be used to achieve approximately the same post-retirement benefits as the Employees' Retirement System.

Current University of Hawaii faculty members would be given a one-time option to retain membership in the Employees' Retirement System or transfer to the new optional retirement plan.

While Alternative C is the most complex of the alternatives, both in terms of understanding and administration, the following rationale supports this alternative:

- For those current faculty transferring from the Employees' Retirement System to this alternative, retirement benefits will be no less than the amount provided had the faculty member remained a participant in the Employees' Retirement System.
- Accelerated vesting and the availability of lump sum distributions at the time of termination of employment would improve "portability."

Alternative D - using employer contributions to increase pre- and post-retirement benefits

Alternative D illustrates the cost to the employer, if higher pre-retirement benefits, and post-retirement benefits comparable to the Employees' Retirement System, are provided. Alternative D has all of the features of Alternative A, except that the cost to the State, as the employer, will be higher.

Alternative D, like Alternative A, is a money purchase-type defined contribution plan. No employee contributions are required. In this respect, Alternative D mirrors the State's current non-contributory plan. The State's contribution rate to Alternative D will vary to facilitate higher termination-of-employment benefits and also post-retirement benefits comparable to the State's non-contributory retirement plan.

Current University of Hawaii faculty members would be given a one-time option to retain membership in the Employees' Retirement System or transfer to the new optional retirement plan.

The primary rationale supporting Alternative D includes the following:

- Higher pre- and post-retirement benefits than Alternative A.
- There is no employee contribution requirement, similar to the current Employees' Retirement System's non-contributory plan.
- Accelerated vesting and the availability of lump sum distributions at the time of termination of employment would improve "portability."
- The money purchase-type defined contribution plan is the most common type of optional retirement plan established in recent years in higher education.

Analysis of Optional Retirement Plan Alternatives Illustrates Benefit, Cost, and Policy Considerations

The Employees' Retirement System and each of the optional retirement plan alternatives presented above provide different benefit structures and support various retirement policies to differing degrees. Three of the four alternatives (A through C) are designed to keep State of Hawaii costs the same before and after implementation of the alternative. (However, relatively small cost differences do occur.) The fourth alternative (D) uses an increased employer (State) contribution to achieve greater pre-retirement benefits, and post-retirement benefits comparable to the Employees' Retirement System. The decision to implement an optional retirement plan and which alternative to adopt will involve considering these issues.

Benefit analysis

Each of the alternatives will require trade-offs. Future and current university faculty are impacted somewhat differently by the implementation of the optional retirement plan alternatives. Current university faculty who elect to transfer to the optional retirement plan would have part of their benefits provided from the Employees' Retirement System and part from the optional retirement plan. Differences in benefits will also result depending on whether a current faculty member is a participant in the contributory or non-contributory portion of the Employees' Retirement System.

New University of Hawaii faculty hires

Existing and alternative retirement plans provide significantly different retirement benefits at different years of service during one's career. For instance, the first few years of service have a greater impact on benefits than the later years of service under defined contribution plans, such as Alternatives A, B, and D. The opposite is true for traditional defined benefit plans like the Employees' Retirement System, in which the last few years of service generally have more impact than the earlier years. Under Alternative C, a defined benefit plan, contribution credits are accumulated in a manner similar to the defined contribution Alternatives A, B, and D.

There are major differences among the various plans in the accumulation of benefits throughout the years of service. All of the alternatives provide greater benefits than the Employees' Retirement System for a period of time. However, if the faculty member remains with the university until retirement, the Employees' Retirement System and Alternatives B, C, and D provide larger benefits. For example, a faculty member hired at age 40 will receive higher benefits from Alternative A than from the Employees' Retirement System until age 59. After age 59, the Employees' Retirement System provides substantially higher benefits. Alternatives B, C, and D provide benefits higher than or equal to the Employees' Retirement System at all ages. Exhibit 3.2 illustrates and compares the value of future vested benefits accumulated among the optional retirement plan Alternatives A, B, C, and D and the current non-contributory plan of Employees' Retirement System for a representative new faculty member entering the plans at age 40 with a salary of $45,000.

The assumptions used in developing the projections for the sample participant are important. A different set of assumptions would lead to different results. For the sample participant, salaries were assumed to increase at 4 percent annually; Alternatives A, B, and D account balances were assumed to earn 8 percent annually; and Alternative C "credit contribution" balances were assumed to increase with 5 percent interest annually. Actual results would vary depending on actual salary increases, the actual performance of Alternative A, B, and D accounts, and actual interest rates credited to the Alternative C "credit contribution" balances.

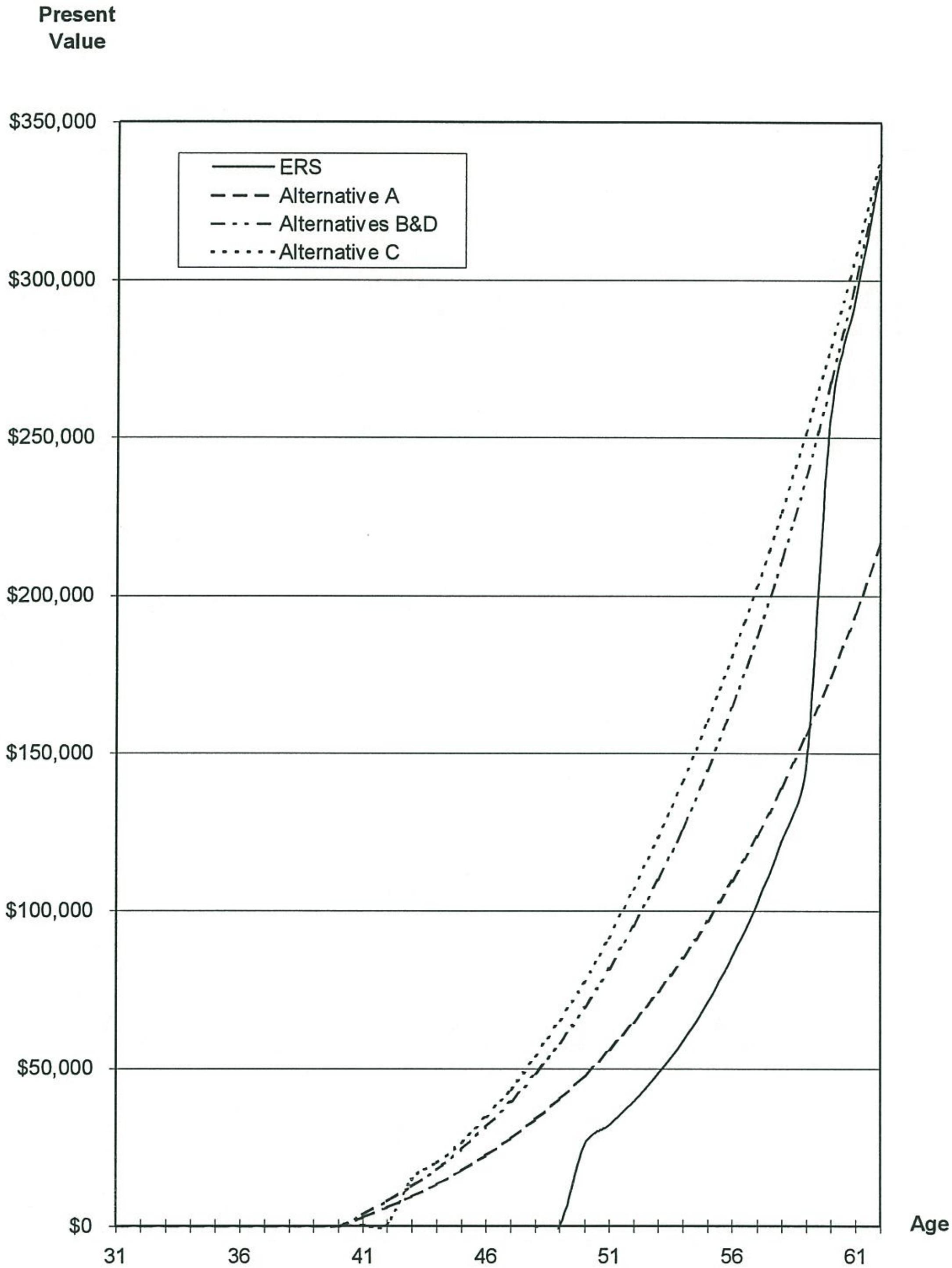
Current University of Hawaii faculty

Exhibits 3.3 and 3.4 illustrate the accumulation of vested benefits of optional retirement plan Alternatives A, B, C, and D and the existing Employees' Retirement System for current faculty. Exhibit 3.3 illustrates plan benefits for a typical faculty member currently participating in the *contributory* plan under the Employees' Retirement System. Exhibit 3.4 illustrates plan benefits for a typical faculty member participating in the *non-contributory* plan under the Employees' Retirement System.

The graph shows that University of Hawaii faculty who participated in the Employees' Retirement System in the early years of their careers and then opt to switch to Alternative A, would tend to receive lower retirement benefits than if they were to participate in the Employees' Retirement System for their entire career. As a trade-off, Alternatives B and C tend to make up for the Alternative A shortfall in retirement benefits, but at the cost of an additional employee contribution. Alternative D makes up for the shortfall in Alternative A's retirement benefits at the cost of additional employer contributions.

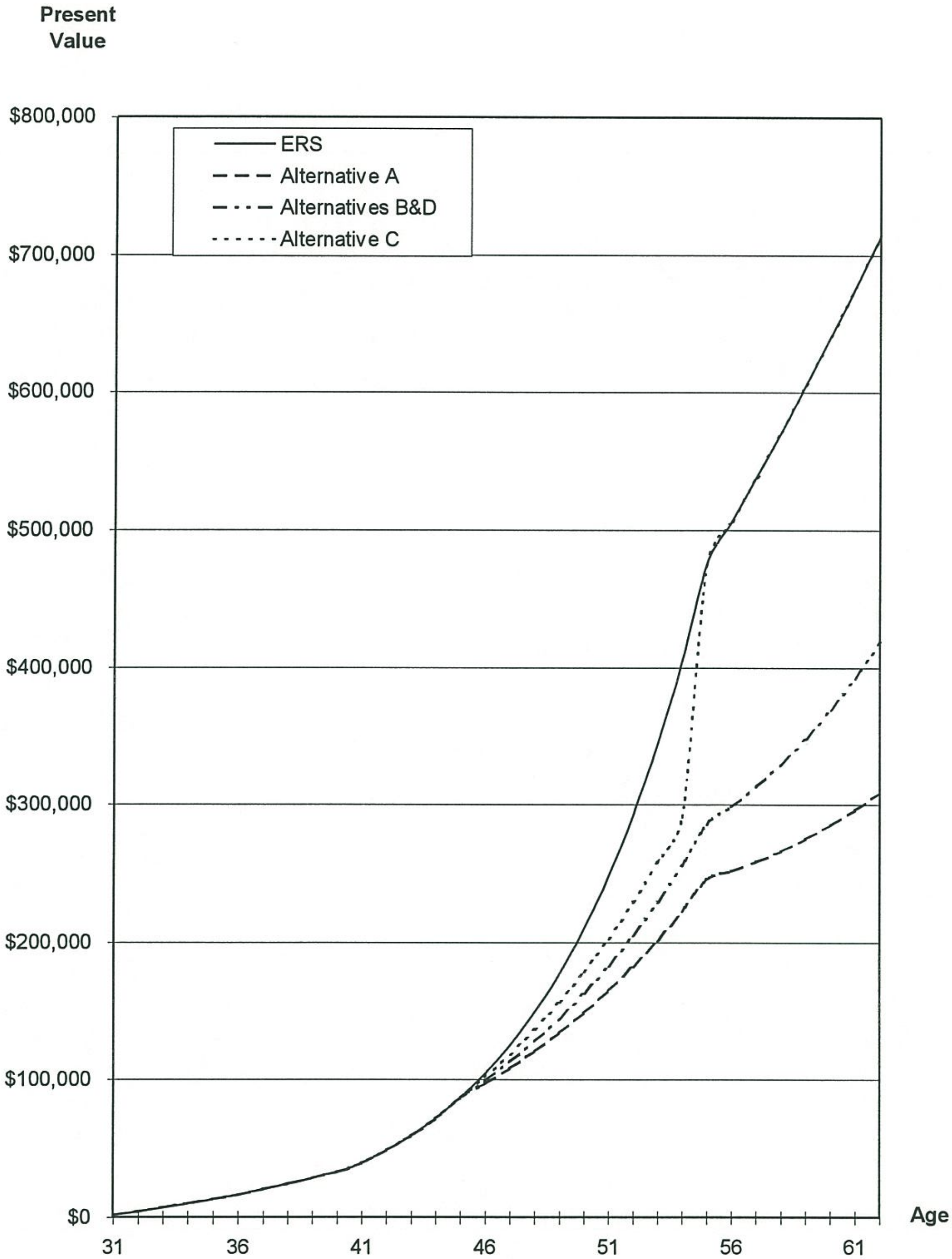
The assumptions underlying these graphs are the same as those used for the new sample participant projections. Salaries were assumed to increase at 4 percent annually; Alternative A, B, and D account balances were assumed to earn 8 percent annually; and Alternative C "credit contribution" balances were assumed to increase with 5 percent interest annually. Likewise, actual results would vary depending on actual salary increases, the actual performance of Alternative A, B, and D accounts, and actual interest rates credited to the Alternative C "credit contribution" balances.

Exhibit 3.2
Projected Benefits for a Typical New Faculty Member* Under the Employees' Retirement System and the Alternatives



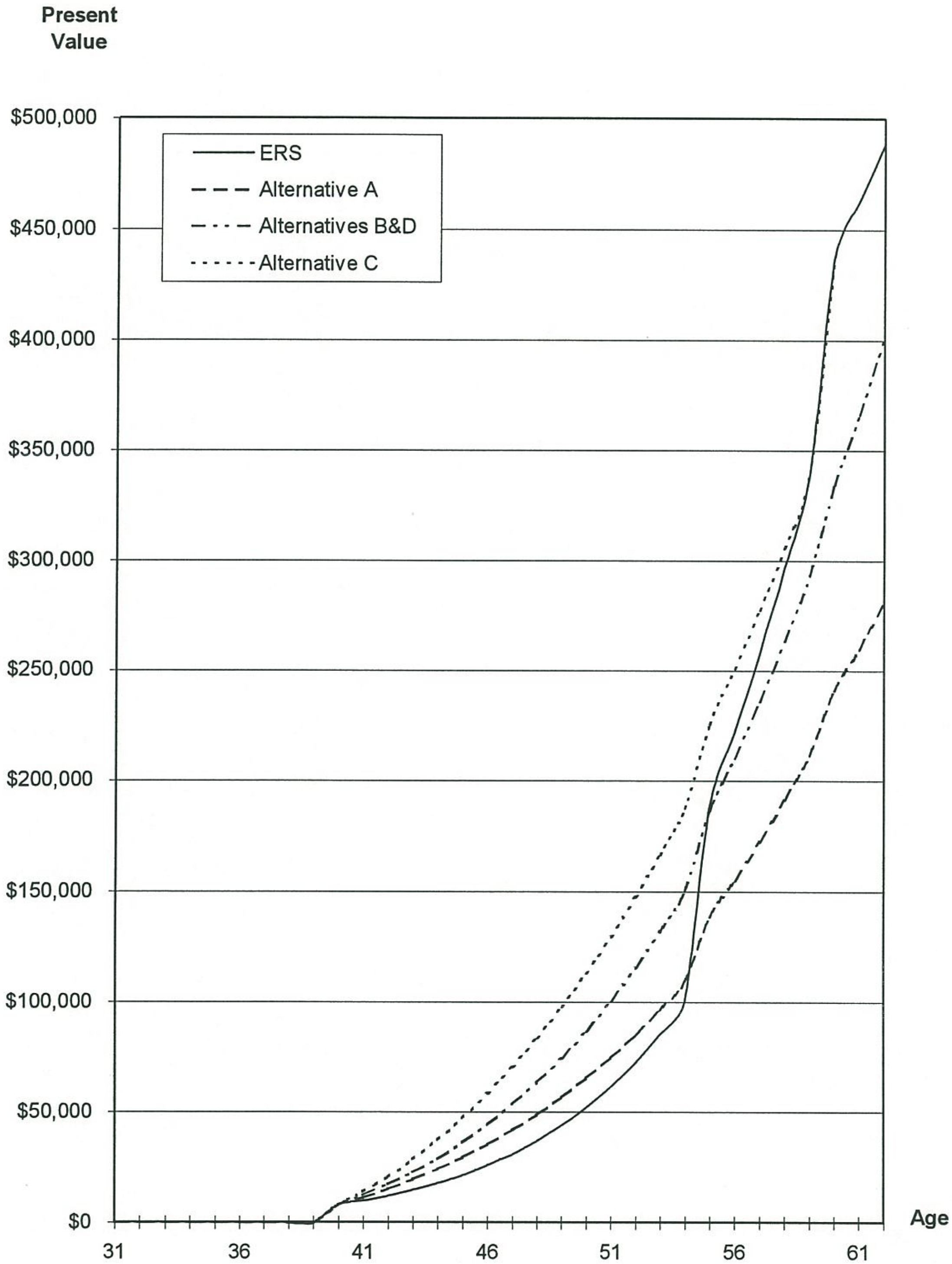
Note: *New employee age 40 earning $45,000.
See Appendix A for actuarial assumptions and related information.

Exhibit 3.3
Projected Retirement Benefits, for a Typical Faculty Member Currently in the Employees' Retirement System's Contributory Plan,* Under ERS and the Alternatives



Note: *Employee age 45 with 15 years of service and earning $50,000 at transition.
See Appendix B for actuarial assumptions and related information.

Exhibit 3.4
Projected Retirement Benefits, for a Typical Faculty Member in the Employees' Retirement System's Non-Contributory Plan,* Under ERS and the Alternatives



Note: *Employee age 40 with 10 years of service and earning $45,000 at transition.
See Appendix C for actuarial assumptions and related information.

Analysis of cost impact

Establishing Alternatives A, B, and C described above should not have a significant cost impact on the Employees' Retirement System or the State of Hawaii with respect to the employer's contribution. (However, additional expenses of administration will be incurred with operating an optional retirement plan. These costs are discussed later in this chapter.)

To project the State's contribution costs associated with an optional retirement plan, we used the most recent valuation cost information prepared by The Segal Company, actuaries for the Employees' Retirement System, and participant data used in that valuation. With the assistance of the University of Hawaii, the Employees' Retirement System, and The Segal Company, all bargaining unit 7 faculty members were identified and this information was used to determine the impact on the Employees' Retirement System and the State of Hawaii costs of an optional retirement plan. The actuarial assumptions used in the analysis are the same as those used in the latest actuarial valuation information.

In three of the four alternatives (A, B, and C), the employer's optional retirement plan contribution rate would be 6.11 percent of payroll. Because Alternative C is a defined benefit plan, the initial 6.11 percent contribution rate would fluctuate as such factors as wage increase rates, interest rates, and mortality patterns differ from expectations. The 6.11 percent rate was determined by The Segal Company, and verified by us, as the cost to provide Employees' Retirement System non-contributory plan coverage to an average new University of Hawaii faculty member using widely accepted actuarial procedures. Future changes in demographics, actuarial assumptions, or the design of the state retirement system may change the initial average cost, that is, 6.11 percent, of supporting a new university faculty member under the current system. Optional retirement plans in some states vary the employer contribution rate as the average cost varies in the future. This might be considered as a design feature of the optional retirement plan.

Alternative D's costs are higher than Alternative A, B, or C. The cost level produces higher pre-retirement benefits and comparable post-retirement benefits to the Employees' Retirement System without including an employee contribution requirement.

Cost projections presented in Exhibit 3.5 indicate only small differences in the aggregate percentage of payroll costs between the Employees' Retirement System and the optional retirement plan alternatives. The percent of payroll costs shown reflects the combined costs of offering the alternative to university faculty and continuing to offer the Employees' Retirement System to other state employees and to university faculty who do not choose the alternative.

The number of current University of Hawaii faculty who elect to transfer to coverage under the optional retirement plan will have some impact on the respective costs of the Employees' Retirement System and the optional retirement plan. Because actual transfers are difficult to predict, we used two "assumption sets"—one high and one low—which helps to produce a range of cost estimates. The cost impact resulting from the actual number of transfers would likely be somewhere within the range of results produced by the high and low transfer assumptions presented. High and low transfer assumptions, as set forth in the appendixes, are used in the cost analysis.

Cost projections in Exhibit 3.5 assume a 3 percent annual increase in the total government payroll and a stable employee population. The analysis assumes that implementation of an optional retirement occurred on July 1, 1995, the date of the latest completed Employees' Retirement System actuarial valuation. The Early Retirement Incentive Plan's impact on the Employees' Retirement System is not fully reflected in the cost projection, but it is reasonable to assume that the impact would be similar under the current-system projection and each of the alternative-plan projections.

Exhibit 3.5 shows that the State's total retirement costs would not be significantly impacted by the implementation of an optional retirement plan. In fact, there is a slight decrease in total costs in most cases. This is due to the fact that there is a small net gain to the Employees' Retirement System, because of more withdrawals (transfers to the optional retirement plan) from the system than projected.

We gave some consideration to presenting Alternatives B and C as optional rather than mandatory for future faculty members. Total state costs should not be impacted by this change, but would result in somewhat higher Employees' Retirement System costs offset by a lower optional retirement plan cost.

Additional issues and considerations

The decision whether to implement an optional retirement plan and, if so, what type of plan, will depend on a number of retirement policy issues and considerations. Issues such as portability, equity, ability to make investment choices, and responsibility for investment risk are important considerations. In this section, we will briefly address each of these.

Exhibit 3.5
Projected Combined Employer Contribution Requirements[1]
(Percent of Payroll)

		Alternative A		Alternative B		Alternative C		Alternative D	
Beginning of Plan Year	Current System	High Transfer Assumption	Low Transfer Assumption	High Transfer Assumption	Low Transfer Assumption	High Transfer Assumption	Low Transfer Assumption	High Transfer Assumption	Low Transfer Assumption
7/1/1995	14.63%[2]	14.52%	14.60%	14.52%	14.60%	14.52%	14.60%	14.62%	14.64%
7/1/1996	14.20%	13.90%	14.17%	13.90%	14.17%	13.90%	14.17%	14.01%	14.21%
7/1/1997	13.81%	13.45%	13.78%	13.45%	13.78%	13.45%	13.78%	13.57%	13.82%
7/1/1998	13.45%	13.08%	13.42%	13.08%	13.42%	13.08%	13.42%	13.21%	13.46%
7/1/1999	13.10%	12.74%	13.06%	12.74%	13.06%	12.74%	13.06%	12.87%	13.11%
7/1/2000	12.75%	12.42%	12.71%	12.42%	12.71%	12.42%	12.71%	12.56%	12.76%
7/1/2001	12.41%	12.11%	12.38%	12.11%	12.38%	12.11%	12.38%	12.26%	12.43%
7/1/2002	12.09%	11.81%	12.06%	11.81%	12.06%	11.81%	12.06%	11.96%	12.11%
7/1/2003	11.77%	11.52%	11.73%	11.52%	11.73%	11.52%	11.73%	11.68%	11.78%
7/1/2004	11.44%	11.24%	11.41%	11.24%	11.41%	11.24%	11.41%	11.40%	11.46%
7/1/2005	11.13%	10.96%	11.10%	10.96%	11.10%	10.96%	11.10%	11.13%	11.15%
7/1/2006	10.81%	10.68%	10.78%	10.68%	10.78%	10.68%	10.78%	10.86%	10.83%

[1] All results reflect the combined costs of Employees' Retirement System and the alternative. All results exclude police, fire, and corrections officers.

[2] July 1, 1995 results for the current system are based on the Report to Board of Trustees on the Seventieth Annual Actuarial Valuation prepared by The Segal Company.

Note: See Appendixes D and E for assumptions and related information.

Increased "portability" (in terms of higher termination-of-employment benefits and the ability to transfer plan benefits to another plan) can be accomplished through an optional retirement plan. However, as employer dollars are allocated more towards termination-of-employment benefits, fewer dollars are available for retirement benefits. This is a significant difference between the Employees' Retirement System and any of the optional retirement plans. Requiring employee contributions under Alternatives B and C or additional employer contributions under Alternative D would help preserve retirement benefit levels for those faculty who do work with the University of Hawaii until retirement.

Establishing a separate plan for University of Hawaii faculty is of concern to the Employees' Retirement System because other employees may also want similar plans. However, we found little evidence in other states that establishing an optional retirement plan for higher education faculty has led to the expansion of optional retirement plans for other employee groups.

One solution might be to structure the optional retirement plan to resolve these "equity" concerns. For example, Alternative A may raise the most "equity" concern because it is a true option, that is, future employees can choose the Employees' Retirement System or the optional retirement plan. Alternative D will also raise equity concerns since the State would be contributing more to plan participants, than for other state employees. Alternatives B and C, on the other hand, may pose less of a problem since future University of Hawaii faculty would be required to join the optional retirement plan and have no option to join the Employees' Retirement System.

There are other reasons to consider regarding whether an alternative plan is optional or mandatory. If Alternatives B and C were optional, some faculty might elect to participate in the Employees' Retirement System because it does not require employee contributions, without weighing or considering other differences between the two plans, such as the higher pre-retirement benefits provided by the alternatives.

To the extent retirement plans impact an individual's decision to become a University of Hawaii faculty member, younger individuals are more likely to appreciate an optional retirement plan because of its "portability" features. Likewise, having this plan may assist the university's efforts to recruit mid-career and senior-level faculty. Faculty who intend to serve their entire career with the university may appreciate the Employees' Retirement System and its emphasis on retirement benefits.

Who bears investment risk under the plan is also a significant policy issue. The current Employees' Retirement System plan is at one end of the spectrum. Under the system, the employer retains all of the investment risk. Alternatives A, B, and D lie at the other end with the employee bearing the entire risk. Alternative C, the cash balance plan, lies somewhere in between.

In Exhibit 3.6, we rank the Employees' Retirement System plan and alternatives against the policy issues described above as well as others. The choice to implement an optional retirement plan and, if so, what type of optional retirement plan to implement will depend heavily on perspectives of decision makers with respect to these issues.

The following section provides an overview of the steps to establish an optional retirement plan.

Exhibit 3.6
Key Issues and Considerations:
Ranking of Current and Alternative Retirement/Savings Plans*

Issue/Consideration	Current ERS Plan	Alternative A	Alternative B	Alternative C	Alternative D
Plan Type	Defined Benefit (Traditional)	Defined Contribution (Money Purchase)	Defined Contribution (Money Purchase)	Defined Benefit (Cash Balance)	Defined Contribution (Money Purchase)
"Portability"					
• highest early career benefit accrual	5	1	1	4	1
• fastest vesting	5	1	1	4	1
• greatest transferability	5	1	1	1	1
Greatest "equity" between B.U.7 and non-B.U.7 employees maximized	1	4	2	3	5
Most effective in recruiting					
• younger employees	5	2	3	4	1
• older employees	1	5	3	2	4
Investment risk					
• transferred to employee	5	1	1	4	1
• retained by employer	1	3	3	2	3
Retention of employees	1	5	4	3	2
Able to meet designated target retirement income replacement levels	1	3	3	2	3
Protection against pre- and post-retirement inflation	1	3	3	2	3
Highest level of retirement benefits at lowest cost	1	3	3	2	5
Highest level of termination-of-employment benefits at lowest cost	5	1	1	4	3
Flexibility in determining annual contributions	1	3	3	1	3
Fixed annual contributions	4	1	1	4	1
Highest level of investment education/guidance required	4	1	1	4	1

*1 = best in addressing the issue/consideration, 5 = worst in addressing the issue/consideration.

Establishing an Optional Retirement Plan Would Have Several Phases

The following discussion of establishing an optional retirement plan was prepared based on Deloitte & Touche's national experience and does not necessarily consider all requirements specific to Hawaii such as the Hawaii Public Procurement Code, Chapter 103D, Hawaii Revised Statutes; the State's legislative process; or executive branch requirements for establishing new programs. The guidelines presented may have to be adapted to meet Hawaii's requirements.

If Hawaii wishes to adopt an optional retirement plan for University of Hawaii faculty, the process for establishing such a plan is complex. Normally there are four phases:

- Phase One - Final Plan Design and Administrative Decisions
- Phase Two - Vendor Search and Selection
- Phase Three - Implementation
- Phase Four - Ongoing Plan Management

Generally, a six- to eight-month time frame following enactment of enabling legislation is desirable for putting a new program in place.

The cost of establishing an optional retirement plan varies based on the type of plan, number of plan vendors, and scope of plan services provided. We roughly estimate at $75,000-$150,000 the State's costs to retain outside service providers/consultants to assist with final plan design, vendor selection, and communication with existing University of Hawaii faculty about their option to transfer to the new plan.

Ongoing costs to the State of retaining outside organizations to provide record keeping and employee communication services are roughly estimated to be $40,000-$60,000 per year, assuming approximately 1,000 plan participants. These charges could be paid by the State, by the University of Hawaii itself, or charged to the plan.

Our estimates do not include investment manager fees which typically run from .35 percent to 1.20 percent of the assets being managed, depending on the type of investment. The estimates also do not consider the internal resources required to perform internal administration of the plan. Internal administration might require 1,000 to 2,000 hours per year depending on the level of administration retained within the State and not out-sourced to an outside provider. Once the plan is established, these duties should not require a full-time position.

The following discussion assumes the optional retirement plan to be a defined contribution plan. The process would be somewhat different for a defined benefit plan.

Phase one: final plan design and administrative decisions

The focus of this phase is to design the features of the plan and determine how the plan will be administered.

Plan design features

To the extent not dealt with in enacting legislation, the following plan design issues will need to be considered:

- Contribution types and amounts allowed
- Vesting provisions for employer contributions
- Loan, withdrawal, and distribution provisions
- Investment approach such as number and types of fund options that will be offered (for example, annuities or mutual funds)

Administrative decisions

- Plan valuation and transaction frequency
    - How often participant accounts will be updated to reflect investment gains and losses
    - Frequency of plan activities including:
        - Transfer of assets between fund options
        - Contribution deposits and
        - Loan withdrawals and distributions
- Type of vendors to be evaluated
- Administration out-sourcing needs (how much of the day-to-day plan administration will be out-sourced to providers)
- Type of employee communication program that will be provided

Phase two: vendor search and selection

Selecting a defined contribution provider or providers typically takes three to four months. The key steps in the search and selection process are as follows:

- Establish provider selection criteria
- Develop a formal request for proposal and advertise for bids
- Analyze proposal responses against service selection criteria
- Evaluate fund options
- Select finalists
- Conduct final presentations
- Develop and negotiate fee and service agreements

Phase three: implementation

The implementation phase also typically lasts three to four months. The length of time varies based on the number of vendors, and the scope of the communication program. Generally the new service provider(s) will provide extensive assistance during the implementation process.

Primary steps in implementation:

- Step One - Planning Process
  - Draft and execute legal documents
  - Establish time frame for implementation
  - Develop workplan
- Step Two - Systems Modifications
  - Develop payroll specifications
  - Set up plan for record keeping system(s)
  - Select reports
  - Establish program interface between record keeping and university payroll system
- Step Three - Participant Communications
  - Develop communication strategy
  - Prepare materials
  - Approve communication materials
  - Coordinate roll-out logistics
- Step Four - Testing of Recordkeeping System
  - Establish record keeping and payroll system interface
  - Complete implementation process

Phase four: ongoing plan management

Once the new plan is running smoothly, the intensity of day-to-day administration of the plan will decrease. Certain administrative functions, however, will have to be ongoing. These include:

- Plan design
- Vendor management and oversight
- Investment selection and monitoring
- Compliance oversight
- Coordinating the employee communication program

Many of the day-to-day administrative functions can be out-sourced to the provider including:

- Maintenance of plan and participant accounts and records
- Contribution deposits
- Participant administration such as enrollments, transfers, loans, distributions, and tax reporting
- Responding to individual participant inquiries
- Quarterly reporting

Conclusions

In recent years, the Legislature has been considering whether to provide faculty members of the University of Hawaii with a retirement plan option other than the existing state Employees' Retirement System. The decision to approve an optional retirement plan depends, in large measure, upon issues of philosophy and equity. The Employees' Retirement System currently provides a traditional plan built on the philosophy that retirement benefits should primarily reward long-term service to the State. A fundamental policy question is whether to depart somewhat from this philosophy by providing one group of state employees—university faculty—with a different type of retirement plan that includes rewards for short-term service. A closely related question is how important retirement options are to the university's competitiveness in recruiting and retaining qualified university faculty—an issue on which our study found differing perspectives. Hawaii is in the minority among states in that it has no optional retirement plan for public university faculty. However, Hawaii is also in the minority in that most state employees in the state retirement system belong to a non-contributory plan (no employee contributions).

If the Legislature, upon considering these fundamental questions, chooses to adopt an optional retirement plan for University of Hawaii faculty, various alternatives are available, each designed to achieve certain goals as described in our report. Alternative D in our report would be the most costly package to the State because it does not require faculty contributions and it also provides a high level of benefits to faculty either upon terminating employment prior to retirement or upon leaving at normal retirement age. Because Alternative D is so favorable to university faculty, it is especially likely to stimulate demands by other state employees for a similar package, thus intensifying the "equity" issue.

Alternatives A, B, and C are more constrained approaches in order to enable the State to keep its costs of providing retirement benefits to university faculty at a level similar to costs under the existing Employees' Retirement System. These three alternatives differ from each other in such respects as who will bear the investment risk, whether an employee contribution is required, and whether participation is optional or mandatory for faculty hired in the future.

Finally, decision makers considering an optional retirement plan for university faculty should take into account the efforts and administrative costs of establishing a new plan. As our report shows, establishment of a plan occurs in several complex phases with a variety of administrative costs to be incurred at each stage.

Recommendation

If the Legislature decides to authorize an optional retirement plan for University of Hawaii faculty, we recommend that it consider the alternative approaches that we have presented. Each of the alternatives has tradeoffs that can be weighed by decision makers in light of our analysis.

Glossary

The following terms are defined based on their use in this report. Additional technical terms used in the Appendixes are defined in the introduction to the Appendixes (pages 51-52).

account balance

The amount of money in an employee's retirement account consisting of employer and/or employee contributions and interest.

accrued benefit

The accumulation of contributions and interest in an employee's *defined contribution* plan, or the benefit earned to date in a *defined benefit* plan.

actuary

A mathematician who applies analytical skills to determine costs and liabilities associated with pension, medical, life, disability, and property and casualty programs.

cash balance plan

A *defined benefit* plan, designed to readily communicate its value to plan participants. As a defined benefit plan, the employer must provide the benefit specified by the plan formula independent of gains or losses on investments. While actual retirement benefits cannot be computed until the actual time of retirement, cash balance plans allocate contribution credits and interest on an annual basis to plan participants. This enables employees to track the approximate value of their retirement benefit. The accumulated credits with interest can be paid out as a lump sum, or be used to purchase an annuity.

contribution credits

Amounts determined by a formula and allocated to an employee under a cash balance plan.

contributory plan

A retirement plan under which both the employer and employee share the cost.

deferred compensation plan

The State of Hawaii Deferred Compensation Plan is a defined contribution-type plan governed by the rules of U.S. Internal Revenue Code Section 457(b). State of Hawaii employees participate on a voluntary basis through payroll deduction and investment options made available under the plan.

defined benefit plan

A retirement plan which provides benefits determined by a formula which usually takes into account years of service and salary at or near the time of retirement. Final retirement benefits cannot be calculated until the time of retirement, when the years of service and salary are known. Most often benefits are payable in the form of monthly payments over the life of the participant or the life of the participant and spouse.

defined contribution plan

A retirement plan based on a participant's account balance at the time of retirement. The account balance consists of accumulated employer and/or employee contributions and actual investment earnings during the years of plan participation. Depending on the terms of the plan, the account balance may be distributed as a lump sum or a series of monthly payments (an annuity).

employee contribution

Payments provided by an employee to his or her own retirement account generally at a fixed rate established in the retirement plan.

employer contribution

Payments provided by the employer to an employee's retirement plan. Under *defined benefit* plans, payments are typically based on funding policies and procedures set forth in state statutes and guidelines. Under public sector *defined contribution* plans, payments are typically set at a fixed rate, for example, 5 percent of pay per year.

Internal Revenue Code 401(a) plans

Pension plans subject to the provisions of Internal Revenue Code Section 401(a).

investment risk

In *defined benefit* plans, the employer retains the investment risk. Regardless of investment earnings or losses, the employer must provide specific levels of retirement benefits in accordance with the formula specified in state statutes.

In *defined contribution* plans, the employee retains the investment risk. Actual investment gains or losses are credited to individual employee account balances. Employees typically are permitted to allocate contributions between investment options and re-allocate existing account balances as their own personal investment strategies dictate. Ultimately, benefits are limited to the participant's account balance at retirement. This account balance can be paid in a lump sum or used to purchase an annuity to provide guaranteed periodic payments.

money purchase plan

A *defined contribution* plan commonly used in optional retirement plans covering higher education faculty. These plans specify fixed employer contribution rates. Contribution rates may be the same regardless of the age of the participant (non-age-weighted), or may vary depending on the age of the participant (age-weighted).

non-contributory plan

A retirement plan under which the employer pays the entire cost of the plan. Employees do not share in the cost of providing this plan.

optional retirement plan

A retirement plan in which participation is an alternative which may be chosen in lieu of, or in addition to participation in a state retirement system.

plan values

The amount in an employee's retirement account consisting of employer contributions and/or employee contributions and interest earned. Most public sector *defined benefit* plans only allow employees to take their own contributions and interest credited upon termination of employment. *Defined contribution* plans typically allow lump sum distributions of both employee and vested employer account balances upon termination of employment.

portability

Ability to transfer employee's retirement savings accumulated from one employer to another employer's comparable retirement plan. For the purposes of this report, portability also refers to the rate at which benefits are accumulated (accrued) under the plan and the rate at which the benefits earned vest in the plan participant. The faster that benefits are earned and vested, the more "portable" benefits are. To encourage portability, *defined contribution* plans commonly accept transfers from other qualified plans.

post-retirement benefit increases

Increases in initial retirement benefits intended to partially offset the impact of inflation. In *defined benefit* plans the increases are often a feature of the plan or are provided periodically by legislative action. In *defined contribution* plans, plan participants will have the option to purchase, from an insurance carrier, annuities which increase with time.

post-retirement benefits

Post-retirement or retirement benefits are paid under the terms of a retirement plan when the employee has met certain minimum age and service requirements. Public sector *defined benefit* plans often include post-retirement benefit increases.

pre-retirement termination-of-employment benefits

Benefits which are paid if an employee terminates service before meeting the minimum age and service requirements for retirement benefits. Minimum service requirements must be met to receive employer-provided termination-of-employment benefits.

retirement annuity

This is a contract sold by insurance companies that typically pays monthly (or quarterly, semi-annual or annual) payments for the life of the employee, or the employee and spouse.

tax deferred annuity plan

The University of Hawaii 403(b) Tax Deferred Annuity Plan is available to all University of Hawaii faculty and employees. This is a *defined contribution*-type plan governed by the rules of Internal Revenue Code Section 403(b). University of Hawaii faculty and employees voluntarily elect to participate in the plan through payroll deductions and the purchase of annuity contracts.

unfunded liabilities

Unfunded liabilities are amounts accumulated as of a given date that have not been fully funded by plan contributions and earnings on plan assets. Unfunded liabilities commonly exist in government sponsored *defined benefit* plans. In state government plans, a part of the employer's annual contribution requirement typically includes a payment towards reducing the unfunded liability.

In *defined contribution* plans, unfunded liabilities do not exist because the employer has fulfilled its obligation by contributing to employees' retirement accounts.

vesting

The legal right to receive retirement benefits earned under a retirement plan.

Appendixes

Introduction

Appendix A provides background information for Exhibit 3.2 on page 33 of this report. This Appendix consists of an introductory chart showing a profile of a "typical" *new* faculty member, actuarial assumptions, and initial annual retirement benefit calculation for the Employees' Retirement System and for each of the alternatives. We identified the characteristics of a "typical" new faculty member based on an examination of age and service distributions of members of bargaining unit 7.

Appendix B provides background information for Exhibit 3.3 on page 34 of this report. This appendix presents information for a "typical" faculty member currently participating in the Employees' Retirement System's *contributory* plan who would transfer into an alternative plan. It consists of an introductory chart showing a profile, actuarial assumptions, and initial retirement benefit calculation. We identified the characteristics of a "typical" contributory faculty member based on an examination of age and service distributions in bargaining unit 7.

Appendix C provides background information for Exhibit 3.4 on page 35 of this report. This appendix presents information for a "typical" faculty member currently participating in the Employees' Retirement System's *non-contributory* plan who would transfer into an alternative plan. It consists of an introductory chart showing a profile, actuarial assumptions, and initial retirement benefit calculation. We identified the characteristics of a "typical" non-contributory faculty member based on an examination of age and service distributions in bargaining unit 7.

Appendix D provides background information for Exhibit 3.5 on page 38 of this report. There are spreadsheets outlining projected employer contributions under the Employees' Retirement System and for each of the retirement plan alternatives. Each alternative includes projected employer contributions under high and low transfer assumptions.

Appendix E contains tables setting forth the assumptions used for cost projections in Appendix D. The cost projections are dependent on the economic assumptions—for example mortality rates, retirement rates—set forth in the tables. Appendix E also shows the assumptions used regarding the assumed rate of transfer of current faculty members from the Employees' Retirement System to an optional retirement plan.

Technical terms used in appendixes

83M with a 4 year setback	1983 Group Annuity Mortality table for males, a widely used mortality table for actuarial calculations, adjusted by use of a 4 year age setback to reflect lower mortality rates at a specified age than the 1983 Group Annuity Mortality table without adjustment.
Accrual Factor (1.25%)	The annual rate percent, specified in Employees' Retirement System provisions, which when multiplied times a member's years of service and final average compensation, determines the retirement benefit payable under the non-contributory plan of the Employees' Retirement System.

Annuity Factor	Based on the interest and mortality assumptions used in the study, the cost to provide an annual annuity of $1 per year and increasing 2.5 percent per year for the life of the retiree.
ECA (Earliest Commencement Age) or CA	The earliest age under the provisions of the Employees' Retirement System at which payment of benefits can actually begin.
Accrued Vested Annual Benefit	The vested benefit earned to date by a plan member expressed as an annual amount to be received each year.
Disability Incidence	The probability or frequency of becoming disabled during a year.
Ordinary Disability Percentage	The portion of all disabilities assumed to be non-occupational related as opposed to occupational or work-related.
Disabled Lives Mortality	Mortality rate assumption applicable to disabled lives.
1983 Group Annuity Mortality Table Age Setback (Set forward)	1983 Group Annuity Mortality Table with ages set back to reflect lower mortality rates at a specified age or set forward to reflect higher mortality rates at a specified age.
Withdrawal Rate	Assumed rate of termination of employment.

Appendix A: Background Information for Exhibit 3.2

New Employee Age 40 Earning $45,000
Employees' Retirement System (ERS) Benefit Calculation Projection

Assumptions		Normal Retirement Benefit Calculation Illustration	
Date of Birth:	July 1, 1957	A. Final Avg. Compensation:	$102,597
Date of Hire:	July 1, 1997	B. Accrual Factor:	1.25%
Normal Retirement Date:	July 1, 2019	C. Years of Service:	22
Early Retirement Date:	July 1, 2017	Initial Annual Retirement Benefit: (A. x B. x C.)	$28,214
FY '97 Compensation:	$45,000		
Member:	ERS Noncontributory Plan**		
Actuarial Assumptions:			
Interest:	8.00%		
Mortality:	83M with a 4 year setback		
Salary Scale*:	4.00%		
Normal Form:	Life annuity		

* Compensation is expected to increase annually at this rate over the employee's working career.
** The current plan provisions for the ERS Noncontributory Plan are assumed to remain the same in the future.

New Employee Age 40 Earning $45,000
Employees' Retirement System (ERS) Benefit Calculation Projection

12 Months Ended	Age Nearest	Annual Compensation	Employee Contribution	Accumulated Employee Contributions	Accrued Vested Annual Benefit Payable @ ECA	Earliest Commencement Age	Present Value of Accumulated Vested Benefit
Jun-30-1998	41	$ 46,800	$ 0	$ 0	$ 0	N/A	$ 0
Jun-30-1999	42	48,672	0	0	0	N/A	0
Jun-30-2000	43	50,619	0	0	0	N/A	0
Jun-30-2001	44	52,644	0	0	0	N/A	0
Jun-30-2002	45	54,749	0	0	0	N/A	0
Jun-30-2003	46	56,939	0	0	0	N/A	0
Jun-30-2004	47	59,217	0	0	0	N/A	0
Jun-30-2005	48	61,586	0	0	0	N/A	0
Jun-30-2006	49	64,049	0	0	0	N/A	0
Jun-30-2007	50	66,611	0	0	8,010	65	25,992
Jun-30-2008	51	69,275	0	0	9,164	65	32,192
Jun-30-2009	52	72,046	0	0	10,397	65	39,556
Jun-30-2010	53	74,928	0	0	11,714	65	48,283
Jun-30-2011	54	77,925	0	0	13,119	65	58,609
Jun-30-2012	55	81,042	0	0	14,619	65	70,809
Jun-30-2013	56	84,284	0	0	16,217	65	85,203
Jun-30-2014	57	87,656	0	0	17,920	65	102,168
Jun-30-2015	58	91,162	0	0	19,733	65	122,140
Jun-30-2016	59	94,808	0	0	21,662	65	145,634
Jun-30-2017	60	98,601	0	0	20,869	60	257,171
Jun-30-2018	61	102,545	0	0	24,342	61	294,940
Jun-30-2019	62	106,646	0	0	28,214	62	336,017

New Employee Age 40 Earning $45,000
Alternative A

Assumptions		Normal Retirement Benefit Calculation Illustration		
Date of Birth:	July 1, 1957	A.	Final Account Balance:	$216,265
Date of Hire:	July 1, 1997	B.	Annuity Factor:	11.9095
Normal Retirement Date:	July 1, 2019		Initial Annual Retirement Benefit: (A./B.)	$18,159
Early Retirement Date:	July 1, 2012			
FY '97 Compensation:	$45,000			
Actuarial Assumptions:				
Interest:	8.00%			
Mortality:	83M with a 4 year setback			
Salary Scale*:	4.00%			
Normal Form:	Life Annuity			
Employer Contribution Rate:	5.80%			
Employee Contribution Rate:	0.00%			

* Compensation is expected to increase annually at this rate over the employee's working career.

New Employee Age 40 Earning $45,000
Alternative A

12 Months Ended	Age Nearest	Annual Compensation	Employee Contribution	Employer Contributions	Account Balance	Accrued Vested Annual Benefit Payable @ CA	ERS Vested Benefit Payable @ CA	Earliest Commencement Age	Present Value of Accumulated Vested Benefit
Jun-30-1998	41	$ 46,800	$ 0	$ 2,714	$ 2,821	$ 1,761	$ 0	65	$ 2,821
Jun-30-1999	42	48,676	0	2,823	5,980	3,453	0	65	5,980
Jun-30-2000	43	50,619	0	2,936	9,510	5,079	0	65	9,510
Jun-30-2001	44	52,644	0	3,053	13,444	6,641	0	65	13,444
Jun-30-2002	45	54,749	0	3,175	17,819	8,140	0	65	17,819
Jun-30-2003	46	56,939	0	3,302	22,677	9,578	0	65	22,677
Jun-30-2004	47	59,217	0	3,435	28,060	10,958	0	65	28,060
Jun-30-2005	48	61,586	0	3,572	34,017	12,279	0	65	34,017
Jun-30-2006	49	64,049	0	3,715	40,599	13,543	0	65	40,599
Jun-30-2007	50	66,611	0	3,863	47,862	14,750	0	65	47,862
Jun-30-2008	51	69,275	0	4,018	55,867	15,903	0	65	55,867
Jun-30-2009	52	72,046	0	4,179	64,679	17,000	0	65	64,679
Jun-30-2010	53	74,928	0	4,346	74,369	18,042	0	65	74,369
Jun-30-2011	54	77,925	0	4,520	85,016	19,030	0	65	85,016
Jun-30-2012	55	81,042	0	4,700	96,702	7,239	0	55	96,702
Jun-30-2013	56	84,284	0	4,888	109,518	8,328	0	56	109,518
Jun-30-2014	57	87,656	0	5,084	123,563	9,546	0	57	123,563
Jun-30-2015	58	91,162	0	5,287	138,943	10,908	0	58	138,943
Jun-30-2016	59	94,808	0	5,499	155,773	12,432	0	59	155,773
Jun-30-2017	60	98,601	0	5,719	174,178	14,134	0	60	174,178
Jun-30-2018	61	102,545	0	5,948	194,293	16,036	0	61	194,293
Jun-30-2019	62	106,646	0	6,185	216,265	18,159	0	62	216,265

New Employee Age 40 Earning $45,000
Alternative B

Assumptions		Normal Retirement Benefit Calculation Illustration		
Date of Birth:	July 1, 1957	A.	Final Account Balance:	$336,521
Date of Hire:	July 1, 1997	B.	Annuity Factor:	11.9095
Normal Retirement Date:	July 1, 2019		Initial Annual Retirement Benefit: (A./B.)	$28,257
Early Retirement Date:	July 1, 2012			
FY '97 Compensation:	$45,000			
Actuarial Assumptions:				
Interest:	8.00%			
Mortality:	83M with a 4 year setback			
Salary Scale*:	4.00%			
Normal Form:	Life Annuity			
Employer Contribution Rate:	5.80%			
Employee Contribution Rate:	Age Related Rate			

* Compensation is expected to increase annually at this rate over the employee's working career.

New Employee Age 40 Earning $45,000
Alternative B

12 Months Ended	Age Nearest	Annual Compensation	Employee Contribution	Employer Contributions	Account Balance	Accrued Vested Annual Benefit Payable @ CA	ERS Vested Benefit Payable @ CA	Earliest Commencement Age	Present Value of Accumulated Vested Benefit
Jun-30-1998	41	$ 46,800	$ 936	$ 2,714	$ 3,794	$ 2,368	$ 0	65	$ 3,794
Jun-30-1999	42	48,672	973	2,823	8,042	4,644	0	65	8,042
Jun-30-2000	43	50,619	1,012	2,936	12,789	6,830	0	65	12,789
Jun-30-2001	44	52,644	1,053	3,053	18,079	8,930	0	65	18,079
Jun-30-2002	45	54,749	1,642	3,175	24,533	11,207	0	65	24,533
Jun-30-2003	46	56,939	1,708	3,302	31,703	13,391	0	65	31,703
Jun-30-2004	47	59,217	1,777	3,435	39,654	15,485	0	65	39,654
Jun-30-2005	48	61,586	1,848	3,572	48,459	17,491	0	65	48,459
Jun-30-2006	49	64,049	1,921	3,715	58,193	19,412	0	65	58,193
Jun-30-2007	50	66,611	2,331	3,863	69,286	21,353	0	65	69,286
Jun-30-2008	51	69,275	2,425	4,018	81,524	23,206	0	65	81,524
Jun-30-2009	52	72,046	2,522	4,179	95,010	24,972	0	65	95,010
Jun-30-2010	53	74,928	2,622	4,346	109,852	26,650	0	65	109,852
Jun-30-2011	54	77,925	2,727	4,520	126,172	28,242	0	65	126,172
Jun-30-2012	55	81,042	3,242	4,700	144,519	10,819	0	55	144,519
Jun-30-2013	56	84,284	3,371	4,888	164,665	12,521	0	56	164,665
Jun-30-2014	57	87,656	3,506	5,084	186,765	14,428	0	57	186,765
Jun-30-2015	58	91,162	3,646	5,287	210,990	16,565	0	58	210,990
Jun-30-2016	59	94,808	3,792	5,499	237,525	18,956	0	59	237,525
Jun-30-2017	60	98,601	4,930	5,719	267,594	21,714	0	60	267,594
Jun-30-2018	61	102,545	5,127	5,948	300,511	24,802	0	61	300,511
Jun-30-2019	62	106,646	5,332	6,185	336,521	28,257	0	62	336,521

New Employee Age 40 Earning $45,000
Alternative C

Assumptions		Normal Retirement Benefit Calculation Illustration		
Date of Birth:	July 1, 1957	A.	Final Account Balance:	$339,505
Date of Hire:	July 1, 1997	B.	Annuity Factor:	11.9095
Normal Retirement Date:	July 1, 2019		Initial Annual Retirement Benefit:	$28,507
Early Retirement Date:	July 1, 2012		(A./B.)	
FY '97 Compensation:	$45,000			
Actuarial Assumptions:				
Interest:	8.00%			
Cash Balance Accum. Rate:	5.00%			
Mortality:	83M with a 4 year setback			
Salary Scale*:	4.00%			
Normal Form:	Life Annuity			
Employee Contribution Rate:	0.50%			

* Compensation is expected to increase annually at this rate over the employee's working career.

New Employee Age 40 Earning $45,000
Alternative C

12 Months Ended	Age Nearest	Annual Compensation	Accumulated Employee Contributions	Contribution Credit	Accumulated Cash Balance	Accrued Vested Annual Benefit Payable @ CA	ERS Vested Benefit Payable @ CA	Earliest Commencement Age	Present Value of Accumulated Vested Benefit
Jun-30-1998	41	$ 46,800	$ 240	$ 3,978	$ 4,076	$ 149	$ 0	65	$ 240
Jun-30-1999	42	48,672	501	4,137	8,519	287	0	65	501
Jun-30-2000	43	50,619	786	5,062	14,132	7,902	0	65	14,917
Jun-30-2001	44	52,644	1,095	5,264	20,233	9,994	0	65	20,233
Jun-30-2002	45	54,749	1,430	5,475	26,855	12,267	0	65	26,855
Jun-30-2003	46	56,939	1,794	6,548	34,907	14,744	0	65	34,907
Jun-30-2004	47	59,217	2,187	6,810	43,631	17,038	0	65	43,631
Jun-30-2005	48	61,586	2,612	8,006	54,016	19,497	0	65	54,016
Jun-30-2006	49	64,049	3,070	8,326	65,249	21,765	0	65	65,249
Jun-30-2007	50	66,611	3,565	8,659	77,385	23,849	0	65	77,385
Jun-30-2008	51	69,275	4,099	10,045	91,547	26,059	0	65	91,547
Jun-30-2009	52	72,046	4,673	10,447	106,829	28,078	0	65	106,829
Jun-30-2010	53	74,928	5,291	10,865	123,304	29,914	0	65	123,304
Jun-30-2011	54	77,925	5,954	11,299	141,047	31,572	0	65	141,047
Jun-30-2012	55	81,042	6,667	11,751	160,141	11,988	0	55	160,141
Jun-30-2013	56	84,284	7,433	12,221	180,671	13,738	0	56	180,671
Jun-30-2014	57	87,656	8,254	12,710	202,728	15,662	0	57	202,728
Jun-30-2015	58	91,162	9,134	13,218	226,409	17,775	0	58	226,409
Jun-30-2016	59	94,808	10,076	13,747	251,817	20,097	0	59	251,817
Jun-30-2017	60	98,601	11,085	14,297	279,058	22,645	0	60	279,058
Jun-30-2018	61	102,545	12,165	14,869	308,247	25,440	0	61	308,247
Jun-30-2019	62	106,646	13,320	15,464	339,505	28,507	0	62	339,505

New Employee Age 40 Earning $45,000
Alternative D

Assumptions		Normal Retirement Benefit Calculation Illustration	
Date of Birth:	July 1, 1957	A. Final Account Balance:	$336,521
Date of Hire:	July 1, 1997	B. Annuity Factor:	11.9095
Normal Retirement Date:	July 1, 2019	Initial Annual Retirement Benefit: (A./B.)	$28,257
Early Retirement Date:	July 1, 2012		
FY '97 Compensation:	$45,000		
Actuarial Assumptions:			
Interest:	8.00%		
Mortality:	83M with a 4 year setback		
Salary Scale*:	4.00%		
Normal Form:	Life Annuity		
Employer Contribution Rate:	5.80% plus Age Related Rate		

* Compensation is expected to increase annually at this rate over the employee's working career.

New Employee Age 40 Earning $45,000
Alternative D

12 Months Ended	Age Nearest	Annual Compensation	Employee Contribution	Employer Contributions	Account Balance	Accrued Vested Annual Benefit Payable @ CA	ERS Vested Benefit Payable @ CA	Earliest Commencement Age	Present Value of Accumulated Vested Benefit
Jun-30-1998	41	$ 46,800	$ 0	$ 3,650	$ 3,794	$ 2,368	$ 0	65	$ 3,794
Jun-30-1999	42	48,672	0	3,796	8,042	4,644	0	65	8,042
Jun-30-2000	43	50,619	0	3,948	12,789	6,830	0	65	12,789
Jun-30-2001	44	52,644	0	4,106	18,079	8,930	0	65	18,079
Jun-30-2002	45	54,749	0	4,818	24,533	11,207	0	65	24,533
Jun-30-2003	46	56,939	0	5,011	31,703	13,391	0	65	31,703
Jun-30-2004	47	59,217	0	5,211	39,654	15,485	0	65	39,654
Jun-30-2005	48	61,586	0	5,420	48,459	17,491	0	65	48,459
Jun-30-2006	49	64,049	0	5,636	58,193	19,412	0	65	58,193
Jun-30-2007	50	66,611	0	6,195	69,286	21,353	0	65	69,286
Jun-30-2008	51	69,275	0	6,443	81,524	23,206	0	65	81,524
Jun-30-2009	52	72,046	0	6,700	95,010	24,972	0	65	95,010
Jun-30-2010	53	74,928	0	6,968	109,852	26,650	0	65	109,852
Jun-30-2011	54	77,925	0	7,247	126,172	28,242	0	65	126,172
Jun-30-2012	55	81,042	0	7,942	144,519	10,819	0	55	144,519
Jun-30-2013	56	84,284	0	8,260	164,665	12,521	0	56	164,665
Jun-30-2014	57	87,656	0	8,590	186,765	14,428	0	57	186,765
Jun-30-2015	58	91,162	0	8,934	210,990	16,565	0	58	210,990
Jun-30-2016	59	94,808	0	9,291	237,525	18,956	0	59	237,525
Jun-30-2017	60	98,601	0	10,649	267,594	21,714	0	60	267,594
Jun-30-2018	61	102,545	0	11,075	300,511	24,802	0	61	300,511
Jun-30-2019	62	106,646	0	11,518	336,521	28,257	0	62	336,521

Appendix B: Background Information for Exhibit 3.3

Contributory Plan
Employee Age 45 with 15 Years of Service Earning $50,000 at Transition
ERS Benefit Calculation Projection

Assumptions		Normal Retirement Benefit Calculation Illustration		
Date of Birth:	July 1, 1952	A.	Final Avg. Compensation:	$71,202
Date of Hire:	July 1, 1982	B.	Accrual Factor:	2.00%
Normal Retirement Date:	July 1, 2014	C.	Years of Service:	25
Early Retirement Date:	July 1, 2007		Initial Annual Retirement Benefit: (A. x B. x C.)	$35,601
FY '97 Compensation:	$50,000			
Member:	ERS Contributory Plan*			
Actuarial Assumptions:				
Interest:	8.00%			
Mortality:	83M with a 4 year setback			
Salary Scale**:	4.00%			
Normal Form:	Life annuity			
Employee Contribution Rate:***	7.80%			

* The current plan provisions for the ERS contributory Plan are assumed to remain the same in the future.
** Compensation is expected to increase annually at this rate over the employee's working career.
*** Employee contributions are assumed to accumulate at 4.5% per year.

Contributory Plan
Employee Age 45 with 15 Years of Service Earning $50,000 at Transition
ERS Benefit Calculation Projection

12 Months Ended	Age Nearest	Annual Compensation	Employee Contribution	Accumulated Employee Contributions	Accrued Vested Annual Benefit Payable @ ECA	Earliest Commencement Age	Present Value of Accumulated Vested Benefit
Jun-30-1983	31	$ 28,874	$ 2,252	$ 2,302	$ 1,133	55	$ 2,302
Jun-30-1984	32	30,029	2,342	4,800	2,186	55	4,800
Jun-30-1985	33	31,230	2,436	7,506	3,163	55	7,506
Jun-30-1986	34	32,479	2,533	10,434	4,069	55	10,434
Jun-30-1987	35	33,778	2,635	13,597	4,906	55	13,597
Jun-30-1988	36	35,129	2,740	17,010	5,679	55	17,010
Jun-30-1989	37	36,535	2,850	20,688	6,392	55	20,688
Jun-30-1990	38	37,996	2,964	24,649	7,047	55	24,649
Jun-30-1991	39	39,516	3,082	28,909	7,646	55	28,909
Jun-30-1992	40	41,096	3,206	33,487	8,193	55	33,487
Jun-30-1993	41	42,740	3,334	38,401	9,046	55	39,966
Jun-30-1994	42	44,450	3,467	43,674	10,263	55	49,018
Jun-30-1995	43	46,228	3,606	49,325	11,563	55	59,706
Jun-30-1996	44	48,077	3,750	55,378	12,950	55	72,303
Jun-30-1997	45	50,000	3,900	61,857	14,430	55	87,119
Jun-30-1998	46	52,000	4,056	68,787	16,008	55	104,519
Jun-30-1999	47	54,080	4,218	76,194	17,689	55	124,923
Jun-30-2000	48	56,243	4,387	84,108	19,479	55	148,822
Jun-30-2001	49	58,493	4,562	92,556	21,383	55	176,786
Jun-30-2002	50	60,833	4,745	101,572	23,409	55	209,474
Jun-30-2003	51	63,266	4,935	111,187	25,563	55	247,658
Jun-30-2004	52	65,797	5,132	121,437	27,851	55	292,231
Jun-30-2005	53	68,428	5,337	132,358	30,282	55	344,232
Jun-30-2006	54	71,166	5,551	143,988	32,863	55	404,874
Jun-30-2007	55	74,012	5,773	156,369	35,601	55	475,562
Jun-30-2008	56	76,973	6,004	169,543	38,605	56	506,396
Jun-30-2009	57	80,052	6,244	183,556	41,587	57	538,310
Jun-30-2010	58	83,254	6,494	198,454	44,852	58	571,289
Jun-30-2011	59	86,584	6,754	214,288	48,312	59	605,364
Jun-30-2012	60	90,047	7,024	231,111	51,977	60	640,528
Jun-30-2013	61	93,649	7,305	248,978	55,858	61	676,798
Jun-30-2014	62	97,395	7,597	267,948	59,966	62	714,165

Contributory Plan
Employee Age 45 with 15 Years of Service Earning $50,000 at Transition
Alternative A

Assumptions		Normal Retirement Benefit Calculation Illustration	
Date of Birth:	July 1, 1952	A. Final Account Balance:	$137,292
Date of Hire:	July 1, 1982	B. Annuity Factor:	11.9095
Normal Retirement Date:	July 1, 2014	C. Benefit from Alternative Plan: (A./B.)	$11,528
Early Retirement Date:	July 1, 2007	D. Benefit from ERS Plan:	$14,430
FY '97 Compensation:	$50,000	Initial Annual Retirement Benefit: (C. + D.)	$25,958
Actuarial Assumptions:			
Interest:	8.00%		
Mortality:	83M with a 4 year setback		
Salary Scale*:	4.00%		
Normal Form:	Life Annuity		
Employer Contribution Rate:	5.80%		
Employee Contribution Rate:	0.00%		

* Compensation is expected to increase annually at this rate over the employee's working career.

Contributory Plan
Employee Age 45 with 15 Years of Service Earning $50,000 at Transition
Alternative A

12 Months Ended	Age Nearest	Annual Compensation	Accumulated Employee Contribution	Employer Contribution	Accumulated Account Balance	Accrued Vested Annual Benefit Payable @ CA	ERS Vested Benefit Payable @ CA	Earliest Commencement Age	Present Value of Accumulated Vested Benefit
Jun-30-1983	31	$ 28,874	$ 2,302	$ 0	$ 0	$ 1,133	$ 1,133	55	$ 2,302
Jun-30-1984	32	30,029	4,800	0	0	2,186	2,186	55	4,800
Jun-30-1985	33	31,230	7,506	0	0	3,163	3,163	55	7,506
Jun-30-1986	34	32,479	10,434	0	0	4,069	4,069	55	10,434
Jun-30-1987	35	33,778	13,597	0	0	4,906	4,906	55	13,597
Jun-30-1988	36	35,129	17,010	0	0	5,679	5,679	55	17,010
Jun-30-1989	37	36,535	20,688	0	0	6,392	6,392	55	20,688
Jun-30-1990	38	37,996	24,649	0	0	7,047	7,047	55	24,649
Jun-30-1991	39	39,516	28,909	0	0	7,646	7,646	55	28,909
Jun-30-1992	40	41,096	33,487	0	0	8,193	8,193	55	33,487
Jun-30-1993	41	42,740	38,401	0	0	9,046	9,046	55	39,966
Jun-30-1994	42	44,450	43,674	0	0	10,263	10,263	55	49,018
Jun-30-1995	43	46,228	49,325	0	0	11,563	11,563	55	59,706
Jun-30-1996	44	48,077	55,378	0	0	12,950	12,950	55	72,303
Jun-30-1997	45	50,000	61,857	0	0	14,430	14,430	55	87,119
Jun-30-1998	46	52,000	64,641	3,016	3,134	14,911	14,430	55	97,352
Jun-30-1999	47	54,080	67,549	3,137	6,645	15,371	14,430	55	108,555
Jun-30-2000	48	56,243	70,589	3,262	10,566	15,813	14,430	55	120,819
Jun-30-2001	49	58,493	73,766	3,393	14,937	16,237	14,430	55	134,241
Jun-30-2002	50	60,833	77,085	3,528	19,799	16,643	14,430	55	148,923
Jun-30-2003	51	63,266	80,554	3,669	25,196	17,031	14,430	55	164,997
Jun-30-2004	52	65,797	84,179	3,816	31,178	17,401	14,430	55	182,585
Jun-30-2005	53	68,428	87,967	3,969	37,797	17,755	14,430	55	201,832
Jun-30-2006	54	71,166	91,925	4,128	45,110	18,091	14,430	55	222,982
Jun-30-2007	55	74,012	96,062	4,293	53,180	18,412	14,430	55	245,944
Jun-30-2008	56	76,973	100,385	4,464	62,074	19,151	14,430	56	251,851
Jun-30-2009	57	80,052	104,902	4,643	71,865	19,982	14,430	57	258,656
Jun-30-2010	58	83,254	109,623	4,829	82,632	20,918	14,430	58	266,437
Jun-30-2011	59	86,584	114,556	5,022	94,462	21,969	14,430	59	275,280
Jun-30-2012	60	90,047	119,711	5,223	107,446	23,149	14,430	60	285,279
Jun-30-2013	61	93,649	125,098	5,432	121,687	24,474	14,430	61	296,533
Jun-30-2014	62	97,395	130,727	5,649	137,292	25,958	14,430	62	309,152

Contributory Plan
Employee Age 45 with 15 Years of Service Earning $50,000 at Transition
Alternative B

Assumptions		Normal Retirement Benefit Calculation Illustration	
Date of Birth:	July 1, 1952	A. Final Account Balance:	$246,525
Date of Hire:	July 1, 1982	B. Annuity Factor:	11.9095
Normal Retirement Date:	July 1, 2014	C. Benefit from Alternative Plan: (A./B.)	$20,700
Early Retirement Date:	July 1, 2007	D. Benefit from ERS Plan:	$14,430
FY '97 Compensation:	$50,000	Initial Annual Retirement Benefit: (C. + D.)	$35,130
Actuarial Assumptions:			
Interest:	8.00%		
Mortality:	83M with a 4 year setback		
Salary Scale*:	4.00%		
Normal Form:	Life Annuity		
Employer Contribution Rate:	5.80%		
Employee Contribution Rate:	Age Related Rate		

* Compensation is expected to increase annually at this rate over the employee's working career.

Contributory Plan
Employee Age 45 with 15 Years of Service Earning $50,000 at Transition
Alternative B

12 Months Ended	Age Nearest	Annual Compensation	Accumulated Employee Contribution	Employer Contributions	Accumulated Account Balance	Accrued Vested Annual Benefit Payable @ CA	ERS Vested Benefit Payable @ CA	Earliest Commencement Age	Present Value of Accumulated Vested Benefit
Jun-30-1983	31	$ 28,874	$ 2,302	$ 0	$ 0	$ 1,133	$ 1,133	55	$ 2,302
Jun-30-1984	32	30,029	4,800	0	0	2,186	2,186	55	4,800
Jun-30-1985	33	31,230	7,506	0	0	3,163	3,163	55	7,506
Jun-30-1986	34	32,479	10,434	0	0	4,069	4,069	55	10,434
Jun-30-1987	35	33,778	13,597	0	0	4,906	4,906	55	13,597
Jun-30-1988	36	35,129	17,010	0	0	5,679	5,679	55	17,010
Jun-30-1989	37	36,535	20,688	0	0	6,392	6,392	55	20,688
Jun-30-1990	38	37,996	24,649	0	0	7,047	7,047	55	24,649
Jun-30-1991	39	39,516	28,909	0	0	7,646	7,646	55	28,909
Jun-30-1992	40	41,096	33,487	0	0	8,193	8,193	55	33,487
Jun-30-1993	41	42,740	38,401	0	0	9,046	9,046	55	39,966
Jun-30-1994	42	44,450	43,674	0	0	10,263	10,263	55	49,018
Jun-30-1995	43	46,228	49,325	0	0	11,563	11,563	55	59,706
Jun-30-1996	44	48,077	55,378	0	0	12,950	12,950	55	72,303
Jun-30-1997	45	50,000	61,857	0	0	14,430	14,430	55	87,119
Jun-30-1998	46	52,000	66,236	3,016	5,296	15,242	14,430	55	99,514
Jun-30-1999	47	54,080	70,875	3,137	11,227	16,020	14,430	55	113,138
Jun-30-2000	48	56,243	75,790	3,262	17,854	16,767	14,430	55	128,106
Jun-30-2001	49	58,493	80,995	3,393	25,239	17,483	14,430	55	144,542
Jun-30-2002	50	60,833	86,816	3,528	33,770	18,204	14,430	55	162,894
Jun-30-2003	51	63,266	92,987	3,669	43,243	18,893	14,430	55	183,044
Jun-30-2004	52	65,797	99,526	3,816	53,746	19,552	14,430	55	205,153
Jun-30-2005	53	68,428	106,454	3,969	65,370	20,181	14,430	55	229,404
Jun-30-2006	54	71,166	113,791	4,128	78,217	20,779	14,430	55	255,999
Jun-30-2007	55	74,012	121,939	4,293	92,782	21,376	14,430	55	285,545
Jun-30-2008	56	76,973	130,574	4,464	108,843	22,707	14,430	56	298,621
Jun-30-2009	57	80,052	139,724	4,643	126,535	24,206	14,430	57	313,327
Jun-30-2010	58	83,254	149,417	4,829	146,002	25,893	14,430	58	329,807
Jun-30-2011	59	86,584	159,682	5,022	167,401	27,790	14,430	59	348,219
Jun-30-2012	60	90,047	171,471	5,223	191,367	29,959	14,430	60	369,199
Jun-30-2013	61	93,649	183,975	5,432	217,674	32,396	14,430	61	392,520
Jun-30-2014	62	97,395	197,234	5,649	246,525	35,130	14,430	62	418,385

Contributory Plan
Employee Age 45 with 15 Years of Service Earning $50,000 at Transition
Alternative C

Assumptions		Normal Retirement Benefit Calculation Illustration		
Date of Birth:	July 1, 1952	A.	Final Account Balance:	$343,231
Date of Hire:	July 1, 1982	B.	Annuity Factor:	11.9095
Normal Retirement Date:	July 1, 2014	C.	Benefit from Alternative Plan: (A./B.)	$28,820
Early Retirement Date:	July 1, 2007	D.	Benefit from ERS Plan:	$14,430
FY '97 Compensation:	$50,000	E.	Benefit Before ERS Minimum: (C. + D.)	$43,250
		F.	ERS Minimum:	$59,966
Actuarial Assumptions:				
Interest:	8.00%		Initial Annual Retirement Benefit: Greater of (E. & F.)	$59,966
Acct. Balance. Accum. Rate:	5.00%			
Mortality:	83M with a 4 year setback			
Salary Scale*:	4.00%			
Normal Form:	Life Annuity			
Employee Contribution Rate:	8.90%			

* Compensation is expected to increase annually at this rate over the employee's working career.

Contributory Plan
Employee Age 45 with 15 Years of Service Earning $50,000 at Transition
Alternative C

12 Months Ended	Age Nearest	Annual Compensation	Accumulated Employee Contribution	Contribution Credit	Accumulated Cash Balance	Accrued Vested Annual Benefit Payable @ CA	ERS Vested Benefit Payable @ CA	Earliest Commencement Age	Present Value of Accumulated Vested Benefit
Jun-30-1983	31	$ 28,874	$ 2,302	$ 0	$ 0	$ 1,133	$ 1,133	55	$ 2,302
Jun-30-1984	32	30,029	4,800	0	0	2,186	2,186	55	4,800
Jun-30-1985	33	31,230	7,506	0	0	3,163	3,163	55	7,506
Jun-30-1986	34	32,479	10,434	0	0	4,069	4,069	55	10,434
Jun-30-1987	35	33,778	13,597	0	0	4,906	4,906	55	13,597
Jun-30-1988	36	35,129	17,010	0	0	5,679	5,679	55	17,010
Jun-30-1989	37	36,535	20,688	0	0	6,392	6,392	55	20,688
Jun-30-1990	38	37,996	24,649	0	0	7,047	7,047	55	24,649
Jun-30-1991	39	39,516	28,909	0	0	7,646	7,646	55	28,909
Jun-30-1992	40	41,096	33,487	0	0	8,193	8,193	55	33,487
Jun-30-1993	41	42,740	38,401	0	0	9,046	9,046	55	39,966
Jun-30-1994	42	44,450	43,674	0	0	10,263	10,263	55	49,018
Jun-30-1995	43	46,228	49,325	0	0	11,563	11,563	55	59,706
Jun-30-1996	44	48,077	55,378	0	0	12,950	12,950	55	72,303
Jun-30-1997	45	50,000	61,857	0	0	14,430	14,430	55	87,119
Jun-30-1998	46	52,000	69,373	7,540	7,836	15,631	14,430	55	102,054
Jun-30-1999	47	54,080	77,416	7,842	16,612	16,783	14,430	55	118,522
Jun-30-2000	48	56,243	86,018	8,155	26,416	17,888	14,430	55	136,668
Jun-30-2001	49	58,493	95,212	8,481	37,344	18,947	14,430	55	156,647
Jun-30-2002	50	60,833	105,032	8,821	49,498	19,962	14,430	55	178,627
Jun-30-2003	51	63,266	115,516	9,174	62,991	20,932	14,430	55	202,792
Jun-30-2004	52	65,797	126,702	9,541	77,945	21,859	14,430	55	229,352
Jun-30-2005	53	68,428	138,631	9,922	94,492	22,742	14,430	55	258,526
Jun-30-2006	54	71,166	151,345	10,319	112,775	23,583	14,430	55	290,556
Jun-30-2007	55	74,012	164,891	10,732	132,950	35,601	14,430	55	475,562
Jun-30-2008	56	76,973	179,316	11,161	155,185	38,506	14,430	56	506,400
Jun-30-2009	57	80,052	194,670	11,607	179,663	41,587	14,430	57	538,306
Jun-30-2010	58	83,254	211,006	12,072	206,581	44,852	14,430	58	571,291
Jun-30-2011	59	86,584	228,381	12,555	236,155	48,312	14,430	59	605,364
Jun-30-2012	60	90,047	246,853	13,057	268,616	51,977	14,430	60	640,532
Jun-30-2013	61	93,649	266,483	13,579	304,217	55,858	14,430	61	676,799
Jun-30-2014	62	97,395	287,338	14,122	343,231	59,966	14,430	62	714,167

Contributory Plan
Employee Age 45 with 15 Years of Service Earning $50,000 at Transition
Alternative D

Assumptions		Normal Retirement Benefit Calculation Illustration	
Date of Birth:	July 1, 1952	A. Final Account Balance:	$246,525
Date of Hire:	July 1, 1982	B. Annuity Factor:	11.9095
Normal Retirement Date:	July 1, 2014	C. Benefit from Alternative Plan: (A./B.)	$20,700
Early Retirement Date:	July 1, 2007	D. Benefit from ERS Plan:	$14,430
FY '97 Compensation:	$50,000	Initial Annual Retirement Benefit: (C. + D.)	$35,130
Actuarial Assumptions:			
Interest:	8.00%		
Mortality:	83M with a 4 year setback		
Salary Scale*:	4.00%		
Normal Form:	Life Annuity		
Employer Contribution Rate:	5.80% plus Age Related Rate		

* Compensation is expected to increase annually at this rate over the employee's working career.

Contributory Plan
Employee Age 45 with 15 Years of Service Earning $50,000 at Transition
Alternative D

12 Months Ended	Age Nearest	Annual Compensation	Accumulated Employee Contribution	Employer Contributions	Accumulated Account Balance	Accrued Vested Annual Benefit Payable @ CA	ERS Vested Benefit Payable @ CA	Earliest Commencement Age	Present Value of Accumulated Vested Benefit
Jun-30-1983	31	$ 28,874	$ 2,302	$ 0	$ 0	$ 1,133	$ 1,133	55	$ 2,302
Jun-30-1984	32	30,029	4,800	0	0	2,186	2,186	55	4,800
Jun-30-1985	33	31,230	7,506	0	0	3,163	3,163	55	7,506
Jun-30-1986	34	32,479	10,434	0	0	4,069	4,069	55	10,434
Jun-30-1987	35	33,778	13,597	0	0	4,906	4,906	55	13,597
Jun-30-1988	36	35,129	17,010	0	0	5,679	5,679	55	17,010
Jun-30-1989	37	36,535	20,688	0	0	6,392	6,392	55	20,688
Jun-30-1990	38	37,996	24,649	0	0	7,047	7,047	55	24,649
Jun-30-1991	39	39,516	28,909	0	0	7,646	7,646	55	28,909
Jun-30-1992	40	41,096	33,487	0	0	8,193	8,193	55	33,487
Jun-30-1993	41	42,740	38,401	0	0	9,046	9,046	55	39,966
Jun-30-1994	42	44,450	43,674	0	0	10,263	10,263	55	49,018
Jun-30-1995	43	46,228	49,325	0	0	11,563	11,563	55	59,706
Jun-30-1996	44	48,077	55,378	0	0	12,950	12,950	55	72,303
Jun-30-1997	45	50,000	61,857	0	0	14,430	14,430	55	87,119
Jun-30-1998	46	52,000	64,641	5,096	5,296	15,242	14,430	55	99,514
Jun-30-1999	47	54,080	67,549	5,299	11,227	16,020	14,430	55	113,138
Jun-30-2000	48	56,243	70,589	5,513	17,854	16,767	14,430	55	128,106
Jun-30-2001	49	58,493	73,766	5,732	25,239	17,483	14,430	55	144,542
Jun-30-2002	50	60,833	77,085	6,266	33,770	18,204	14,430	55	162,894
Jun-30-2003	51	63,266	80,554	6,516	43,243	18,893	14,430	55	183,044
Jun-30-2004	52	65,797	84,179	6,778	53,746	19,552	14,430	55	205,153
Jun-30-2005	53	68,428	87,967	7,048	65,370	20,181	14,430	55	229,404
Jun-30-2006	54	71,166	91,925	7,330	78,217	20,779	14,430	55	255,999
Jun-30-2007	55	74,012	96,062	7,994	92,782	21,376	14,430	55	285,545
Jun-30-2008	56	76,973	100,385	8,312	108,843	22,707	14,430	56	298,621
Jun-30-2009	57	80,052	104,902	8,645	126,535	24,206	14,430	57	313,327
Jun-30-2010	58	83,254	109,623	8,991	146,002	25,893	14,430	58	329,807
Jun-30-2011	59	86,584	114,556	9,352	167,401	27,790	14,430	59	348,219
Jun-30-2012	60	90,047	119,711	10,175	191,367	29,959	14,430	60	369,199
Jun-30-2013	61	93,649	125,098	10,582	217,674	32,396	14,430	61	392,520
Jun-30-2014	62	97,395	130,727	11,005	246,525	35,130	14,430	62	418,385

Appendix C: Background Information for Exhibit 3.4

Noncontributory Plan
Employee Age 40 with 10 Years of Service Earning $45,000 at Transition
ERS Benefit Calculation Projection

Assumptions		Normal Retirement Benefit Calculation Illustration	
Date of Birth:	July 1, 1957	A. Final Avg. Compensation:	$94,857
Date of Hire:	July 1, 1987	B. Accrual Factor:	1.25%
Normal Retirement Date:	July 1, 2017	C. Years of Service:	30
Early Retirement Date:	July 1, 2012	Initial Annual Retirement Benefit: (A. x B. x C.)	$35,571
FY '97 Compensation:	$45,000		
Member:	ERS Non-contributory Plan**		
Actuarial Assumptions:			
Interest:	8.00%		
Mortality:	83M with a 4 year setback		
Salary Scale*:	4.00%		
Normal Form:	Life annuity		

* Compensation is expected to increase annually at this rate over the employee's working career.

** The current plan provisions for the ERS non-contributory plan are assumed to remain the same in the future.

Noncontributory Plan
Employee Age 40 with 10 Years of Service Earning $45,000 at Transition
ERS Benefit Calculation Projection

12 Months Ended	Age Nearest	Annual Compensation	Employee Contribution	Accumulated Employee Contributions	Accrued Vested Annual Benefit Payable @ ECA	Earliest Commencement Age	Present Value of Accumulated Vested Benefit
Jun-30-1988	31	$ 31,616	$ 0	$ 0	$ 0	N/A	$ 0
Jun-30-1989	32	32,881	0	0	0	N/A	0
Jun-30-1990	33	34,196	0	0	0	N/A	0
Jun-30-1991	34	35,564	0	0	0	N/A	0
Jun-30-1992	35	36,987	0	0	0	N/A	0
Jun-30-1993	36	38,466	0	0	0	N/A	0
Jun-30-1994	37	40,005	0	0	0	N/A	0
Jun-30-1995	38	41,605	0	0	0	N/A	0
Jun-30-1996	39	43,269	0	0	0	N/A	0
Jun-30-1997	40	45,000	0	0	5,411	65	8,020
Jun-30-1998	41	46,800	0	0	6,191	65	9,918
Jun-30-1999	42	48,672	0	0	7,024	65	12,164
Jun-30-2000	43	50,619	0	0	7,913	65	14,817
Jun-30-2001	44	52,644	0	0	8,863	65	17,943
Jun-30-2002	45	54,749	0	0	9,876	65	21,619
Jun-30-2003	46	56,939	0	0	10,955	65	25,937
Jun-30-2004	47	59,217	0	0	12,106	65	31,001
Jun-30-2005	48	61,586	0	0	13,331	65	36,932
Jun-30-2006	49	64,049	0	0	14,634	65	43,871
Jun-30-2007	50	66,611	0	0	16,020	65	51,983
Jun-30-2008	51	69,275	0	0	17,494	65	61,458
Jun-30-2009	52	72,046	0	0	19,061	65	72,520
Jun-30-2010	53	74,928	0	0	20,724	65	85,424
Jun-30-2011	54	77,925	0	0	22,490	65	100,473
Jun-30-2012	55	81,042	0	0	14,131	55	188,766
Jun-30-2013	56	84,284	0	0	16,865	56	221,801
Jun-30-2014	57	87,656	0	0	19,922	57	257,879
Jun-30-2015	58	91,162	0	0	23,328	58	297,139
Jun-30-2016	59	94,808	0	0	27,112	59	339,719
Jun-30-2017	60	98,601	0	0	35,571	60	438,359
Jun-30-2018	61	102,545	0	0	38,227	61	463,179
Jun-30-2019	62	106,646	0	0	41,039	62	488,752

Noncontributory Plan
Employee Age 40 with 10 Years of Service Earning $45,000 at Transition
Alternative A

Assumptions		Normal Retirement Benefit Calculation Illustration		
Date of Birth:	July 1, 1957	A.	Final Account Balance:	$216,265
Date of Hire:	July 1, 1987	B.	Annuity Factor:	11.9095
Normal Retirement Date:	July 1, 2019	C.	Benefit from Alternative Plan: (A./B.)	$18,159
Early Retirement Date:	July 1, 2012	D.	Benefit from ERS Plan:	$5,411
FY '97 Compensation:	$45,000		Initial Annual Retirement Benefit: (C. + D.)	$23,570
Actuarial Assumptions:				
Interest:	8.00%			
Mortality:	83M with a 4 year setback			
Salary Scale*:	4.00%			
Normal Form:	Life Annuity			
Employer Contribution Rate:	5.80%			
Employee Contribution Rate:	0.00%			

* Compensation is expected to increase annually at this rate over the employee's working career.

Noncontributory Plan
Employee Age 40 with 10 Years of Service Earning $45,000 at Transition
Alternative A

12 Months Ended	Age Nearest	Annual Compensation	Employee Contribution	Employer Contributions	Account Balance	Accrued Vested Annual Benefit Payable @ CA	ERS Vested Benefit Payable @ CA	Earliest Commencement Age	Present Value of Accumulated Vested Benefit
Jun-30-1988	31	$ 31,616	$ 0	$ 0	$ 0	$ 0	$ 0	N/A	$ 0
Jun-30-1989	32	32,881	0	0	0	0	0	N/A	0
Jun-30-1990	33	34,196	0	0	0	0	0	N/A	0
Jun-30-1991	34	35,564	0	0	0	0	0	N/A	0
Jun-30-1992	35	36,987	0	0	0	0	0	N/A	0
Jun-30-1993	36	38,466	0	0	0	0	0	N/A	0
Jun-30-1994	37	40,005	0	0	0	0	0	N/A	0
Jun-30-1995	38	41,605	0	0	0	0	0	N/A	0
Jun-30-1996	39	43,269	0	0	0	0	0	N/A	0
Jun-30-1997	40	45,000	0	0	0	5,411	5,411	65	8,020
Jun-30-1998	41	46,800	0	2,714	2,821	7,172	5,411	65	11,490
Jun-30-1999	42	48,672	0	2,823	5,980	8,864	5,411	65	15,352
Jun-30-2000	43	50,619	0	2,936	9,510	10,490	5,411	65	19,642
Jun-30-2001	44	52,644	0	3,053	13,444	12,052	5,411	65	24,399
Jun-30-2002	45	54,749	0	3,175	17,819	13,551	5,411	65	29,666
Jun-30-2003	46	56,939	0	3,302	22,677	14,990	5,411	65	35,488
Jun-30-2004	47	59,217	0	3,435	28,060	16,369	5,411	65	41,918
Jun-30-2005	48	61,586	0	3,572	34,017	17,690	5,411	65	49,009
Jun-30-2006	49	64,049	0	3,715	40,599	18,954	5,411	65	56,822
Jun-30-2007	50	66,611	0	3,863	47,862	20,162	5,411	65	65,421
Jun-30-2008	51	69,275	0	4,018	55,867	21,314	5,411	65	74,877
Jun-30-2009	52	72,046	0	4,179	64,679	22,411	5,411	65	85,268
Jun-30-2010	53	74,928	0	4,346	74,369	23,453	5,411	65	96,675
Jun-30-2011	54	77,925	0	4,520	85,016	24,441	5,411	65	109,191
Jun-30-2012	55	81,042	0	4,700	96,702	10,378	3,138	55	138,628
Jun-30-2013	56	84,284	0	4,888	109,518	11,791	3,463	56	155,065
Jun-30-2014	57	87,656	0	5,084	123,563	13,334	3,787	57	172,596
Jun-30-2015	58	91,162	0	5,287	138,943	15,021	4,116	58	191,327
Jun-30-2016	59	94,808	0	5,499	155,773	16,869	4,437	59	211,375
Jun-30-2017	60	98,601	0	5,719	174,178	19,545	5,411	60	240,859
Jun-30-2018	61	102,545	0	5,948	194,293	21,447	5,411	61	259,855
Jun-30-2019	62	106,646	0	6,185	216,265	23,570	5,411	62	280,712

Noncontributory Plan
Employee Age 40 with 10 Years of Service Earning $45,000 at Transition
Alternative B

Assumptions		Normal Retirement Benefit Calculation Illustration	
Date of Birth:	June 1, 1957	A. Final Account Balance:	$336,521
Date of Hire:	June 1, 1987	B. Annuity Factor:	11.9095
Normal Retirement Date:	June 1, 2019	C. Benefit from Alternative Plan: (A./B.)	$28,257
Early Retirement Date:	June 1, 2012	D. Benefit from ERS Plan:	$5,411
FY '97 Compensation:	$45,000	Initial Annual Retirement Benefit: (C. + D.)	$33,668
Actuarial Assumptions:			
Interest:	8.00%		
Mortality:	83M with a 4 year setback		
Salary Scale*:	4.00%		
Normal Form:	Life Annuity		
Employer Contribution Rate:	5.80%		
Employee Contribution Rate:	Age Related Rate		

* Compensation is expected to increase annually at this rate over the employee's working career.

Noncontributory Plan
Employee Age 40 with 10 Years of Service Earning $45,000 at Transition
Alternative B

12 Months Ended	Age Nearest	Annual Compensation	Employee Contribution	Employer Contributions	Account Balance	Accrued Vested Annual Benefit Payable @ CA	ERS Vested Benefit Payable @ CA	Earliest Commencement Age	Present Value of Accumulated Vested Benefit
Jun-30-1988	31	$ 31,616	$ 0	$ 0	$ 0	$ 0	$ 0	N/A	$ 0
Jun-30-1989	32	32,881	0	0	0	0	0	N/A	0
Jun-30-1990	33	34,196	0	0	0	0	0	N/A	0
Jun-30-1991	34	35,564	0	0	0	0	0	N/A	0
Jun-30-1992	35	36,987	0	0	0	0	0	N/A	0
Jun-30-1993	36	38,466	0	0	0	0	0	N/A	0
Jun-30-1994	37	40,005	0	0	0	0	0	N/A	0
Jun-30-1995	38	41,605	0	0	0	0	0	N/A	0
Jun-30-1996	39	43,269	0	0	0	0	0	N/A	0
Jun-30-1997	40	45,000	0	0	0	5,411	5,411	65	8,020
Jun-30-1998	41	46,800	936	2,714	3,794	7,779	5,411	65	12,463
Jun-30-1999	42	48,672	973	2,823	8,042	10,055	5,411	65	17,414
Jun-30-2000	43	50,619	1,012	2,936	12,789	12,242	5,411	65	22,921
Jun-30-2001	44	52,644	1,053	3,053	18,079	14,342	5,411	65	29,035
Jun-30-2002	45	54,749	1,642	3,175	24,533	16,618	5,411	65	36,379
Jun-30-2003	46	56,939	1,708	3,302	31,703	18,802	5,411	65	44,514
Jun-30-2004	47	59,217	1,777	3,435	39,654	20,896	5,411	65	53,512
Jun-30-2005	48	61,586	1,848	3,572	48,459	22,903	5,411	65	63,451
Jun-30-2006	49	64,049	1,921	3,715	58,193	24,823	5,411	65	74,416
Jun-30-2007	50	66,611	2,331	3,863	69,286	26,764	5,411	65	86,845
Jun-30-2008	51	69,275	2,425	4,018	81,524	28,618	5,411	65	100,535
Jun-30-2009	52	72,046	2,522	4,179	95,010	30,383	5,411	65	115,599
Jun-30-2010	53	74,928	2,622	4,346	109,852	32,062	5,411	65	132,158
Jun-30-2011	54	77,925	2,727	4,520	126,172	33,654	5,411	65	150,347
Jun-30-2012	55	81,042	3,242	4,700	144,519	13,957	3,138	55	186,445
Jun-30-2013	56	84,284	3,371	4,888	164,665	15,984	3,463	56	210,211
Jun-30-2014	57	87,656	3,506	5,084	186,765	18,216	3,787	57	235,798
Jun-30-2015	58	91,162	3,646	5,287	210,990	20,677	4,112	58	263,375
Jun-30-2016	59	94,808	3,792	5,499	237,525	23,393	4,437	59	293,127
Jun-30-2017	60	98,601	4,930	5,719	267,594	27,125	5,411	60	334,275
Jun-30-2018	61	102,545	5,127	5,948	300,511	30,213	5,411	61	366,073
Jun-30-2019	62	106,646	5,332	6,185	336,521	33,668	5,411	62	400,969

Noncontributory Plan
Employee Age 40 with 10 Years of Service Earning $45,000 at Transition
Alternative C

Assumptions		Normal Retirement Benefit Calculation Illustration		
Date of Birth:	July 1, 1957	A.	Final Account Balance:	$372,341
Date of Hire:	July 1, 1987	B.	Annuity Factor:	11.9095
Normal Retirement Date:	July 1, 2019	C.	Benefit from Alternative Plan: (A./B.)	$31,264
Early Retirement Date:	July 1, 2012	D.	Benefit from ERS Plan:	$5,411
FY '97 Compensation:	$45,000	E.	Benefit Before ERS Minimum: (C. + D.)	$36,676
		F.	ERS Minimum:	$41,039
Actuarial Assumptions:				
Interest:	8.00%		Initial Annual Retirement Benefit: Greater of (E. & F.)	$41,039
Cash Balance. Accum. Rate	5.00%			
Mortality:	83M with a 4 year setback			
Salary Scale*:	4.00%			
Normal Form:	Life Annuity			
Employee Contribution Rate:	1.10%			

* Compensation is expected to increase annually at this rate over the employee's working career.

Noncontributory Plan
Employee Age 40 with 10 Years of Service Earning $45,000 at Transition
Alternative C

12 Months Ended	Age Nearest	Annual Compensation	Acumulated Employee Contributions	Contribution Credit	Accumulated Cash Balance	Accrued Vested Annual Benefit Payable @ CA	ERS Vested Benefit Payable @ CA	Earliest Commencement Age	Present Value of Accumulated Vested Benefit
Jun-30-1988	31	$ 31,616	$ 0	$ 0	$ 0	$ 0	$ 0	N/A	$ 0
Jun-30-1989	32	32,881	0	0	0	0	0	N/A	0
Jun-30-1990	33	34,196	0	0	0	0	0	N/A	0
Jun-30-1991	34	35,564	0	0	0	0	0	N/A	0
Jun-30-1992	35	36,987	0	0	0	0	0	N/A	0
Jun-30-1993	36	38,466	0	0	0	0	0	N/A	0
Jun-30-1994	37	40,005	0	0	0	0	0	N/A	0
Jun-30-1995	38	41,605	0	0	0	0	0	N/A	0
Jun-30-1996	39	43,269	0	0	0	0	0	N/A	0
Jun-30-1997	40	45,000	0	0	0	5,411	5,411	65	8,020
Jun-30-1998	41	46,800	528	5,382	5,515	8,854	5,411	65	14,184
Jun-30-1999	42	48,672	1,103	5,597	11,526	12,067	5,411	65	20,898
Jun-30-2000	43	50,619	1,729	6,580	18,845	15,476	5,411	65	28,978
Jun-30-2001	44	52,644	2,409	6,844	26,800	18,650	5,411	65	37,756
Jun-30-2002	45	54,749	3,146	7,117	35,434	21,597	5,411	65	47,280
Jun-30-2003	46	56,939	3,946	8,256	45,665	24,700	5,411	65	58,477
Jun-30-2004	47	59,217	4,811	8,586	56,747	27,571	5,411	65	70,605
Jun-30-2005	48	61,586	5,746	8,930	68,735	30,221	5,411	65	83,727
Jun-30-2006	49	64,049	6,755	9,287	81,688	32,660	5,411	65	97,911
Jun-30-2007	50	66,611	7,844	9,659	95,670	34,895	5,411	65	113,229
Jun-30-2008	51	69,275	9,017	10,045	110,746	36,936	5,411	65	129,757
Jun-30-2009	52	72,046	10,280	10,447	126,988	38,788	5,411	65	147,577
Jun-30-2010	53	74,928	11,639	10,865	144,470	40,460	5,411	65	166,776
Jun-30-2011	54	77,925	13,100	11,299	163,272	41,958	5,411	65	187,448
Jun-30-2012	55	81,042	14,668	11,751	183,477	16,873	3,138	55	225,395
Jun-30-2013	56	84,284	16,352	12,221	205,174	19,064	3,463	56	250,716
Jun-30-2014	57	87,656	18,158	12,710	228,457	21,436	3,787	57	277,477
Jun-30-2015	58	91,162	20,094	13,218	253,424	24,008	4,112	58	305,799
Jun-30-2016	59	94,808	22,167	13,747	280,182	26,797	4,437	59	339,719
Jun-30-2017	60	98,601	24,388	14,297	308,842	35,572	5,411	60	438,359
Jun-30-2018	61	102,545	26,763	14,869	339,520	38,227	5,411	61	463,179
Jun-30-2019	62	106,646	29,304	15,464	372,341	41,039	5,411	62	488,752

Noncontributory Plan
Employee Age 40 with 10 Years of Service Earning $45,000 at Transition
Alternative D

Assumptions		Normal Retirement Benefit Calculation Illustration	
Date of Birth:	June 1, 1957	A. Final Account Balance:	$336,521
Date of Hire:	June 1, 1987	B. Annuity Factor:	11.9095
Normal Retirement Date:	June 1, 2019	C. Benefit from Alternative Plan: (A./B.)	$28,257
Early Retirement Date:	June 1, 2012	D. Benefit from ERS Plan:	$5,411
FY '97 Compensation:	$45,000	Initial Annual Retirement Benefit: (C. + D.)	$33,668
Actuarial Assumptions:			
Interest:	8.00%		
Mortality:	83M with a 4 year setback		
Salary Scale*:	4.00%		
Normal Form:	Life Annuity		
Employer Contribution Rate:	5.80% plus Age Related Rate		

* Compensation is expected to increase annually at this rate over the employee's working career.

Noncontributory Plan
Employee Age 40 with 10 Years of Service Earning $45,000 at Transition
Alternative D

12 Months Ended	Age Nearest	Annual Compensation	Employee Contribution	Employer Contributions	Account Balance	Accrued Vested Annual Benefit Payable @ CA	ERS Vested Benefit Payable @ CA	Earliest Commencement Age	Present Value of Accumulated Vested Benefit
Jun-30-1988	31	$ 31,616	$ 0	$ 0	$ 0	$ 0	$ 0	N/A	$ 0
Jun-30-1989	32	32,881	0	0	0	0	0	N/A	0
Jun-30-1990	33	34,196	0	0	0	0	0	N/A	0
Jun-30-1991	34	35,564	0	0	0	0	0	N/A	0
Jun-30-1992	35	36,987	0	0	0	0	0	N/A	0
Jun-30-1993	36	38,466	0	0	0	0	0	N/A	0
Jun-30-1994	37	40,005	0	0	0	0	0	N/A	0
Jun-30-1995	38	41,605	0	0	0	0	0	N/A	0
Jun-30-1996	39	43,269	0	0	0	0	0	N/A	0
Jun-30-1997	40	45,000	0	0	0	5,411	5,411	65	8,020
Jun-30-1998	41	46,800	0	3,650	3,794	7,779	5,411	65	12,463
Jun-30-1999	42	48,672	0	3,796	8,042	10,055	5,411	65	17,414
Jun-30-2000	43	50,619	0	3,948	12,789	12,242	5,411	65	22,921
Jun-30-2001	44	52,644	0	4,106	18,079	14,342	5,411	65	29,035
Jun-30-2002	45	54,749	0	4,818	24,533	16,618	5,411	65	36,379
Jun-30-2003	46	56,939	0	5,011	31,703	18,802	5,411	65	44,514
Jun-30-2004	47	59,217	0	5,211	39,654	20,896	5,411	65	53,512
Jun-30-2005	48	61,586	0	5,420	48,459	22,903	5,411	65	63,451
Jun-30-2006	49	64,049	0	5,636	58,193	24,823	5,411	65	74,416
Jun-30-2007	50	66,611	0	6,195	69,286	26,764	5,411	65	86,845
Jun-30-2008	51	69,275	0	6,443	81,524	28,618	5,411	65	100,535
Jun-30-2009	52	72,046	0	6,700	95,010	30,383	5,411	65	115,599
Jun-30-2010	53	74,928	0	6,968	109,852	32,062	5,411	65	132,158
Jun-30-2011	54	77,925	0	7,247	126,172	33,654	5,411	65	150,347
Jun-30-2012	55	81,042	0	7,942	144,519	13,957	3,138	55	186,445
Jun-30-2013	56	84,284	0	8,260	164,665	15,984	3,463	56	210,211
Jun-30-2014	57	87,656	0	8,590	186,765	18,216	3,787	57	235,798
Jun-30-2015	58	91,162	0	8,934	210,990	20,677	4,112	58	263,375
Jun-30-2016	59	94,808	0	9,291	237,525	23,393	4,437	59	293,127
Jun-30-2017	60	98,601	0	10,649	267,594	27,125	5,411	60	334,275
Jun-30-2018	61	102,545	0	11,075	300,511	30,213	5,411	61	366,073
Jun-30-2019	62	106,646	0	11,518	336,521	33,668	5,411	62	400,969

Appendix D: Background Information for Exhibit 3.5

Projected Employer Contribution Requirements [(1)]
Current System

	ERS				ORP				TOTAL			
Beginning of Plan Year	Number	Payroll	Contribution Requirement	Percentage of Payroll	Number	Payroll	Contribution Requirement	Percentage of Payroll	Number	Payroll	Contribution Requirement	Percentage of Payroll
7/1/1995	54,127	$ 1,830,456,000	$ 267,871,000	14.63% [(2)]	0	0	0	0	54,127	$ 1,830,456,000	$ 267,871,000	14.63%
7/1/1996	54,127	1,885,370,000	267,803,000	14.20%	0	0	0	0	54,127	1,885,370,000	267,803,000	14.20%
7/1/1997	54,127	1,941,931,000	268,235,000	13.81%	0	0	0	0	54,127	1,941,931,000	268,235,000	13.81%
7/1/1998	54,127	2,000,189,000	269,061,000	13.45%	0	0	0	0	54,127	2,000,189,000	269,061,000	13.45%
7/1/1999	54,127	2,060,194,000	269,800,000	13.10%	0	0	0	0	54,127	2,060,194,000	269,800,000	13.10%
7/1/2000	54,127	2,122,000,000	270,490,000	12.75%	0	0	0	0	54,127	2,122,000,000	270,490,000	12.75%
7/1/2001	54,127	2,185,660,000	271,300,000	12.41%	0	0	0	0	54,127	2,185,660,000	271,300,000	12.41%
7/1/2002	54,127	2,251,230,000	272,143,000	12.09%	0	0	0	0	54,127	2,251,230,000	272,143,000	12.09%
7/1/2003	54,127	2,318,767,000	272,809,000	11.77%	0	0	0	0	54,127	2,318,767,000	272,809,000	11.77%
7/1/2004	54,127	2,388,330,000	273,320,000	11.44%	0	0	0	0	54,127	2,388,330,000	273,320,000	11.44%
7/1/2005	54,127	2,459,980,000	273,804,000	11.13%	0	0	0	0	54,127	2,459,980,000	273,804,000	11.13%
7/1/2006	54,127	2,533,779,000	273,855,000	10.81%	0	0	0	0	54,127	2,533,779,000	273,855,000	10.81%

[(1)] All results exclude police, fire, and corrections officers.

[(2)] 7/1/1995 results for the current system are based on the Report to Board of Trustees on the Seventieth Annual Actuarial Valuation prepared by The Segal Company.

Projected Employer Contribution Requirements
Alternative A -- High Transfer Assumption [(1)]

	ERS				ORP				TOTAL			
Beginning of Plan Year	Number	Payroll	Contribution Requirement	Percentage of Payroll	Number	Payroll	Contribution Requirement	Percentage of Payroll	Number	Payroll	Contribution Requirement	Percentage of Payroll
7/1/1995	52,676	$ 1,758,496,000	$ 261,387,000	14.86%	1,451	$ 71,960,000	$ 4,397,000	6.11%	54,127	$ 1,830,456,000	$ 265,784,000	14.52%
7/1/1996	52,570	1,803,993,000	257,027,000	14.25%	1,557	81,376,000	4,972,000	6.11%	54,127	1,885,369,000	261,999,000	13.90%
7/1/1997	52,493	1,853,021,000	255,842,000	13.81%	1,634	88,910,000	5,432,000	6.11%	54,127	1,941,931,000	261,274,000	13.45%
7/1/1998	52,426	1,904,097,000	255,708,000	13.43%	1,701	96,092,000	5,871,000	6.11%	54,127	2,000,189,000	261,579,000	13.08%
7/1/1999	52,368	1,957,271,000	256,090,000	13.08%	1,759	102,924,000	6,289,000	6.11%	54,127	2,060,195,000	262,379,000	12.74%
7/1/2000	52,317	2,012,450,000	256,874,000	12.76%	1,810	109,550,000	6,694,000	6.11%	54,127	2,122,000,000	263,568,000	12.42%
7/1/2001	52,270	2,069,464,000	257,606,000	12.45%	1,857	116,196,000	7,100,000	6.11%	54,127	2,185,660,000	264,706,000	12.11%
7/1/2002	52,228	2,128,364,000	258,320,000	12.14%	1,899	122,866,000	7,507,000	6.11%	54,127	2,251,230,000	265,827,000	11.81%
7/1/2003	52,188	2,189,227,000	259,169,000	11.84%	1,939	129,540,000	7,915,000	6.11%	54,127	2,318,767,000	267,084,000	11.52%
7/1/2004	52,150	2,251,931,000	260,053,000	11.55%	1,977	136,399,000	8,334,000	6.11%	54,127	2,388,330,000	268,387,000	11.24%
7/1/2005	52,113	2,316,454,000	260,777,000	11.26%	2,014	143,525,000	8,769,000	6.11%	54,127	2,459,979,000	269,546,000	10.96%
7/1/2006	52,078	2,382,982,000	261,375,000	10.97%	2,049	150,797,000	9,214,000	6.11%	54,127	2,533,779,000	270,589,000	10.68%

[(1)] All results exclude police, fire, and corrections officers.

Projected Employer Contribution Requirements
Alternative A -- Low Transfer Assumption (1)

	ERS				ORP				TOTAL			
Beginning of Plan Year	Number	Payroll	Contribution Requirement	Percentage of Payroll	Number	Payroll	Contribution Requirement	Percentage of Payroll	Number	Payroll	Contribution Requirement	Percentage of Payroll
7/1/1995	53,645	$ 1,807,309,000	$ 265,924,000	14.71%	482	$ 23,147,000	$ 1,414,000	6.11%	54,127	$ 1,830,456,000	$ 267,338,000	14.60%
7/1/1996	53,606	1,859,846,000	265,666,000	14.28%	521	25,524,000	1,559,000	6.11%	54,127	1,885,370,000	267,225,000	14.17%
7/1/1997	53,577	1,914,156,000	265,925,000	13.89%	550	27,775,000	1,697,000	6.11%	54,127	1,941,931,000	267,622,000	13.78%
7/1/1998	53,552	1,970,236,000	266,586,000	13.53%	575	29,953,000	1,830,000	6.11%	54,127	2,000,189,000	268,416,000	13.42%
7/1/1999	53,529	2,028,057,000	267,164,000	13.17%	598	32,137,000	1,964,000	6.11%	54,127	2,060,194,000	269,128,000	13.06%
7/1/2000	53,510	2,087,667,000	267,697,000	12.82%	617	34,333,000	2,098,000	6.11%	54,127	2,122,000,000	269,795,000	12.71%
7/1/2001	53,492	2,149,128,000	268,352,000	12.49%	635	36,532,000	2,232,000	6.11%	54,127	2,185,660,000	270,584,000	12.38%
7/1/2002	53,475	2,212,438,000	269,035,000	12.16%	652	38,792,000	2,370,000	6.11%	54,127	2,251,230,000	271,405,000	12.06%
7/1/2003	53,459	2,277,614,000	269,535,000	11.83%	668	41,153,000	2,514,000	6.11%	54,127	2,318,767,000	272,049,000	11.73%
7/1/2004	53,444	2,344,758,000	269,876,000	11.51%	683	43,572,000	2,662,000	6.11%	54,127	2,388,330,000	272,538,000	11.41%
7/1/2005	53,429	2,413,985,000	270,197,000	11.19%	698	45,995,000	2,810,000	6.11%	54,127	2,459,980,000	273,007,000	11.10%
7/1/2006	53,415	2,485,287,000	270,081,000	10.87%	712	48,492,000	2,963,000	6.11%	54,127	2,533,779,000	273,044,000	10.78%

(1) All results exclude police, fire, and corrections officers.

Projected Employer Contribution Requirements
Alternative B -- High Transfer Assumption [1]

	ERS				ORP				TOTAL			
Beginning of Plan Year	Number	Payroll	Contribution Requirement	Percentage of Payroll	Number	Payroll	Contribution Requirement	Percentage of Payroll	Number	Payroll	Contribution Requirement	Percentage of Payroll
7/1/1995	52,676	$ 1,758,496,000	$ 261,387,000	14.86%	1,451	$ 71,960,000	$ 4,397,000	6.11%	54,127	$ 1,830,456,000	$ 265,784,000	14.52%
7/1/1996	52,489	1,799,405,000	256,746,000	14.27%	1,638	85,965,000	5,252,000	6.11%	54,127	1,885,370,000	261,998,000	13.90%
7/1/1997	52,354	1,845,052,000	255,355,000	13.84%	1,773	96,879,000	5,919,000	6.11%	54,127	1,941,931,000	261,274,000	13.45%
7/1/1998	52,238	1,893,096,000	255,036,000	13.47%	1,889	107,093,000	6,543,000	6.11%	54,127	2,000,189,000	261,579,000	13.08%
7/1/1999	52,136	1,943,345,000	255,239,000	13.13%	1,991	116,849,000	7,139,000	6.11%	54,127	2,060,194,000	262,378,000	12.74%
7/1/2000	52,043	1,995,661,000	255,848,000	12.82%	2,084	126,339,000	7,719,000	6.11%	54,127	2,122,000,000	263,567,000	12.42%
7/1/2001	51,955	2,049,683,000	256,397,000	12.51%	2,172	135,977,000	8,308,000	6.11%	54,127	2,185,660,000	264,705,000	12.11%
7/1/2002	51,873	2,105,473,000	256,921,000	12.20%	2,254	145,757,000	8,906,000	6.11%	54,127	2,251,230,000	265,827,000	11.81%
7/1/2003	51,796	2,163,171,000	257,577,000	11.91%	2,331	155,596,000	9,507,000	6.11%	54,127	2,318,767,000	267,084,000	11.52%
7/1/2004	51,721	2,222,619,000	258,262,000	11.62%	2,406	165,711,000	10,125,000	6.11%	54,127	2,388,330,000	268,387,000	11.24%
7/1/2005	51,647	2,283,709,000	258,776,000	11.33%	2,480	176,271,000	10,770,000	6.11%	54,127	2,459,980,000	269,546,000	10.96%
7/1/2006	51,577	2,346,631,000	259,154,000	11.04%	2,550	187,148,000	11,435,000	6.11%	54,127	2,533,779,000	270,589,000	10.68%

[1] All results exclude police, fire, and corrections officers.

Projected Employer Contribution Requirements
Alternative B -- Low Transfer Assumption[1]

	ERS				ORP				TOTAL			
Beginning of Plan Year	Number	Payroll	Contribution Requirement	Percentage of Payroll	Number	Payroll	Contribution Requirement	Percentage of Payroll	Number	Payroll	Contribution Requirement	Percentage of Payroll
7/1/1995	53,645	$ 1,807,309,000	$ 265,924,000	14.71%	482	$ 23,147,000	$ 1,414,000	6.11%	54,127	$ 1,830,456,000	$ 267,338,000	14.60%
7/1/1996	53,404	1,852,863,000	265,239,000	14.32%	723	32,506,000	1,986,000	6.11%	54,127	1,885,369,000	267,225,000	14.17%
7/1/1997	53,229	1,900,477,000	265,089,000	13.95%	898	41,454,000	2,533,000	6.11%	54,127	1,941,931,000	267,622,000	13.78%
7/1/1998	53,081	1,950,034,000	265,352,000	13.61%	1,046	50,155,000	3,064,000	6.11%	54,127	2,000,189,000	268,416,000	13.42%
7/1/1999	52,947	2,001,027,000	265,513,000	13.27%	1,180	59,167,000	3,615,000	6.11%	54,127	2,060,194,000	269,128,000	13.06%
7/1/2000	52,824	2,053,534,000	265,611,000	12.93%	1,303	68,466,000	4,183,000	6.11%	54,127	2,122,000,000	269,794,000	12.71%
7/1/2001	52,703	2,107,777,000	265,825,000	12.61%	1,424	77,883,000	4,759,000	6.11%	54,127	2,185,660,000	270,584,000	12.38%
7/1/2002	52,587	2,163,660,000	266,055,000	12.30%	1,540	87,570,000	5,350,000	6.11%	54,127	2,251,230,000	271,405,000	12.06%
7/1/2003	52,478	2,220,988,000	266,075,000	11.98%	1,649	97,779,000	5,974,000	6.11%	54,127	2,318,767,000	272,049,000	11.73%
7/1/2004	52,372	2,279,875,000	265,912,000	11.66%	1,755	108,455,000	6,627,000	6.11%	54,127	2,388,330,000	272,539,000	11.41%
7/1/2005	52,265	2,340,557,000	265,710,000	11.35%	1,862	119,423,000	7,297,000	6.11%	54,127	2,459,980,000	273,007,000	11.10%
7/1/2006	52,162	2,402,615,000	265,030,000	11.03%	1,965	131,164,000	8,014,000	6.11%	54,127	2,533,779,000	273,044,000	10.78%

[1] All results exclude police, fire, and corrections officers.

Projected Employer Contribution Requirements
Alternative C -- High Transfer Assumption [1]

	ERS				ORP				TOTAL			
Beginning of Plan Year	Number	Payroll	Contribution Requirement	Percentage of Payroll	Number	Payroll	Contribution Requirement	Percentage of Payroll	Number	Payroll	Contribution Requirement	Percentage of Payroll
7/1/1995	52,676	$ 1,758,496,000	$ 261,387,000	14.86%	1,451	$ 71,960,000	$ 4,397,000	6.11%	54,127	$ 1,830,456,000	$ 265,784,000	14.52%
7/1/1996	52,489	1,799,405,000	256,746,000	14.27%	1,638	85,965,000	5,252,000	6.11%	54,127	1,885,370,000	261,998,000	13.90%
7/1/1997	52,354	1,845,052,000	255,355,000	13.84%	1,773	96,879,000	5,919,000	6.11%	54,127	1,941,931,000	261,274,000	13.45%
7/1/1998	52,238	1,893,096,000	255,036,000	13.47%	1,889	107,093,000	6,543,000	6.11%	54,127	2,000,189,000	261,579,000	13.08%
7/1/1999	52,136	1,943,345,000	255,239,000	13.13%	1,991	116,849,000	7,139,000	6.11%	54,127	2,060,194,000	262,378,000	12.74%
7/1/2000	52,043	1,995,661,000	255,848,000	12.82%	2,084	126,339,000	7,719,000	6.11%	54,127	2,122,000,000	263,567,000	12.42%
7/1/2001	51,955	2,049,683,000	256,397,000	12.51%	2,172	135,977,000	8,308,000	6.11%	54,127	2,185,660,000	264,705,000	12.11%
7/1/2002	51,873	2,105,473,000	256,921,000	12.20%	2,254	145,757,000	8,906,000	6.11%	54,127	2,251,230,000	265,827,000	11.81%
7/1/2003	51,796	2,163,171,000	257,577,000	11.91%	2,331	155,596,000	9,507,000	6.11%	54,127	2,318,767,000	267,084,000	11.52%
7/1/2004	51,721	2,222,619,000	258,262,000	11.62%	2,406	165,711,000	10,125,000	6.11%	54,127	2,388,330,000	268,387,000	11.24%
7/1/2005	51,647	2,283,709,000	258,776,000	11.33%	2,480	176,271,000	10,770,000	6.11%	54,127	2,459,980,000	269,546,000	10.96%
7/1/2006	51,577	2,346,631,000	259,154,000	11.04%	2,550	187,148,000	11,435,000	6.11%	54,127	2,533,779,000	270,589,000	10.68%

[1] All results exclude police, fire, and corrections officers.

Projected Employer Contribution Requirements
Alternative C -- Low Transfer Assumption [1]

	ERS				ORP				TOTAL			
Beginning of Plan Year	Number	Payroll	Contribution Requirement	Percentage of Payroll	Number	Payroll	Contribution Requirement	Percentage of Payroll	Number	Payroll	Contribution Requirement	Percentage of Payroll
7/1/1995	53,645	$ 1,807,309,000	$ 265,924,000	14.71%	482	$ 23,147,000	$ 1,414,000	6.11%	54,127	$ 1,830,456,000	$ 267,338,000	14.60%
7/1/1996	53,404	1,852,863,000	265,239,000	14.32%	723	32,506,000	1,986,000	6.11%	54,127	1,885,369,000	267,225,000	14.17%
7/1/1997	53,229	1,900,477,000	265,089,000	13.95%	898	41,454,000	2,533,000	6.11%	54,127	1,941,931,000	267,622,000	13.78%
7/1/1998	53,081	1,950,034,000	265,352,000	13.61%	1,046	50,155,000	3,064,000	6.11%	54,127	2,000,189,000	268,416,000	13.42%
7/1/1999	52,947	2,001,027,000	265,513,000	13.27%	1,180	59,167,000	3,615,000	6.11%	54,127	2,060,194,000	269,128,000	13.06%
7/1/2000	52,824	2,053,534,000	265,611,000	12.93%	1,303	68,466,000	4,183,000	6.11%	54,127	2,122,000,000	269,794,000	12.71%
7/1/2001	52,703	2,107,777,000	265,825,000	12.61%	1,424	77,883,000	4,759,000	6.11%	54,127	2,185,660,000	270,584,000	12.38%
7/1/2002	52,587	2,163,660,000	266,055,000	12.30%	1,540	87,570,000	5,350,000	6.11%	54,127	2,251,230,000	271,405,000	12.06%
7/1/2003	52,478	2,220,988,000	266,075,000	11.98%	1,649	97,779,000	5,974,000	6.11%	54,127	2,318,767,000	272,049,000	11.73%
7/1/2004	52,372	2,279,875,000	265,912,000	11.66%	1,755	108,455,000	6,627,000	6.11%	54,127	2,388,330,000	272,539,000	11.41%
7/1/2005	52,265	2,340,557,000	265,710,000	11.35%	1,862	119,423,000	7,297,000	6.11%	54,127	2,459,980,000	273,007,000	11.10%
7/1/2006	52,162	2,402,615,000	265,030,000	11.03%	1,965	131,164,000	8,014,000	6.11%	54,127	2,533,779,000	273,044,000	10.78%

[1] All results exclude police, fire, and corrections officers.

Projected Employer Contribution Requirements
Alternative D -- High Transfer Assumption [1]

	ERS				ORP				TOTAL			
Beginning of Plan Year	Number	Payroll	Contribution Requirement	Percentage of Payroll	Number	Payroll	Contribution Requirement	Percentage of Payroll	Number	Payroll	Contribution Requirement	Percentage of Payroll
7/1/1995	52,676	$ 1,758,496,000	$ 261,387,000	14.86%	1,451	$ 71,960,000	$ 6,226,000	8.65%	54,127	$ 1,830,456,000	$267,613,000	14.62%
7/1/1996	52,570	1,803,993,000	257,027,000	14.25%	1,557	81,376,000	7,069,000	8.69%	54,127	1,885,369,000	264,096,000	14.01%
7/1/1997	52,493	1,853,021,000	255,842,000	13.81%	1,634	88,910,000	7,771,000	8.74%	54,127	1,941,931,000	263,613,000	13.57%
7/1/1998	52,426	1,904,097,000	255,708,000	13.43%	1,701	96,092,000	8,453,000	8.80%	54,127	2,000,189,000	264,161,000	13.21%
7/1/1999	52,368	1,957,271,000	256,090,000	13.08%	1,759	102,924,000	9,107,000	8.85%	54,127	2,060,195,000	265,197,000	12.87%
7/1/2000	52,317	2,012,450,000	256,874,000	12.76%	1,810	109,550,000	9,747,000	8.90%	54,127	2,122,000,000	266,621,000	12.56%
7/1/2001	52,270	2,069,464,000	257,606,000	12.45%	1,857	116,196,000	10,383,000	8.94%	54,127	2,185,660,000	267,989,000	12.26%
7/1/2002	52,228	2,128,364,000	258,320,000	12.14%	1,899	122,866,000	11,021,000	8.97%	54,127	2,251,230,000	269,341,000	11.96%
7/1/2003	52,188	2,189,227,000	259,169,000	11.84%	1,939	129,540,000	11,662,000	9.00%	54,127	2,318,767,000	270,831,000	11.68%
7/1/2004	52,150	2,251,931,000	260,053,000	11.55%	1,977	136,399,000	12,324,000	9.04%	54,127	2,388,330,000	272,377,000	11.40%
7/1/2005	52,113	2,316,454,000	260,777,000	11.26%	2,014	143,525,000	13,010,000	9.06%	54,127	2,459,979,000	273,787,000	11.13%
7/1/2006	52,078	2,382,982,000	261,375,000	10.97%	2,049	150,797,000	13,738,000	9.11%	54,127	2,533,779,000	275,113,000	10.86%

[1] All results exclude police, fire, and corrections officers.

Projected Employer Contribution Requirements
Alternative D -- Low Transfer Assumption (1)

	ERS				ORP				TOTAL			
Beginning of Plan Year	Number	Payroll	Contribution Requirement	Percentage of Payroll	Number	Payroll	Contribution Requirement	Percentage of Payroll	Number	Payroll	Contribution Requirement	Percentage of Payroll
7/1/1995	53,645	$ 1,807,309,000	$ 265,924,000	14.71%	482	$ 23,147,000	$ 2,002,000	8.65%	54,127	$ 1,830,456,000	$ 267,926,000	14.64%
7/1/1996	53,606	1,859,846,000	265,666,000	14.28%	521	25,524,000	2,217,000	8.69%	54,127	1,885,370,000	267,883,000	14.21%
7/1/1997	53,577	1,914,156,000	265,925,000	13.89%	550	27,775,000	2,428,000	8.74%	54,127	1,941,931,000	268,353,000	13.82%
7/1/1998	53,552	1,970,236,000	266,586,000	13.53%	575	29,953,000	2,635,000	8.80%	54,127	2,000,189,000	269,221,000	13.46%
7/1/1999	53,529	2,028,057,000	267,164,000	13.17%	598	32,137,000	2,844,000	8.85%	54,127	2,060,194,000	270,008,000	13.11%
7/1/2000	53,510	2,087,667,000	267,697,000	12.82%	617	34,333,000	3,055,000	8.90%	54,127	2,122,000,000	270,752,000	12.76%
7/1/2001	53,492	2,149,128,000	268,352,000	12.49%	635	36,532,000	3,264,000	8.94%	54,127	2,185,660,000	271,616,000	12.43%
7/1/2002	53,475	2,212,438,000	269,035,000	12.16%	652	38,792,000	3,479,000	8.97%	54,127	2,251,230,000	272,514,000	12.11%
7/1/2003	53,459	2,277,614,000	269,535,000	11.83%	668	41,153,000	3,704,000	9.00%	54,127	2,318,767,000	273,239,000	11.78%
7/1/2004	53,444	2,344,758,000	269,876,000	11.51%	683	43,572,000	3,937,000	9.04%	54,127	2,388,330,000	273,813,000	11.46%
7/1/2005	53,429	2,413,985,000	270,197,000	11.19%	698	45,995,000	4,169,000	9.06%	54,127	2,459,980,000	274,366,000	11.15%
7/1/2006	53,415	2,485,287,000	270,081,000	10.87%	712	48,492,000	4,418,000	9.11%	54,127	2,533,779,000	274,499,000	10.83%

(1) All results exclude police, fire, and corrections officers.

Appendix E: Assumptions Used for Cost Projections in Appendix D

Investment Return: 8.00%

Salary Scale: 4.00% per year

Withdrawal:

General:

Withdrawal Rates (Male)

Age	Years of Service			
	0-1	1-2	2-3	3+
22	9.65%	10.33%	9.69%	9.21%
27	11.95%	10.89%	8.56%	6.00%
32	12.91%	9.74%	9.08%	5.00%
37	11.96%	8.99%	7.63%	3.86%
42	10.05%	7.75%	7.77%	2.92%
47	9.54%	7.17%	7.69%	2.47%
52	9.90%	7.36%	5.89%	2.08%

Withdrawal Rates (Female)

Age	Years of Service			
	0-1	1-2	2-3	3+
22	15.84%	13.66%	12.79%	8.99%
27	15.50%	14.86%	12.02%	7.20%
32	13.94%	14.36%	10.97%	6.05%
37	12.35%	11.62%	9.27%	4.17%
42	11.54%	11.14%	8.21%	2.93%
47	10.04%	10.36%	6.74%	2.55%
52	10.48%	8.71%	5.70%	2.12%

Teachers*:

Withdrawal Rates (Male)

Age	Years of Service			
	0-1	1-2	2-3	3+
22	13.59%	16.56%	6.40%	4.36%
27	16.89%	12.66%	8.64%	4.32%
32	21.57%	11.22%	10.61%	4.25%
37	25.41%	11.18%	11.11%	4.14%
42	28.73%	13.64%	11.59%	3.65%
47	32.43%	17.40%	11.41%	2.45%
52	37.18%	20.38%	11.14%	1.84%

*Includes K-12 plus university faculty

Withdrawal Rates (Female)				
Age	Years of Service			
	0-1	1-2	2-3	3+
22	12.68%	12.80%	7.71%	7.62%
27	17.53%	12.03%	9.37%	6.53%
32	20.41%	13.97%	11.08%	5.35%
37	19.01%	14.80%	12.68%	3.98%
42	18.79%	14.24%	12.28%	2.63%
47	20.15%	13.62%	12.65%	1.72%
52	23.76%	12.49%	13.81%	1.32%

Disability Incidence:

Disability Incidence		
Age	General Employees	Teachers
22	0.02%	0.01%
27	0.02%	0.01%
32	0.02%	0.01%
37	0.02%	0.01%
42	0.04%	0.02%
47	0.08%	0.04%
52	0.18%	0.09%

Ordinary Disability Percentage:

General: 75%
Teachers: 100%

Mortality:

General: 1983 Group Annuity Mortality Table (without margin) with male ages setback one year.

Teachers: 1983 Group Annuity Mortality Table (with margin) with male ages setback four years.

Disabled Lives Mortality:

General: Ten year set forward

Teachers: Ten year set forward

Retirement Age: Contributory Plan

General:

Retirement Rates		
Age	Males	Females
45-53	3%	1%
54	10%	15%
55	15%	20%
56-60	10%	10%
61	15%	16%
62	35%	35%
63-64	25%	25%
65	40%	50%
66-69	70%	75%
70	100%	100%

Teachers:

Retirement Rates		
Age	Males	Females
50-53	1%	1%
54	10%	5%
55	25%	30%
56-61	15%	20%
62	25%	35%
63-64	20%	25%
65	35%	40%
66-69	65%	70%
70	100%	100%

Retirement Age: Non-Contributory Plan

General:

Retirement Rates		
Age	Males	Females
55	7%	7%
56-59	4%	6%
60	7%	10%
61	10%	15%
62	35%	30%
63-64	20%	15%
65	60%	40%
66-69	80%	70%
70	100%	100%

Teachers:

Retirement Rates		
Age	Males	Females
55	8%	10%
56-61	5%	10%
62	15%	15%
63-64	10%	20%
65	20%	30%
66-69	60%	50%
70	100%	100%

Unused Sick Leave: 11 days per year

Probability of University of Hawaii Faculty Transferring to Optional Retirement Plan:

Years of Service	High Transfer Assumption	Low Transfer Assumption
Less than 5	70%	25%
5 to 10	60%	20%
10 to 15	50%	15%
15 to 20	40%	10%
more than 20	0%	0%

Notes

Chapter 1

1. Teachers' Insurance and Annuity Association College Retirement Equities Fund (TIAA-CREF), *An Optional Retirement Plan for the University of Hawaii*, San Francisco: TIAA-CREF, 1995.

2. Ohio, Legislative Budget Office, *A Study of the Feasibility of Implementing an Alternative Retirement Program for Certain Employees of Ohio's Universities and Colleges*, Columbus, Ohio, December 1994.

3. Illinois, Economic and Fiscal Commission, *The Fiscal Impact of an Optional Retirement Plan (ORP) for Illinois' Higher Education Faculty and Administrators*, Springfield, February 1995.

4. Zorn, Paul, *1995 Survey of State and Local Government Employee Retirement Systems: Survey Report*, Chicago, Public Pension Coordinating Council, 1996.

Chapter 2

1. Ohio, Legislative Budget Office, *A Study of the Feasibility of Implementing an Alternative Retirement Program for Certain Employees of Ohio's Universities and Colleges*, Columbus, Ohio, December 1994, p. 4.

2. Ibid., p. 10.

3. Ibid.

4. Ibid., p. 23.

5. Ibid., p. 18.

Chapter 3

1. Ohio, Legislative Budget Office, *A Study of the Feasibility of Implementing an Alternative Retirement Program for Certain Employees of Ohio's Universities and Colleges*, Columbus, Ohio, December 1994, pp. 8, 9.

2. Hawaii, University of Hawaii, *Resignations of University of Hawaii Employees for the Period July 1994-June 1995*, Honolulu, August 1995, p. 7.

3. Linda K. Johnsrud and Christine D. Atwater, *Barriers to Retention and Tenure at UH-Manoa: The Experiences of Faculty Cohorts 1982-1988*, Honolulu, 1991, pp. i, iii.

4. Ohio, *Study of the Feasibility of Implementing an Alternative Retirement Program for Certain Employees of Ohio's Universities and Colleges*, p. 25.

Responses of the Affected Agencies

Comments on Agency Responses

We transmitted drafts of this report to the Board of Regents of the University of Hawaii, the president of the university, the Department of Budget and Finance, and the Employees' Retirement System on March 5, 1997. A copy of the transmittal letter to the Board of Regents is included as Attachment 1. Similar letters were sent to the other agencies. The Employees' Retirement System's response is included as Attachment 2. The Board of Regents, the president of the university, and the Department of Budget and Finance did not respond to the draft report.

The Employees' Retirement System questions two statements made in our draft report. We revised our final report accordingly. In a letter included with the Employees' Retirement System's response, its actuary, The Segal Company, suggests that the projected contribution requirements in Appendix D of our draft report are understated. The Segal Company also makes recommendations concerning the choices available to current Employees' Retirement System members and to new employees if an optional retirement plan is adopted. Segal's viewpoint can be considered by decision makers along with our report.

We made a few additional editorial changes.

ATTACHMENT 1

STATE OF HAWAII
OFFICE OF THE AUDITOR
465 S. King Street, Room 500
Honolulu, Hawaii 96813-2917

MARION M. HIGA
State Auditor

(808) 587-0800
FAX: (808) 587-0830

March 5, 1997

COPY

Mrs. Lily K. Yao, Chairperson
Board of Regents
University of Hawaii
2444 Dole Street
Honolulu, Hawaii 96822

Dear Mrs. Yao:

Enclosed for your information are three copies, numbered 9 to 11 of our draft report, *Study of the Feasibility of an Optional Retirement Plan for University of Hawaii Faculty*. We ask that you telephone us by Friday, March 7, 1997, on whether or not you intend to comment on our recommendations. If you wish your comments to be included in the report, please submit them no later than Thursday, March 13, 1997.

The University of Hawaii, Employees' Retirement System, Department of Budget and Finance, Governor, and presiding officers of the two houses of the Legislature have also been provided copies of this draft report.

Since this report is not in final form and changes may be made to it, access to the report should be restricted to those assisting you in preparing your response. Public release of the report will be made solely by our office and only after the report is published in its final form.

Sincerely,

Marion M. Higa

Marion M. Higa
State Auditor

Enclosures

ATTACHMENT 2

BENJAMIN J. CAYETANO
GOVERNOR

STATE OF HAWAII
EMPLOYEES' RETIREMENT SYSTEM

March 13, 1997

RECEIVED
MAR 13 2 10 PM '97
OFC. OF THE AUDITOR
STATE OF HAWAII

Ms. Marion Higa
State Auditor
Office of the Auditor
465 S. King Street, Room 500
Honolulu, Hawaii 96813

Dear Ms. Higa:

This is in response to your letter of March 5, 1997, requesting comments, if any, to your draft report, *Study of the Feasibility of an Optional Retirement Plan for University of Hawaii Faculty*:

Page 1, Background: There are actually 58,000 (not 43,000) active state employees that participate in the System.

Page 18, Annual Post Retirement Increases: Please delete the phrase "plus pensioner bonus" for the ERS Noncontributory and ERS Contributory Plans. The pensioner bonuses currently have a June 30, 1997 sunset clause and have been extended incrementally from time to time. The pensioner bonus is not available to active members and should therefore be deleted from the Key Feature exhibit.

We are also enclosing a copy of a letter from the ERS' Actuary, The Segal Company, regarding the study.

Thank you for giving us the opportunity to review and comment on the draft report.

Sincerely,

Stanley Siu

Stanley Siu
Administrator

Enclosure

c: ERS Board of Trustees

City Financial Tower
201 Merchant Street, Suite 1400 • Honolulu, Hawaii 96813-2980
Telephone (808) 586-1660 • Fax (808) 586-1677

THE SEGAL COMPANY

525 Market Street
Suite 3750
San Francisco, California
94105-2745
415-882-4753
FAX: 415-882-4790

March 12, 1997

Theodore J. Shively, A.S.A., M.A.A.A.
Vice President & Associate Actuary

Mr. Stanley Siu, Administrator
State of Hawaii
Employees' Retirement System
201 Merchant Street, Suite 1400
Honolulu, Hawaii 96813-2980

Re: University of Hawaii Optional Retirement Plan

Dear Stanley:

I am responding to your recent request to Mike Kaplan to review the State Auditor's draft Study of the Feasibility of an Optional Retirement Plan for University of Hawaii Faculty (the study). Mike's schedule has precluded him from being able to personally respond by March 12, as you requested, but he has asked me to pass on his and my comments on that study.

Whenever a group of people, such as the University of Hawaii faculty, is given the individual choice of which pension plan they wish to belong to, they will obviously make their decisions based on their own self interests (known as plan anti-selection). This is to be expected and is neither good or bad, but it is something that should be recognized in any analysis of the effects on the competing plans. The portability issue of the Optional Retirement Plan (ORP) tends to make this type of plan desirable by younger people. However, younger people in a defined benefit plan such as the ERS typically incur larger turnover than the older members, which allows employer contributions paid on behalf of the younger members to be applied to the benefits of the remaining members. If the younger members never join the ERS in the first place, possibly because they joined an ORP, employer contributions for those younger members will, instead, be made to the other plans. In such a situation, the ERS will no longer enjoy forfeited employer contributions to spread amongst the remaining members and the employer contribution requirements for the remaining members must increase to cover the deficiencies. As such, the sum of the contributions to the two plans will become larger than the original amount paid to ERS. This is a typical effect of plan anti-selection, i.e., per-capita plan costs increase for the plan that the younger employees shun.

As a result, the projected contribution requirements shown in Appendix D of the study are most likely understated since projected turnover in ERS would tend to decline for the remaining members and their resulting per-capita costs would increase. The Appendix D projections appear to assume that the current turnover assumptions for the members would not be affected.

In an effort to minimize plan anti-selection, we would recommend current ERS members not be allowed to join the ORP and all new employees not be allowed to choose which plan they wish to join. However, if current ERS members are to be allowed the opportunity to join the ORP, they should only be given a one-time, short-duration opportunity to do so.

Once you have had a chance to review this material, please do not hesitate to call should you have any questions or comments.

Sincerely,

Ted Shively

Theodore J. Shively

/vm

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