STUDY OF RETIREMENT PLAN DESIGNS

FOR

THE STATE OF COLORADO

OFFICE OF THE STATE AUDITOR

PURSUANT TO SENATE BILL 01-149

Prepared by
Buck Consultants, Inc.

November 20, 2001

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Members of the Legislative Audit Committee:

This report contains the results of the study of retirement plan designs for Colorado. The study was conducted pursuant to Senate Bill 01-149, which authorized the State Auditor to conduct a comprehensive study of defined benefit and defined contribution retirement plan designs for members of the Colorado Public Employees' Retirement Association. The report presents our findings and conclusions.

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PURPOSE AND SCOPE

This study was conducted by Buck Consultants under contract to the State Auditor in accordance with Senate Bill 01-149, enacted by the General Assembly in 2001. The bill authorized the State Auditor to:

> "conduct a comprehensive study of defined benefit and defined contribution retirement plan designs for state employees and for other employees who are members of the [Colorado Public Employees' Retirement] Association or eligible to be members. The study shall include a comparison of the benefits, cost, and portability of Association benefits with the benefits, cost, and portability of benefits provided by other defined benefit and defined contribution retirement plans for public and private sector employees in Colorado and other states, including Social Security, and a review of the effectiveness of retirement plan designs for attracting and retaining qualified state and school employees. The study shall also include any topics recommended by the [Colorado Public Employees' Retirement Association] Board or by the Legislative Audit Committee for the study."

This report presents the results of our work.

BACKGROUND

The two main types of retirement plans referred to in this report are Defined Benefit (DB) and Defined Contribution (DC). DB plans provide income for retirement based on a formula that is fixed; thus there are "defined benefits." DC plans define the contribution level rather than the retirement income level. The benefit provided in a DC plan is determined by the contributions and investment earnings accumulated in an individual employee's account over the course of his or her career. A variation on the traditional DB plan, a Cash Balance plan calculates benefits in a manner similar to a DC plan. Under a Cash Balance plan, benefits accrue at a steady pace throughout a worker's years of service, and are available to the employee on termination.

The pattern of benefit values over an employee's working career is typically different between DB and DC plans. For example, a DC benefit pattern is generally higher than a DB benefit during an employee's early years but lower during later stages of an employee's career. Some employers offer both types of plans or have hybrid designs that blend features of each plan.

DESCRIPTION OF COLORADO PERA

The Public Employees' Retirement Association (PERA) of Colorado covers State employees, all Colorado school districts except Denver, the State's judicial system, numerous municipalities, special districts, public health departments, and other local government agencies. As of January 1, 2001, PERA's membership included just over 53,000 active state members and nearly 97,000 active school members, as well as about 52,000 current retirees and beneficiaries. PERA was conceptualized as a complete retirement program and still maintains that philosophy today. PERA does not participate in Social Security and therefore is designed and funded with the intent of supplying retirees with the income replacement needed at retirement to sustain the approximate lifestyle the members enjoyed prior to retirement.

The current PERA retirement program is a comprehensive plan that includes the following components:

- The Defined Benefit (DB) plan provides a minimum pension based on employee contributions of 8% of pay, with interest, and employer contributions (currently 8.8% of pay). PERA also provides a cost-of-living increase (currently 3.5% per year).

- The Cash Balance plan (Money Purchase Retirement Benefit) allows members to receive a refund of both employee and some employer contributions, payable in a lump sum, in lieu of a monthly pension.

- The Defined Contribution (DC) plan (MatchMaker) provides an employer match for voluntary member contributions to a DC plan. The matching amount, set annually by the PERA Board, is currently 100% of the member contribution to a maximum of 3% of pay.

- The Health Care Trust Fund subsidizes the medical premium costs of retired members who participate in PERA's health care program. Employer contributions of 1.1% of pay fund the Health Care Trust Fund.

PERA pre-funds pension payments to members. Employee and employer contributions are placed into a trust fund and invested for future growth. The PERA Board sets the investment policy, including the asset allocation. As of December 31, 2000, the majority of PERA's assets are allocated to domestic and international stocks (over 67%) with the remainder being allocated to fixed income, real estate, cash, and alternative investments.

PERA's funded ratio has improved over the last sixteen years, reaching 102% as of December 31, 2000. A funded ratio of 100% or greater indicates a well-funded plan. From 1970 through 1984, PERA's annualized rate of return on investments was 9.31% and from 1985 through 2000 it was 12.49%. These returns have far exceeded the assumed actuarial rate of return during the period, helping to improve PERA's funded status and funding benefit increases.

BENEFITS

We used various approaches to assess the benefits provided by PERA. First, we evaluated the extent to which PERA provides an adequate post-retirement income to members. We found the PERA defined benefit plan generally provides a career employee (one who works for 30 to 35 years and who retires at an unreduced retirement age) with a benefit which permits the employee to retire with total retirement income approximately equal to his or her pre-retirement take-home-pay.

Second, we analyzed PERA's DB benefits relative to a hypothetical DC plan. We concluded that employees who remain in employment until they are eligible for early retirement generally are better off under the current PERA defined benefit plan than they would be under a defined contribution plan. Viewed from this perspective, the PERA defined benefit plan provides greater retirement security than a defined contribution plan having the same employer and employee contribution rates. Employees who terminate before age 50 generally are better off under a defined contribution plan than under the current PERA defined benefit plan.

Third, we compared PERA to other public sector plans. We calculated the present value of benefits payable for Normal Retirement, Early and Vested Retirement (where applicable), Post-retirement Death, and COLAs for an average employee using consistent assumptions. We compared these calculations for PERA with ten other state retirement systems and assigned scores to rank the systems. As the following table shows, PERA ranks second among the comparison states when all benefits are considered.

BENEFIT ANALYSIS FOR COLORADO PERA AND TEN OTHER STATE RETIREMENT SYSTEMS

Rank	State	Benefit Points					Total Points
		Normal	Early	Vested	COLA	Post-Ret Death	
1	New Mexico	88	20	12	14	12	146
2	Colorado(1)	62	16	15	17	10	120
3	Missouri	67	15	8	15	13	118
4	Utah	63	14	8	17	12	114
5	South Dakota	46	14	13	16	12	101
6	Wyoming	47	17	10	14	9	97
7	Nebraska(2)	43	16	19	8	10	96
8	Iowa	45	18	11	15	5	94
9	North Dakota	55	12	6	10	6	89
10	Kansas	50	14	5	10	5	84
11	Minnesota	35	11	5	14	5	70

1 Not participating in Social Security.
2 Defined contribution plan.
Source: Buck Consultants analysis of data provided by PERA and other states.

We also used Buck's Retirement Designer software to compare PERA benefits to a number of other statewide systems that maintain both DB and DC plans or that have made changes recently to implement a DC plan or hybrid. We found that PERA benefits are higher at all age/years of service levels than other DB plans in our comparison. In addition, the income replacement provided by PERA is higher than that provided by the DC only and DB plus DC plans of other states in our comparison.

Fourth, Buck contacted ten large Colorado employers to obtain relevant information on their retirement programs for comparison with PERA. We concluded that PERA has a competitive retirement benefit package due to higher benefits and lower employee contributions. Most private employers provide lesser benefits, particularly because of the trend to reduce benefits and switch from more generous defined benefit plans to less generous defined contribution plans. It is important to note that all private employers are required to participate in Social Security which is funded through employer and employee contributions of 6.2% of payroll each, up to the Social Security wage base. The bottom line is that only one of the ten employers in our comparison provides benefits as high as those provided under the current PERA structure and three provide benefits at only about half the level of PERA. The following table compares PERA with the average private employer.

PERCENT OF REPLACEMENT INCOME PROVIDED				
Replacement Income From:	**PERA Covered Employee**	**Avg. Private Employee with Annual Salary of:**		
		$25,000	**$50,000**	**$75,000**
Social Security	0.0%	23.0%	17.1%	14.0%
DB Plan	75.9%	12.2%	12.4%	13.6%
DC Plan - Employer non-elective	0.0%	2.2%	2.2%	2.2%
Subtotal Non-elective	**75.9%**	**37.4%**	**31.7%**	**29.8%**
DC Plan – Employee Voluntary	13.4%	25.9%	25.9%	25.9%
DC Plan -- Match	13.4%	17.3%	17.3%	17.3%
Subtotal - Voluntary and Match	**26.8%**	**43.2%**	**43.2%**	**43.2%**
Total Replacement Income	**102.7%**	**80.6%**	**74.9%**	**73.0%**
Required Employee Contributions	8.0%	6.2%	6.2%	6.2%
Voluntary Employee Contributions	3.0%	5.8%	5.8%	5.8%
Total Employee Contributions	**11.0%**	**12.0%**	**12.0%**	**12.0%**
Source: Data provided by private companies and PERA. **Assumptions:** Employee is hired today at age 30 and retires at age 62. Compensation increases by an average of 5.5% per year. DC plan investments earn 7.5% per year. Benefit levels do not change.				

COSTS

As described above, we collected information on other state and school retirement plans and analyzed the overall value of PERA relative to other public sector plans when costs and benefits are considered together. We concluded that PERA has the lowest retirement benefit cost of any of the public systems in our comparison. The comparative contribution rates for both employees and employers in other systems include an added 6.2% for Social Security where applicable. Systems like PERA that do not participate in Social Security generally have lower costs due to the efficiency of pre-funding retirement benefits. The following chart shows how PERA contribution rates compare to the average of the other state and school systems we reviewed.

CONTRIBUTION RATES FOR STATE AND SCHOOL RETIREMENT SYSTEMS AS OF 12/31/2000				
State/System	**Social Security Coverage?**	**With Social Security (6.2%)**		
		Employee	**Employer**	**Total**
Colorado State & School	***No***	***8.00%***	***8.80%***	***16.80%***
Average State System	Yes	9.84%	13.53%	23.37%
Average School System	Yes	10.82%	12.78%	23.60%
Source: Buck Consultants analysis of data provided by PERA and other states.				

We also found that PERA scores the highest within our comparison with other public systems for both State and School employees when considering both cost and benefit levels. The relative value of benefits delivered by each public retirement system in our comparison can be measured when considering both costs and benefit levels. To determine a value score, the score for costs and benefits are added together.

Finally, we reviewed the costs of retirement plans offered by private employers. It is difficult to compare the costs of the DB plans offered by private employers because most of them are overfunded and no contributions are currently being made. However, the 2000 Employee Benefits Study recently published by the U.S. Chamber of Commerce surveyed the benefit programs of 532 companies and found the average employer cost for retirement and savings plans was 6.6% of pay. When mandatory Social Security cost of 6.2% of pay (up to the maximum wage base) is added, the average cost of a retirement program in the private sector is over 12% of pay, about 3 percentage points higher than the current employer cost under PERA. When compared to private employers, PERA has a competitive retirement benefit package due to higher benefits and lower employee contributions.

In order for DC plans, which are common to the private sector, to provide the same benefit value as PERA's DB plan for an employee at age 60 after 30 years of service, the DC plans would need to earn a higher investment return or be funded with higher contributions than the PERA DB plan. Hence, it is more expensive for a DC plan to provide a career employee with the same level of retirement benefits as a DB plan with the same investment return, although DC plans are often more valuable for short service employees.

PERA's status as a well-funded plan relates to its investment returns which are the result of investment policy and asset allocation decisions of the PERA Board and its investment managers. We calculated an expected rate of return for PERA of 9.03%, after expenses, and an average rate of return for an average DC plan of 7.52%, after expenses.

PORTABILITY

Portability is an important element of retirement plans, particularly for shorter-term, younger employees who change jobs and want to be able to receive value for the contributions and earnings in their retirement accounts. Portability can be characterized by the following three important features:

- **Vesting** – the years of service required for an employee to be eligible to receive the benefit funded by the employer contribution upon termination of service. Vesting of employer-funded benefits generally occurs earlier in defined contribution plans than in defined benefit plans.

- **Amount** – the value of the benefit the terminating employee is eligible to receive. The benefit amount or value of a traditional final average pay DB plan is generally lower than a DC account balance for younger, shorter service employees but the value of the DB plan benefit almost always exceeds the DC account balance by the time an employee is eligible to retire.

- **Transferability** – the ability to transfer, rollover, or cash-out the value of the retirement benefit upon termination of service. While lump sum cash-outs are available in a limited number of DB plans, virtually all DC plans offer lump sum payments. Transferability is probably the most valued aspect of portability.

Some states are adding portability features to their existing DB plans as an alternative to offering a DC plan. Along with Colorado, South Dakota and Wisconsin added improved refund benefits to their DB plans. This feature, which allows a refund to include either all or a portion of the employer contribution, operates much like a cash balance plan benefit within the existing DB plan. The contribution balances are credited with interest at a defined rate under the plan. When a member terminates or retires, he or she can choose a lump sum refund of the cash balance or a monthly pension.

We found the portability of employee and employer contributions is a substantial strength of PERA. The following is a breakdown of the contributions that are immediately vested and available to PERA members who terminate service prior to reaching retirement age, for members who are and are not making voluntary contributions to a DC plan.

	Contribution Rate		
	Employee	**Employer**	**Total**
No DC Plan Contributions			
Portable DB Contributions	8.0%	4.0%	12.0%
Total Contributions	8.0%	8.8%	16.8%
Portability Rate (Portable Contributions ÷ Total)			71.4%
With DC Plan (MatchMaker) Contributions			
Portable DB Contributions	8.0%	4.0%	12.0%
Portable DC Contributions	3.0%	3.0%	6.0%
Total Portable Contributions	11.0%	7.0%	18.0%
Total Contributions	11.0%	8.8%	19.8%
Portability Rate (Portable Contributions ÷ Total)			90.9%

Source: Buck Consultants analysis of data provided by PERA.

RECRUITMENT AND RETENTION

An important element of our study was to review the effectiveness of retirement plan designs in attracting and retaining qualified state and school employees. In our review of employee attraction and retention research, health insurance was found to be the most important employee benefit, while savings and pension plan benefits were a distant second and third, respectively. These results indicate that employers looking to adjust or improve their benefit packages to meet employee recruitment and retention goals are more likely to achieve their goals by improving health insurance benefits than by enhancing retirement benefits. Of the workers surveyed in the research, only 6% of those covered by a DB plan, and only 5% of those covered by a DC plan, said they have accepted, quit, or changed jobs because of the type of retirement plan offered.

Benefits definitely play a role in attracting and retaining qualified employees but they are not the only factor, nor are they usually the most important factor, in an organization's ability to attract and retain employees.

We do not believe that any changes in the PERA benefit design would significantly improve recruitment and retention. If other evidence is found which demonstrates that a recruitment or retention problem exists, we would recommend that prior to further consideration of changes to

PERA, the State identify if the problem is related to pay issues, work environment issues, or other benefit issues. We also believe that an enhancement in the communication of PERA's strong portability benefits may improve recruitment.

ALTERNATIVES FOR COLORADO

We identified no significant weaknesses in the current structure of PERA since the plan offers a blend of both DB and DC features and a high degree of portability, and compares favorably to other public and private sector plans. Based on our analysis of PERA turnover and the PERA plan design, we do not believe that any significant change in PERA benefit design would improve recruitment and retention. Communication of PERA's strong portability features to potential recruits may need to be enhanced. Unless a major problem arises with the PERA retirement program, we see no compelling reason for significant changes. Therefore, the Legislature is in a favorable position in terms of considering the need for and extent of any changes to PERA. The following four alternatives offer options for consideration, but are dependent on the State's overall goals and objectives. Some of the alternatives are geared toward enhancing benefits for workers who value portability; others toward workers who seek full retirement benefits. It is important to note that the cost estimates for all the alternatives presented are general in nature. PERA's actuary would need to prepare official fiscal analysis on proposals before any alternative plan designs are implemented.

Alternative 1 - Make No Changes**:** Maintain PERA as is with both DB and DC elements, including the gain sharing program as a mechanism to reduce future employer contributions. Benefits and costs would remain unchanged. Under gain sharing, 20% of the ten-year amortization of overfunding, determined as a percentage of pay, reduces the employer contribution rate otherwise payable in the following year. Communication of PERA's MatchMaker and portability benefits should be increased to improve understanding of the portability benefits available to both current employees and in materials available to potential new employees.

Alternative 2 – Add Minor Enhancements**:** Maintain the current PERA DB structure and consider making one or more of the changes described below. The new features suggested in this alternative would not result in a change in the basic public policy with regard to providing retirement income for Colorado public employees since the basic PERA DB plan structure remains unchanged. The changes could be implemented in a time frame of several months with minimal additional costs to PERA.

a) <u>Redesign the DC benefit to help attract younger employees.</u> This change would replace the MatchMaker program with an employer basic contribution to the DC plan for all employees, thereby allocating the MatchMaker contribution more evenly to younger and lower paid employees. The employer basic contribution would be set by the PERA Board each year, with approximately 2.5% of pay available long-term. As a further alternative, the basic contribution could be directed to a flexible benefit plan, giving employees the choice of using the funds to pay for health insurance premiums, or in cash which can be contributed to a DC plan.

b) Enhance portability for younger workers. Any of the following three changes would improve portability which may improve recruitment and retention of younger workers:

- *Increase the employer match on the Cash Balance plan feature from 50% to 75% of the Member Contribution Balance after five years of service.* This would increase the amount employees could receive if they terminate service before retirement, increasing the employer match feature from 50% to 75% of the Employee Contribution Balance after five years of service. This change would reduce the funds available to match contributions to the DC plan from the current maximum of 3% of pay to an estimated 2.4% of pay.

- *Provide a full refund of employer contributions in the Cash Balance benefit after five years of service*. The full employer contribution rate would be allocated to the Cash Balance benefit, thus redirecting most of the additional DB funding to younger members. This change would reduce the funds available to match contributions to the DC plan from the current maximum of 3% of pay to an estimated 1.4% of pay.

- *Index the deferred vested benefit from the DB plan by 3.5% per year*. Cost-of-living adjustments would be applied to the DB retirement benefit equal to a fixed annual increase of 3.5% per year from date of termination to the benefit commencement date. The DB retirement benefit would have a greater value for younger terminated members. This change would reduce the funds available to match contributions to the DC plan from the current maximum of 3% of pay to an estimated 1.3% of pay.

c) Enhance features to retain experienced staff. Adding a Deferred Retirement Option Plan (DROP) provision may help retain older skilled workers by offering lifetime retirement income *plus* a lump sum benefit. DROPs allow a retirement-eligible employee to promise to retire on a date certain in the future. The employee's benefit entitlement is calculated immediately and the monthly benefit amount is paid to an escrow account on the employee's behalf. On the agreed date, the employee retires with the monthly lifetime benefit as calculated when he or she entered the DROP and the DROP account (with accrued interest) is distributed as a lump sum at actual retirement.

Alternative 3 – Enhance Hybrid Features: In addition to the current PERA program, make a combination DB/DC plan available to future PERA members only. This alternative would increase the contribution to the DC plan, most likely resulting in enhanced benefits for employees leaving PERA at younger ages which may increase the perceived value for potential employees. However, the change would also result in smaller benefits for most career employees at retirement. This alternative results in a shift in public policy since it reduces the guaranteed lifetime income provided by PERA and allocates some of the current funding to enhanced DC benefits.

Alternative 3 would be designed to have the same relative costs as the current program when compared to the funding available but the DB plan cost is expected to be 9.0% of pay. This alternative would require that PERA develop a new program for new members that would have a different or reduced benefit structure. This would significantly increase administrative costs. We estimate that Alternative 3 would require up to one year to implement. To maintain cost-neutrality of the plan, no MatchMaker contribution would likely be available to new members who elect the combination DB/DC plan.

***Alternative 4 – Offer a Full DC Plan*:** Add a full DC option plan, giving current and future employees the opportunity to elect out of the PERA guaranteed benefits at retirement, disability, and death in return for exclusive participation in a DC plan. Choice between DB and DC is seen as appealing to new employees. DC plan members could be given an irrevocable choice after five years of service to opt into the DB plan, transferring their DC account balance to the DB plan, thereby gaining credit under the DB plan for past service. An important policy consideration for the General Assembly is that employees who opt for the DC plan under this alternative would have no "safety net" in retirement since they are not covered by Social Security while they are PERA members. Alternative 4 would result in a significant change in public pension policy because employees who elect the DC plan will have no guarantee of adequate retirement income and will bear all the risk for adequacy. The adoption of a defined contribution plan as an option to an existing defined benefit plan may place a burden of responsibility on individuals for their investments both during active work-life and in retirement.

Alternative 4 would introduce a level of uncertainty to the PERA funding requirements and likely increase the cost of the current benefit structure for those remaining in the DB plan due to the choice feature. The additional cost occurs when employees who are given a choice of benefits successfully choose the more valuable benefit. Younger members would tend to elect the DC plan and older members would tend to elect the DB plan. The DB plan benefit cost is higher for older members due to a shorter period between hire date and retirement date required to fund the benefit. The DC plan would be based on the same employee/employer contribution levels and include Health Care Trust Fund participation, but there is the likelihood of higher contribution requirements or a decrease in the funds available for the current DC funding by PERA. The amount of cost increase cannot be accurately predicted until experience develops under any program so offered, although we believe an increase in the DB plan cost of 0.3% of pay is a reasonable estimate. Alternative 4 adds significant administrative and communication complexities to the program. We estimate that 18-36 months would be required for implementation.

PERA RESPONSE

This report has been reviewed by the Public Employees' Retirement Association of Colorado. Their comments concerning this report is attached in Appendix K.

I. PROJECT PURPOSE AND SCOPE

During the 2001 session of the Colorado Legislature, Senate Bill 01-149 was enacted to, among other things, authorize the State Auditor to:

> "conduct a comprehensive study of defined benefit and defined contribution retirement plan designs for state employees and for other employees who are members of the [Colorado Public Employees' Retirement] Association or eligible to be members. The study shall include a comparison of the benefits, cost, and portability of Association benefits with the benefits, cost, and portability of benefits provided by other defined benefit and defined contribution retirement plans for public and private sector employees in Colorado and other states, including Social Security, and a review of the effectiveness of retirement plan designs for attracting and retaining qualified state and school employees. The study shall also include any topics recommended by the [Colorado Public Employees' Retirement Association] Board or by the Legislative Audit Committee for the study."

Buck Consultants has performed the required study under contract with the Office of the State Auditor. The study addresses six primary areas, as follows:

First, a review of the Public Employees' Retirement Association of Colorado (PERA), including the history of its benefit structure, financial condition, and investment performance.

Second, an analysis of the benefit levels offered by PERA compared with those of other public retirement systems and private employers with whom the State of Colorado competes for qualified employees.

Third, a comparison of the costs of PERA relative to the costs of other public and private sector retirement systems.

Fourth, a review of PERA portability features and an analysis of PERA's portability relative to other public and private sector systems.

Fifth, a review of the effectiveness of retirement plan design on the attraction and retention of qualified state and school employees.

Sixth, an analysis of potential alternatives to the current PERA structure which may improve the attraction and retention of qualified state and school employees.

This report presents the results of our work.

II. BACKGROUND

A. General Description of Retirement Plan Types

As part of our study, we researched and compared the different types of retirement plan designs utilized in the public and private sectors. A description of the types of retirement plans, including hybrids, referred to in this report follows:

- **Defined Benefit (DB).** DB plans provide income for retirement based on a formula that is fixed; thus there are "defined benefits." The benefit available at retirement is defined by a formula. The formula is calculated as a percent of a worker's salary, usually the level earned shortly before retirement, called Highest Average Salary or HAS. Although some state systems have a percent-of-salary multiplier that slides or increases with the number of years worked, many, like Colorado, have a flat multiplier applied to all years of participating service. Many DB plans also provide enhanced benefits upon pre-retirement death or disability, and some provide annual cost-of-living adjustments (COLAs) to the pension payment. Types of defined benefit plans include final pay plans, career average plans and various "hybrid plans". Hybrid plans combine the features of DB and DC plans.

  Defined Benefit plans in the public sector are usually funded under one of two common approaches:

  a. Variable contributions – contributions are adjusted periodically (often annually) to reflect the actual experience of the plan and to finance benefit improvements based on the funding policy of the plan. Better-than-projected investment performance reduces the required contribution.

  b. Fixed contributions – contributions are fixed as a percentage of payroll for both the employee and employer and are not adjusted for experience variations or benefit changes. Benefit improvements (if any) must be financed by favorable experience and adequate margins must be maintained to hedge against unfavorable experience.

- **Defined Contribution (DC).** DC plans define the contribution level rather than the retirement income level. The benefit provided in a DC plan is determined by the contributions and investment earnings accumulated in an individual employee's account over the course of the employee's career. The employee and employer make fixed or "defined contributions" to the plan. Unlike in a DB plan, in a DC plan the employer contribution rate does not "float." Since there is no guarantee of a defined benefit, there is no actuarial necessity for the employer contribution rate to vary. Once the money is in an employee's DC account, typically the employee selects investments from a menu of options determined by the plan sponsor (employer), the plan's investment board, or the trustee. At retirement, the employee receives both the employer and employee contributions plus earnings. The level of benefits is not known until retirement and is not guaranteed. Depending on the plan, the distribution from the employee's account can be in the form of a single lump sum distribution, periodic payments, or the purchase of an annuity.

Under most DC plans, an employee who terminates employment prior to retirement may take all or part of the employer contributions as well as his or her own contributions, and accumulated earnings. How much of the employer's share the employee is entitled to take depends on the plan's vesting schedule. In the private sector, the most widely used type of DC plans are governed by section 401(k) of the Internal Revenue Code. In contrast to a DB plan, in a DC plan good investment performance increases the benefit to the employee. Types of defined contribution plans include 401(k), 401(a) money purchase, 403(b) and 457 plans.

- **Cash Balance.** Cash Balance plans are a variation on the traditional DB plan, with DC account balance and "take it with you" components. A Cash Balance plan calculates benefits in a manner similar to a DC plan. Under a Cash Balance plan, benefits are accrued at a steady pace throughout a worker's years of employment (a career-average arrangement). Workers who leave their jobs after a relatively short time will benefit more from a Cash Balance plan, because the accrued benefits they cash in and take with them are larger than those in a final pay DB plan. Long service workers lose with an all-out conversion to this type of plan, because the portion of their pension accrued in their final years is smaller than it would have been under a traditional DB plan, and thus their overall pension is smaller. In addition, Cash Balance plans do not provide early retirement subsidies as is common in final pay DB plans. Cash Balance plans have recently experienced considerable publicity. Many large corporate plans have switched or are planning to switch their traditional final pay DB pension plans to this new structure because they are less expensive.

- **Combination Defined Benefit/Defined Contribution.** Some governmental pension plans have responded to the pressure for conversion to DC by adding DC components to their DB plans – for example, by creating "two plans" with the same amount of funding. In the State of Washington, the employee contribution now goes to a DC plan, with the employee directing his or her investments in a range of mutual funds, while the employer contribution continues to fund a (reduced) DB plan. Ohio Teachers has recently provided a combination DB/DC plan as a choice for its members.

B. COMPARISON OF DEFINED BENEFIT AND DEFINED CONTRIBUTION PLANS

There are pros and cons of both defined benefit and defined contribution plans. The types of employees who generally benefit most under each type of plan may be summarized as shown in the following table.

Defined Benefit Plans	Defined Contributions Plans
• Career employees • Employees with substantial pay increases over a career • Married employees • Employees with long life expectancy • Employees who die or become disabled early in their career • Employees who retire early • Employees hired mid-career	• Employees who terminate employment at a young age • Employees with modest pay increases over a career • Single employees • Employees with short life expectancy • Employees who achieve a higher rate of investment return, through personal investment selection • Employees hired at very young ages

The pattern of benefit values over an employee's working career is typically different between DB and DC plans. Under a traditional DB plan that provides a pension based on final average pay at retirement, the benefit value escalates substantially as the employee nears retirement age. This increase is caused by the compounded effect of increasing salary and service, a shortening of the discount period to expected retirement age, the increasing probability that the employee will reach retirement eligibility, and the value of subsidized early retirement benefits that become available upon reaching specific age and service requirements. Under a DC plan, the benefit value, referred to as the account balance, typically grows as contributions are deposited and investment earnings are credited. For most plans, the result is a DC benefit pattern that is higher than the DB benefit during an employee's early years. Then the benefit value switches to favor the DB plan in the later stages of an employee's career. Also, most DB plans provide pre-retirement death benefits to surviving spouses of deceased active employees, thereby shifting benefit costs from single to married employees. In addition to the comparison of benefit values, cost considerations also impact an employer. The employer assumes the risk under a DB plan, while employees assume the risk under a DC plan.

C. Corporate vs. Public Plans

Until the mid-1980s, retirement design was limited to two basic forms: defined benefit (DB) and defined contribution (DC) plans. Historically, large private employers have offered both a defined benefit plan and a defined contribution plan. Newer companies, including many high-tech companies, rarely sponsor a DB plan and will offer a DC plan and other forms of compensation like stock options to employees. Small employers are less likely to have any retirement plan to cover employees other than Social Security.

The private pension system has seen a shift from DB plans to DC plans over the last twenty years. According to the U.S. Department of Labor, the percentage of private wage and salary workers participating in a primary DB plan decreased from 38% in 1977 to 22% in 1996. During that same period, the percentage participating in a primary DC plan increased from 7% to 23%, and the percentage of those participating in supplemental DC plans gradually increased from 10% to 16%. Three reasons are frequently given for this shift in the private sector, as described below:

- A shift in the workforce. Recent surveys suggest that companies that have switched from a DB plan to a DC plan have done so to match plan characteristics to worker characteristics. A younger and more mobile workforce is thought not to appreciate traditional DB retirement plans. For the same reason, some companies have converted their DB plans to Cash Balance plans.

- The business environment. Increased competition, reorganizations, restructuring, mergers, and a focus on increasing profits has led to increased utilization of DC plans by private employers. Businesses need to be leaner and meaner to compete in a global economy. This has led companies to align their retirement plans with employee performance and company profits. Profit sharing contributions are common in corporate DC plans as is requiring employer contributions to be invested in company stock.

- DB plan requirements under ERISA and various tax law changes that have complicated DB plan administration. These include complex determinations of minimum contributions required to maintain funding adequacy, determination and payment of Pension Benefit Guarantee Corporation premiums, and the maximum contributions for which a company can claim a tax deduction.

Several national employers have added a choice feature to their pension programs in recent years. The simplest change is to offer current employees a one-time choice, with all new employees participating in the defined contribution plan. The more sophisticated alternative is to give employees a choice of earning a defined benefit, a defined contribution, or a combination of both, and to give such choice periodically (e.g., annually or every five years). Offering a choice helps employers attract employees who prefer defined contribution plans as well as those who prefer defined benefit plans. In addition, providing a choice can ameliorate the employee relations issue of reducing costs by cutting back on defined benefit plans.

Public employers have historically emphasized defined benefit programs and many of the reasons for the shift to DC plans in the private sector do not affect public employers. Specifically, many of the tax laws and ERISA do not apply to public plans, making them easier to administer and fund. The business environment is also much different. Employees in the private sector have Social Security as a safety net, unlike members of Colorado PERA and other statewide systems who are not covered by Social Security. However, over the last ten years, many public plans have begun adding defined contribution plan and hybrid features into their retirement systems, as discussed in the next section.

D. Trend to Incorporate DC Elements in Public Plans

Over the last ten years, many public retirement systems like Colorado PERA have been adding DC plan elements to their retirement systems to meet portability and recruitment needs as well as to reduce government costs. The first significant move to a DC plan occurred in 1991 when West Virginia closed its DB plan to newly hired teachers and created a DC plan. Members of the DB plan were allowed to opt into the DC plan. West Virginia moved to a DC plan because of a large unfunded liability in the DB plan. State statutes limited the ability of the plan to invest in equities and as a result, the plan had suffered from poor investment performance. Since the DB plan was closed, West Virginia has opened two “windows” to let some of the DC plan members opt back into the DB plan. The first window was opened in 1996 because many of the DB plan members who opted for the DC plan indicated they did not understand the option when they made the election, so they sought a second chance to correct their mistakes. The current window was opened to allow rehired employees who had been in the DB plan before the change to get back into the DB plan. They had been required to join the DC plan when they were rehired. The current window is still open and many of these DC members are opting to rejoin the DB plan.

Arizona (1999), Utah (2000), North Dakota (1999), Montana (1999), and Colorado (1992) began offering DC plans to small groups of employees to enhance portability. Also, the creation of term limits for elected officials led to DC plan coverage for legislative staff. Many employees don’t think they will have a long career with the same employer, so they assume a DC plan will provide a better benefit. This has led to offering DC as an option to a broader group of employees. Montana, Ohio Teachers, and Florida have recently adopted a choice between a full DC plan benefit and the traditional DB plan.

In 1992, some Colorado University systems and higher education institutions pushed for Optional Retirement Plans (ORPs) to help attract professors from other states where a DC plan is the only retirement plan. Currently, DC plans are common in the higher education arena, where employees are often covered by optional retirement (DC) programs administered by TIAA-CREF and other fund managers. DC plan arrangements such as 403(b) Tax Sheltered Annuities and 457 Deferred Compensation plans are often available to school district and other governmental employees, respectively, but only on a voluntary basis to provide supplemental income after retirement.

III. DESCRIPTION OF COLORADO PERA

In general, the current PERA program is a hybrid design that utilizes a traditional final average pay DB plan benefit, a cash balance refund feature within the DB plan, and a DC plan that includes employer contributions in a matching arrangement to employee contributions. In this section of our report, we discuss in more detail the features of the PERA retirement system.

A. OVERVIEW

PERA of Colorado was established in 1931, by the Colorado General Assembly and is administered under Title 24, Article 51, of the Colorado Revised Statutes. Initially, PERA covered only State employees, but has expanded through the years to include all Colorado school districts except Denver, the State's judicial system, numerous municipalities, special districts, public health departments and other local government agencies. A 16-member Board of Trustees governs PERA; 14 are elected by the membership. The State Auditor and State Treasurer serve as ex-officio members. For funding purposes, PERA is divided into three divisions – State and School, Municipal, and Judicial. The Municipal and Judicial divisions are small, unique divisions, representing about 7.5% of all PERA members. Because the state and school members make up over 90% of PERA membership, this study focuses on the State and School Division only.

PERA was conceptualized as a complete retirement program and still maintains that philosophy today. PERA does not participate in Social Security and therefore is designed and funded with the intent of supplying retirees with the income replacement needed at retirement to sustain the approximate lifestyle the member enjoyed prior to retirement. In addition to retirement benefits, the PERA plan provides disability benefits in the event of a disabling accident or illness, and spouse and survivor benefits in the case of the death of a member. PERA also provides voluntary programs such as life insurance, health care, a 401(k) plan, and long-term care insurance.

PERA's policy goals are to:

- Help satisfy primary retirement needs by providing certainty of financial payments to retirees and beneficiaries;

- Protect against the financial erosion of retirement payments caused by inflation;

- Maintain flexibility and choices in the benefit program to help meet the retirement needs of the different groups participating in PERA; and

- Provide benefit programs which are competitive with those available from top 30 public and private funds and Social Security.

B. PERA BENEFITS

The current PERA retirement program is a comprehensive benefit plan that includes a defined benefit (DB) pension plan, a voluntary defined contribution (DC) savings plan with matching employer contributions, a cash balance refund feature in lieu of pension payments, and a post-retirement medical plan with a subsidy funded through the Health Care Trust Fund. Please refer to Appendix A for a detailed summary of PERA benefits. The benefit features are summarized as follows:

Defined Benefit Features

The basic PERA retirement benefits are based on a set or "defined" formula. Currently, the benefit is based on a 2.5% multiplier for years of service and a three-year highest average salary structure. Also, legislation passed in 2000 now allows PERA members who are eligible for retirement to convert accumulated sick leave into salary. This converted salary is counted for purposes of PERA contributions and benefits the same as the member's regular earned salary. The sick leave conversion provision sunsets July 1, 2005 and also has other conditions; the member must have been hired before July 1, 1988, have earned in excess of 360 hours of sick leave, and must convert the sick leave prior to retiring.

The PERA benefit is designed to be payable at age 65, however, if certain criteria are met, a member may receive an unreduced or reduced PERA retirement benefit prior to age 65. By meeting age and service requirements, members can retire at earlier ages with benefits payable immediately at the time of retirement. A reduced retirement benefit is available at age 50 with 25 years of service credit. The benefit is calculated similarly to a service retirement benefit; however, it is reduced by percentages that vary from 0.25 to 0.5, depending on age and years of service, for each month before the eligible date for the full service retirement. In 2000, a modified Rule of 80 retirement was established for members retiring at ages 55 through 65. This translates to no reduction for early retirement if the member's age plus service equals 80 or more (five years of service required).

Service Credit is earned while working for a PERA-affiliated employer and paying PERA contributions. Service is granted in monthly increments. The member must earn at least $412 in a month to get full credit for that month. A member gets partial service credit for earnings less than $412 in a month. A member may also increase service credit by reinstating service credit that was forfeited when the member withdrew a previous PERA contribution account or by purchasing service credit for periods of employment not covered by PERA or another pension plan. Purchasing service credit is allowed for any public or private sector employment performed in the United States and its territories provided the employment is verifiable and the person is not vested in another pension plan (excluding Social Security and military service). Members hired on or after January 1, 1999 are limited in their purchase of PERA service credit for private-sector employment to a maximum of five years. The purchase cannot be made until the new member has completed five years of PERA service.

In addition to retirement benefits, the PERA plan also provides protection from loss of income due to disability, with no premium charge to the member. PERA has a two-tier disability benefit to provide temporary benefits to vested members who become disabled, but are able to do other work where retraining, rehabilitation, and recovery is possible. The two tiers are made up of a short-term disability (STD) insurance provided by Standard Insurance Company and a long-term disability retirement benefit provided by PERA. Depending on the severity and nature of the disability (short or long term), a disabled member will receive either a monthly benefit from Standard or from PERA.

PERA was one of the first state-run systems to provide inflation protection. While almost every public system provides some inflation protection, PERA's is better than most. Effective March of 2001, the cost of living adjustment was set at an annual fixed rate of 3.5%.

Hybrid Features

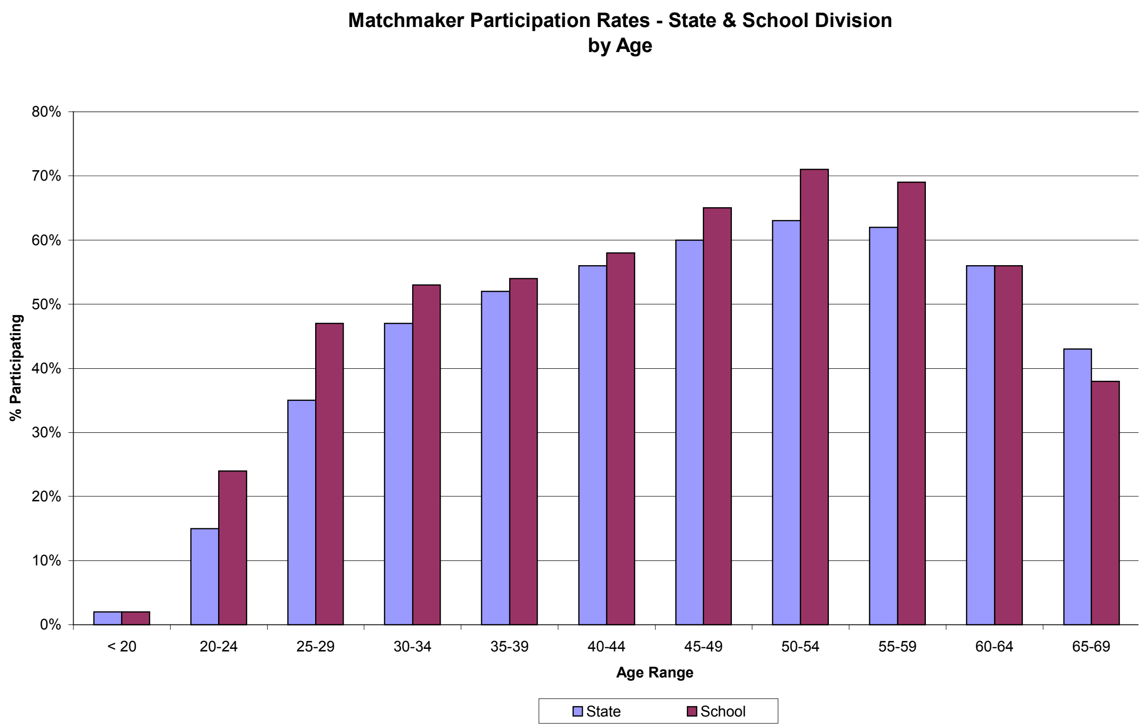
PERA has expanded from a system that offered only a DB type benefit to one that incorporates defined contribution elements. Today, PERA is referred to as a hybrid (DB/DC) program. Hybrid features include the following:

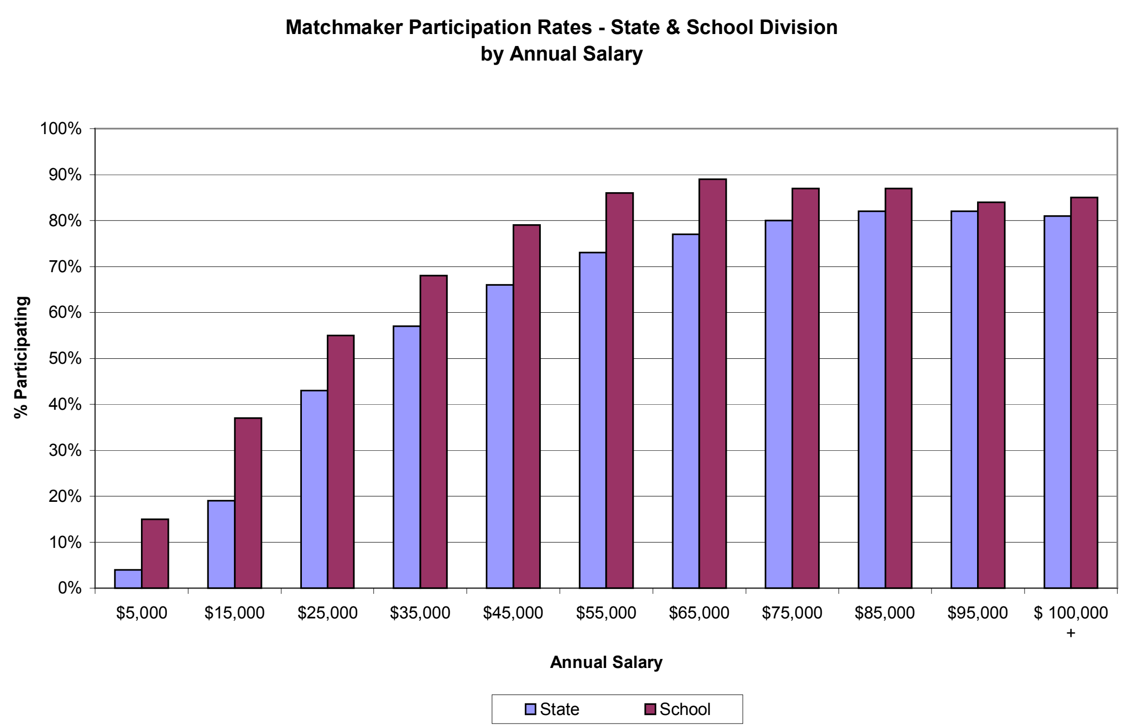
Interest on Employee Contributions: PERA began granting interest to the employee contribution account balance in 1991. Beginning in 1995, the annual rate of interest credited on employee contributions was set at 7.0%.

Money Purchase Retirement Benefit: In 1995 the General Assembly established the Cash Balance features known as the Money Purchase Retirement Benefit and matching employer contributions. Since 1995, the employee contribution account balance is taken into consideration for purposes of calculating the member's termination and retirement benefits. In addition to the employee contribution, a matching employer contribution piece is added to the employee balance prior to conversion to a monthly annuity. This monthly annuity, called the Money Purchase Retirement Benefit, is viewed as a minimum to the formula driven benefit. The matching contribution level is 50% (100% if eligible for retirement at termination).

MatchMaker: This program, established in 1999, provides an employer matching contribution for members' voluntary contributions to 401(k), 403(b) or 457 tax-deferred defined contribution plans. The match is funded from the employer contributions normally sent to PERA. The initial amount available for matching contributions is equal to 2% of salary, plus half of the amount expected to reduce any over-funding of PERA over 10 years. Each year the amount available for the match is determined by PERA and the maximum amount to be matched is set. There will be no dollars available for the match in the event PERA falls out of its current fully-funded status. For 2001 and 2002, the match is set at 100% of the member contribution to a DC plan, up to a maximum of 3% of pay.

Currently, not all PERA members participate in the MatchMaker program. The following graphs show that older, higher-paid employees participate more than younger, lower-paid employees. This suggests that the MatchMaker program may not be perceived as an advantageous benefit by younger employees or potential employees.


Matchmaker Participation Rates - State & School Division
by Age
% Participating
80%
70%
60%
50%
40%
30%
20%
10%
0%
< 20
20-24
25-29
30-34
35-39
40-44
45-49
50-54
55-59
60-64
65-69
Age Range
State
School


Matchmaker Participation Rates - State & School Division
by Annual Salary
% Participating
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
$5,000
$15,000
$25,000
$35,000
$45,000
$55,000
$65,000
$75,000
$85,000
$95,000
$ 100,000 +
Annual Salary
State
School

Health Care Trust Fund

Established in 1985, this fund provides a premium subsidy for health care to PERA benefit recipients who are eligible and choose to enroll in PERA's Health Care Program. The Health Care Fund is advance funded with contributions being set by state statutes equal to a percentage of member salaries. The current contribution rate is 1.1% of member salaries. The Colorado General Assembly approves the health care subsidy amount, which is provided monthly. The subsidy has been increasing over time with new legislation, from $87 per month in 1986 to a maximum of $230 per month, effective July 1, 2000 for pre-Medicare benefit recipients with 20 or more years of service. There is also a smaller subsidy available for recipients with less than 20 years of service.

Additional changes were made to the Health Care Fund in 1999. The Health Care Fund was converted to a Trust and the contribution rate was increased from 0.8% to 1.1% of pay. In 2001, an additional allocation to the Health Care Trust Fund began equal to 30% of the 10-year amortization of the overfunding of the PERA Pension Fund. This year's allocation equaled 0.32% of member salaries, bringing the total employer contribution for 2001 to 1.42% of member salaries.

C. PERA CONTRIBUTIONS

Beginning in 1991, membership in PERA was required by law for most employees (those not exempt due to Federal Law) of PERA-affiliated employers. PERA benefits are funded by employee and employer contributions stated as a percentage of pay. Current employer contribution rates are as follows:

PERA EMPLOYER CONTRIBUTION RATES AS OF JULY 1, 2001			
Division	**Pension Fund**	**Health Care Trust Fund**	**Total**
State & School	8.8%	1.1%	9.9%
Municipal	8.3%	1.1%	9.4%
Judicial	10.7%	1.1%	11.8%
Source: Data provided by PERA.			

The employer contribution rates have decreased in recent years, dropping from 11.4% to 10.4% of salary on July 1, 2000 and by another 0.5%, to 9.9% of salary for State and School employers, beginning July 1, 2001. The current PERA employee contribution rate for the State and School Division is 8% of salary paid or deducted on a monthly basis.

D. PERA MEMBER DEMOGRAPHICS

The following table shows the State and School Division membership as of December 2000. We did not include membership counts for the Municipal and Judicial Divisions since these are small and have very unique characteristics. As such, our study focused on the State and School Division of PERA.

Membership Counts as of December 31, 2000

	State	School	Total
Active Members			
Not including State Troopers	52,269	96,990	149,259
State Troopers	736	N/A	736
Active Subtotal	53,005	96,990	149,995
Retirees & Beneficiaries			52,241
Terminated Vested Members Eligible for Future Payments*			8,689
Terminated Nonvested Members Eligible for Contribution Refunds*			69,323
Total			280,248

Source: Data provided by PERA.

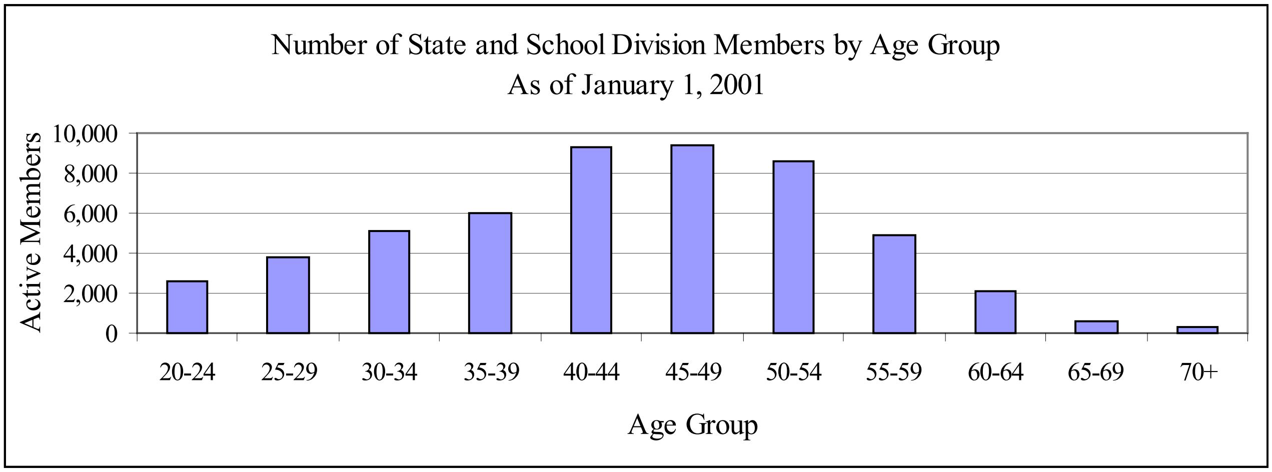
*Members who have terminated with at least five years of service are vested and eligible to receive either a monthly pension at retirement age or a cash refund benefit. Nonvested members who did not meet the five-year vesting requirement are only eligible to receive a cash refund.

For purposes of this study, PERA supplied Buck Consultants with active member data for the State and School Division. This allowed us to analyze the population and run cost estimates for the alternative design plans discussed later in the report. The table below shows active member demographics.

Active Membership Demographics as of December 31, 2000

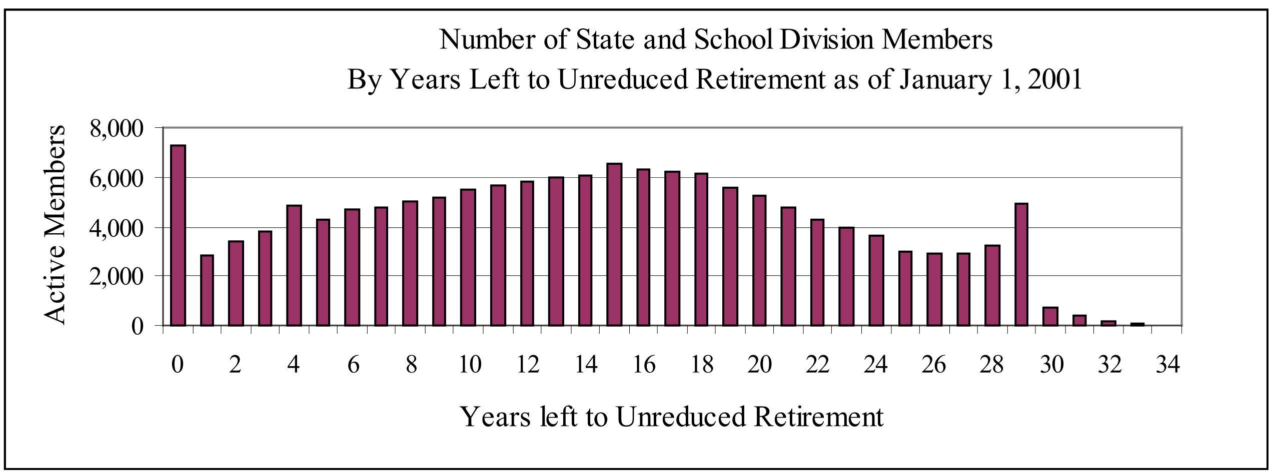
	State	School	Total
Active Members			
Number Counts	53,005	96,990	149,995
Covered Payroll	$ 1,903,415,176	$ 2,657,717,718	$ 4,561,132,894
Average Pay	$ 35,910	$ 27,402	$ 30,409
Average Age	43.8	43.3	43.7
Average Service	8.2	7.8	8.0
Average Entry Age	35.6	35.5	35.7

The graph below illustrates the distribution of the number of active employees by five-year age ranges as of January 1, 2001. The graph shows that the majority of employees are between the ages of 40 and 55.



Source: Data provided by PERA.

The graph below illustrates the distribution as of January 1, 2001, of the number of active employees by the number of years remaining until unreduced retirement. The graph shows many members have already reached retirement age (shown with 0 time left) and are currently eligible for an unreduced retirement benefit. The next largest distribution occurs for active members with 15 years left to unreduced retirement age. The distributions show a slight skewness to the left toward retirement. At least half of all active members of the State and School division are within 14 years of reaching unreduced retirement age.



Source: Data provided by PERA.

IV. BENEFITS

In this chapter we discuss the various approaches we used to assess the benefits provided by PERA. First, we review the extent to which PERA provides the income needed to members at retirement to allow them to maintain their standard of living. Second, we analyze PERA's DB benefits relative to a hypothetical DC plan. Third, we compare PERA to other public sector plans. This includes both a general review as well as a detailed examination of PERA versus other states that have both DB and DC components. Finally, we compare PERA to the retirement plans offered by ten private employers in Colorado. We conclude that:

- The PERA defined benefit plan generally provides a career employee (one who works for 30 to 35 years and who retires at an unreduced retirement age) with a benefit which permits the employee to retire with total retirement income approximately equal to his or her pre-retirement take-home-pay.

- Employees who remain in employment until they are eligible for early retirement generally are better off under the current PERA defined benefit plan than they would be under a defined contribution plan. Employees who terminate before age 50 generally are better off under a defined contribution plan than under the current PERA defined benefit plan.

- The PERA defined benefit plan generally provides greater benefits and more retirement security to career PERA members who remain in the System until early retirement age or later than do other public and private retirement systems included in our comparisons.

A. ADEQUACY OF THE PENSION BENEFIT

We evaluated the benefit adequacy for PERA members at different wage levels by determining the total income needed to maintain their standard of living in the first year of retirement. It should be noted that annual increases for inflation beyond the first year of retirement are needed to keep a retiree at the same standard of living. PERA provides inflation protection to retirees with a 3.5% annual COLA.

The following assumptions should be noted:

1. PERA members will contribute 3% of pay as voluntary employee savings (on a pre-tax basis) at all wage levels to receive MatchMaker contributions. We have used the 3% in order to compare PERA to what is available in other programs. However, because only about 52% of state employees and 58% of school employees are participating in the newly established MatchMaker program, we have shown MatchMaker figures separately. Other academic studies of replacement income provided typically assume a higher rate of savings higher than 3%.

2. Retirement will occur before age 65. This earlier retirement age results in a longer period of time for which retirement benefits are payable.

3. Taxpayer status is single both before and after retirement to eliminate the subjectivity of determining income from a working spouse.

4. Inflation, as measured by the Consumer Price Index, decreases the purchasing power of the retiree after retirement when benefits are not adjusted to recognize the rate of inflation.

Appendix B shows an example of how the income replacement need was determined.

COLORADO PERA – STATE & SCHOOL DIVISION*
RETIREMENT INCOME NEEDS

Before Retirement							After Retirement		
Gross Income From Employment (1)	Deductions from Gross Income: Social Security (2)	Deductions from Gross Income: Federal and State Income Taxes (3)	Deductions from Gross Income: Required DB Contribution (4)a	Deductions from Gross Income: Voluntary DC Contribution (MatchMaker) (4)b	Disposable Income 100% - (2) – (3) – (4)a – (4)b (5)	Net Change in Expenditures (6)	Net After Tax Post Retirement Income Replacement Required (5) + (6) (7)	Post Retirement Federal and State Income Taxes (8)	Before Tax Income Required at Retirement (7) + (8) (9)
$20,000	1.45%	7.6%	8.0%	3.0%	80.0%	2.3%	82.3%	7.7%	90.0%
25,000	1.45	9.2	8.0	3.0	78.4	1.6	80.0	9.3	89.3
30,000	1.45	10.6	8.0	3.0	77.0	1.2	78.2	10.6	88.8
40,000	1.45	11.6	8.0	3.0	76.0	0.6	76.6	12.0	88.6
50,000	1.45	14.0	8.0	3.0	73.6	0.3	73.9	14.5	88.4
60,000	1.45	15.6	8.0	3.0	72.0	0.1	72.1	16.2	88.3
70,000	1.45	16.8	8.0	3.0	70.8	(0.1)	70.7	17.3	88.0
80,000	1.45	17.6	8.0	3.0	70.0	(0.2)	69.8	18.2	88.0
90,000	1.45	18.3	8.0	3.0	69.3	(0.3)	69.0	18.9	87.9

Notes:
(1) Income – Income from employment only.
(2) Social Security Taxes – 2001 tax rates for Medicare only.
(3) Pre-Retirement Federal and State Taxes – single tax payer, earnings from employment only, standard deduction or 15% income if greater, 2001 Federal tax rates and Colorado State income tax rates.
(4) Pre-Retirement Contributions – 8.0% of income payable to the retirement Plan pn a pre-tax basis. Other savings also pre-tax.
(6) Net Change in Expenditures – Based on data from the Consumer Expenditure Survey of the U.S. Department of Labor Bureau of Labor Statistics for working and retired population as reported by the Center for Risk Management and Insurance Research of Georgia State University, adjusted for estimated changes in the cost of medical insurance.
(8) Post-Retirement Federal and State Taxes – Single taxpayer, not eligible for primary Social Security benefits, standard deduction or 15% of pre-retirement income if greater, income from taxable retirement income only, 2001 federal income tax rates, and Colorado State income tax rates.

Source: Analysis prepared by Buck Consultants.

*Excludes State Troopers who are contributing to PERA at a 10% rate of pay.

IV. BENEFITS

The results of our calculations indicate that total gross income replacement at retirement of between 87% and 90% of salary is generally required for PERA members to maintain their standard of living. In addition, the average annual salary for career employees at or close to retirement age for each system based on December 31, 2000 salaries and resulting income replacement needs are as follows:

Division	Average Salary	Income Replacement Need
State	$ 50,000	88%
School	$ 40,000	89%

The PERA defined benefit plan generally provides a career employee (one who works for 30 to 35 years and who retires at an unreduced retirement age) with a benefit of 71% to 83% of pre-retirement income. This is approximately equal to his or her pre-retirement net take-home-pay. How much income replacement PERA provides to employees at various ages and service years can be seen in the following table.

Age/ Years of Service	Income Replacement Provided by PERA		
	PERA DB	MatchMaker	Total
30/0	0%	0%	0%
35/5	5	2	7
40/10	11	4	15
45/15	16	6	22
50/20	31	9	40
55/25	59	14	73
60/30	71	20	91
65/35	83	30	113

Source: Buck analysis of data provided by PERA.

B. VALUE TO MEMBERS

Another way to evaluate PERA benefits is to compare the value of the PERA defined benefit to an accumulation of the employee and employer contributions as if they had been invested in an individual defined contribution account. We used actual historical returns of PERA to calculate the accumulation under a hypothetical DC plan. (It should be noted, however, that actual DC plan investment returns are dependent on investment decisions made by each individual DC plan member, and would likely have been lower on average than PERA's return.) For this comparison:

- Members were considered to be age 30, 35, 40, 45, 50, 55 and 60 with corresponding service based on a hire age of 30.

- Only the DB benefits and contributions were used for comparison with the DC value. Contributions to the Health Care Trust Fund and MatchMaker were not included in the value of either the DB benefit or the DC benefit. This was done to allow a direct comparison of the value of DB benefits to the contributions being made to fund those benefits.

- The DC plan single sum benefit value was converted to a lifetime annuity for comparison purposes, using an annuity purchase rate of 6.25%.

The comparison shows that the DC plan benefit value is higher for accrued benefits earned before age 50 while the DB plan benefit was more valuable at retirement. The ratios of the DB benefit value to the DC benefits are shown below.

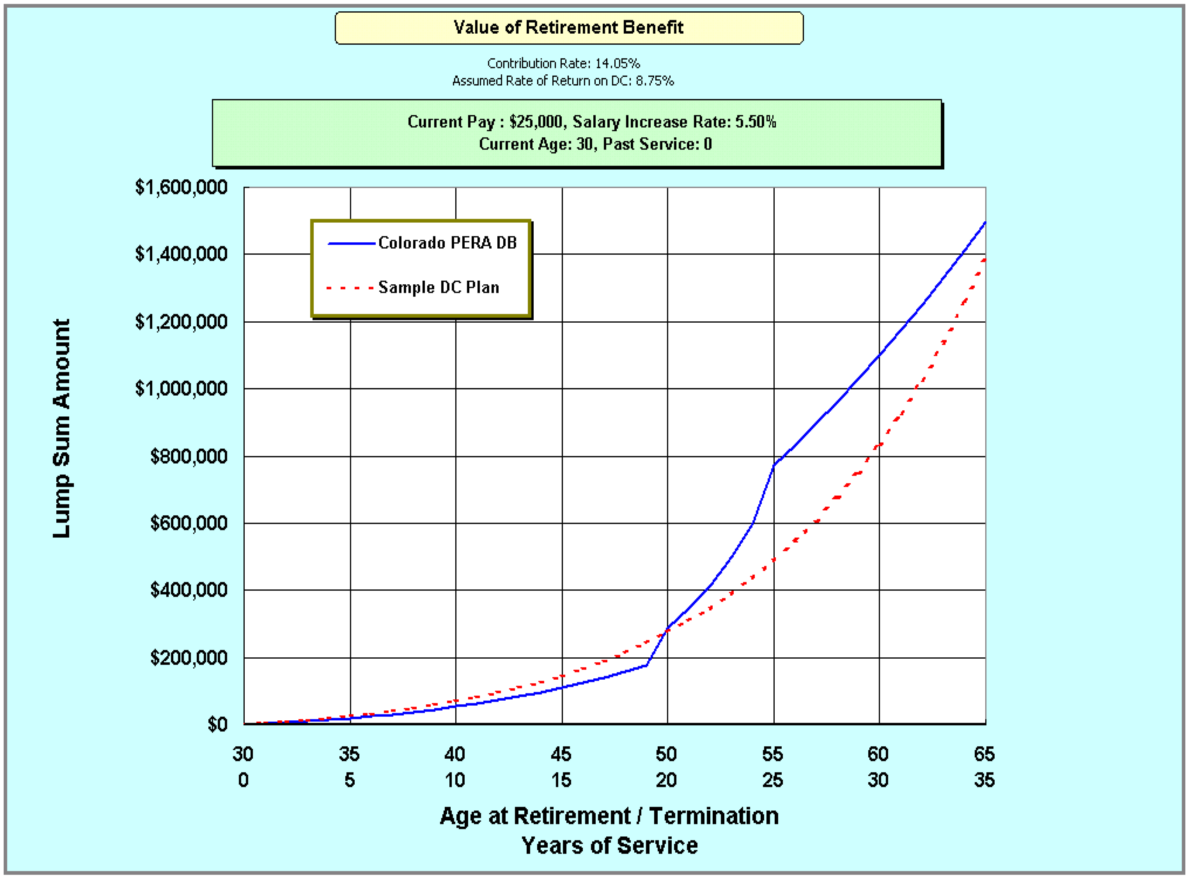
COMPARISON OF BENEFIT VALUE BETWEEN PERA DB BENEFIT AND HYPOTHETICAL DC PLAN

	Sample Member		Ratio of DB Value to DC Value
	Age	Service	
DC account balance	30	0	N/A
converted to an annuity	35	5	69.8%
at 6.25% annuity	40	10	62.7%
purchase rate	45	15	57.6%
	50	20	92.6%
	55	25	125.3%
	60	30	101.8%

Source: Analysis conducted by Buck Consultants.

In general, our research shows that employees who remain in employment until they are eligible for early retirement generally are better off under the current PERA defined benefit plan than they would be under a defined contribution plan.

To further illustrate this difference, we have computed the benefit value for PERA's defined benefit plan and for a sample defined contribution plan assuming the same contribution level and the same investment return of 8.75% annually (the rate assumed by PERA's actuary). The same rate of return of 8.75% was used for both the DB and DC plans to illustrate the difference in benefit accrual patterns only. We have assumed a level contribution of 14.05% of pay. This matches the total employee/employer contribution funding (using the statutory maximum employer contribution rate of 10.15%) for the PERA DB plan after allocations to the Health Care Trust Fund and the DC plan MatchMaker. The following graph shows the benefit value in the form of a lump sum during the first 20 years of service for a new employee hired at age 30 and earning $25,000 per year.



The graph illustrates the greater DC plan benefit value until the DB plan value takes over at 20 years of service (age 50) and how the DB plan benefit value increases thereafter. The contributions to the DB plan accumulate at the same rate as the DC plan, but employees who terminate in the first twenty years of service forfeit a portion of the employer contribution. These forfeitures accumulate and help fund the increased benefit value for career employees who retire with a pension under the DB plan.

In order for the DC plan to provide the same benefit value as the DB plan for this employee at age 60 after 30 years of service, the DC plan would need to earn a higher investment return or be funded with higher contributions. Hence, it is more expensive for a DC plan to provide a career employee with the same level of retirement benefits as a DB plan with the same investment return. In practice, the benefit value provided in a DC plan will vary from employee to employee based on their own investment decisions and investment experience. The retirement needs may also vary, creating an environment where it is difficult to predict when employees will retire. The uncertainty of the benefit level under a DC plan creates an unpredictable retirement pattern.

This analysis only considered the different benefit accrual pattern of DB and DC plans. For an analysis of the impact of varying investment return rates, see the comparison with other systems in the next section.

C. COMPARISON OF PERA TO OTHER PUBLIC PLANS

The third element of our assessment of PERA benefits is a comparison of PERA to other public sector retirement plans. This section includes two types of comparisons. First, we gathered and reviewed data on the retirement systems of ten states contiguous to Colorado and in the North Central Plains region to compare the overall benefits provided by the plans. Second, we compared PERA's income replacement capabilities with other states that have both DB and DC components in their retirement plans, or that have recently made changes to add DC features.

General Comparison of PERA Benefits With Other States

Based on our analysis in this section, we found that the PERA defined benefit plan generally provides greater benefits and more retirement security to career PERA members who remain in the System until early retirement age or later than do the other systems. Our conclusion is the result of an evaluation of the overall structure of Colorado PERA in comparison to other similar public retirement systems. We analyzed the major benefit features of each system in addition to the Normal Retirement Benefit. The ten states included in our comparison are:

- Iowa
- Kansas
- Minnesota
- Missouri
- Nebraska
- New Mexico
- North Dakota
- South Dakota
- Utah
- Wyoming

Summaries of the major benefit provisions of PERA and these other states' plans can be found in Appendix C. We note that the analysis is complex and relies on assumptions regarding salary, income, inflation, mortality and investment returns. Buck's Retirement Designer software has the ability to model various scenarios depending on the State's needs.

We calculated the present value of benefits payable under each system for Normal Retirement, Early and Vested Retirement (where applicable), Post-retirement Death benefits (the value of refunds and annuities payable upon the death of a retired member), and COLAs for an average employee using consistent assumptions as follows:

- Salary increases: 5.5% per year.
- Inflation: 3.5% per year.
- Mortality: 1994 Group Annuity Mortality (50% male, 50% female)
- Investment Return: 8.0% per year

Normal Retirement benefits were determined at the earliest unreduced age considering 30 years of service. The economic assumptions used are consistent with the actuarial assumptions used by the majority of plans included in the comparison.

Each system was then scored for each major benefit provided and for post-retirement survivor benefits and cost-of-living features. Benefits provided under each system were ranked on a scale of 0 to 10 using the survey data. A score of 5 represents the median benefit value and deviations from the median were scored above and below 5 based on the ratio of each benefit value to the median. For example, a score of 6 represents a value 20% above the median. Scores for the benefit practices of all systems included in the survey were weighted as follows:

	Weight
Normal Retirement Benefit	10
Early Retirement Benefit	3
Vested Retirement Benefit	2
COLA	3
Post-Retirement Death Benefit	2

These weightings approximate an expected value of each benefit provided.

The value of Social Security benefits, where available, were included in the calculations of Normal, Early, and COLA retirement benefits. Voluntary retirement contributions were not considered in these totals.

An example of the ranking methodology follows:

Benefit	Score	Weighting	Points based on Weighted Score* (Score x Weighting)
Normal	4.4	10	44
Early	5.2	3	16
Vested	8.6	2	17
COLA	3.1	3	9
Post-Retirement Death	5.5	2	11
Total Points			97

*Rounded to the nearest point.

A median score for each benefit would have produced a total of 100 points. The total scores were tabulated and each system was ranked highest to lowest in total points. The ranking of PERA's State and School Division with practices of other states surveyed is shown in the following two tables.

BENEFIT ANALYSIS FOR COLORADO PERA AND TEN OTHER STATE RETIREMENT SYSTEMS

Rank	State	Benefit Points					Total Points
		Normal	Early	Vested	COLA	Post-Ret Death	
1	New Mexico	88	20	12	14	12	146
2	Colorado[(1)]	62	16	15	17	10	120
3	Missouri	67	15	8	15	13	118
4	Utah	63	14	8	17	12	114
5	South Dakota	46	14	13	16	12	101
6	Wyoming	47	17	10	14	9	97
7	Nebraska[(2)]	43	16	19	8	10	96
8	Iowa	45	18	11	15	5	94
9	North Dakota	55	12	6	10	6	89
10	Kansas	50	14	5	10	5	84
11	Minnesota	35	11	5	14	5	70

[1] Not participating in Social Security.
[2] Defined contribution plan.
Source: Buck Consultants analysis of data provided by PERA and other states.

BENEFIT ANALYSIS FOR COLORADO PERA AND TWELVE OTHER SCHOOL /TEACHER RETIREMENT SYSTEMS

Rank	State	Benefit Points					Total Points
		Normal	Early	Vested	COLA	Post-Ret Death	
1	New Mexico	61	22	13	13	11	120
2	Colorado[(1)]	54	17	15	18	7	111
3	Missouri[(1)]	54	11	10	16	20	111
4	Denver Public Schools [(1)]	54	15	13	16	7	105
5	Utah	56	15	8	18	8	105
6	Nebraska	48	15	7	15	18	103
7	Omaha Public Schools	49	17	10	12	14	102
8	Wyoming	52	17	10	14	8	101
9	South Dakota	40	15	13	16	16	100
10	North Dakota	48	13	6	10	18	95
11	Iowa	39	19	11	15	3	87
12	Kansas	44	15	5	10	3	77
13	Minnesota	27	13	6	14	3	63

[1] Not participating in Social Security.
Source: Buck Consultants analysis of data provided by PERA and other states.

The tables show that:

1. Colorado PERA for both state and school members ranks above the median for Normal and Early retirement benefits. PERA's above average rankings for these benefits are in large part driven by the full benefit replacement available without reduction before age 62. This is the age when Social Security benefits are available under many of the other systems. Even though these other systems provide subsidized early retirement benefits, the fact that they are supplemental to Social Security dilutes the value of their subsidized early benefits (for purposes of comparison).

2. PERA is above the median for Vested, and COLA benefits. PERA's refund feature that provides a matching contribution in addition to employee contributions upon termination results in vested benefits well above the median for both State and School members.

3. PERA's automatic 3.5% per year COLA feature, when combined with full benefit replacement before age 62, places the COLA feature well above the median for both State and School members.

4. The Post-Retirement Death benefit is at median for state members and slightly below median for school members. The overall result is an above median ranking.

Comparison of PERA Benefits to Other Statewide Systems With DC Plans or Components

In addition to ranking PERA benefits relative to other statewide systems, we have used Buck's Retirement Designer software to compare PERA benefits to a number of other statewide systems that maintain both DB and DC plans or that have made changes recently to implement a DC plan or hybrid. This software enables us to compare PERA's benefit structure to the benefit structure of up to eight other systems. Multiple benefits from DB and DC plans, as well as Social Security can be included. Benefits can be compared in a variety of ways, including lump sum amount, annuity amount, and annuity as a percent of final salary. Comparisons of plan benefits can be made for hypothetical or actual employees.

Statewide systems considered include:

- Nebraska - School DB plan and State DC plan
- Ohio Teachers - DB plan and DC plan
- Washington Teachers - DB plan (PERS2) and DB/DC plan (PERS3)
- South Dakota
- Wisconsin
- Michigan

Appendix D contains descriptions of these other state plans.

When comparing DC plan benefits to DB plan benefits, account balances were converted to annuities using the following actuarial assumptions:

- 1994 Group Annuity Mortality Table with a 50% male, 50% female blend.

- DC plan investment return
  - Average investor – 7.5% per year
  - Above average investor – 9.0% per year
  - Below average investor – 6.0% per year

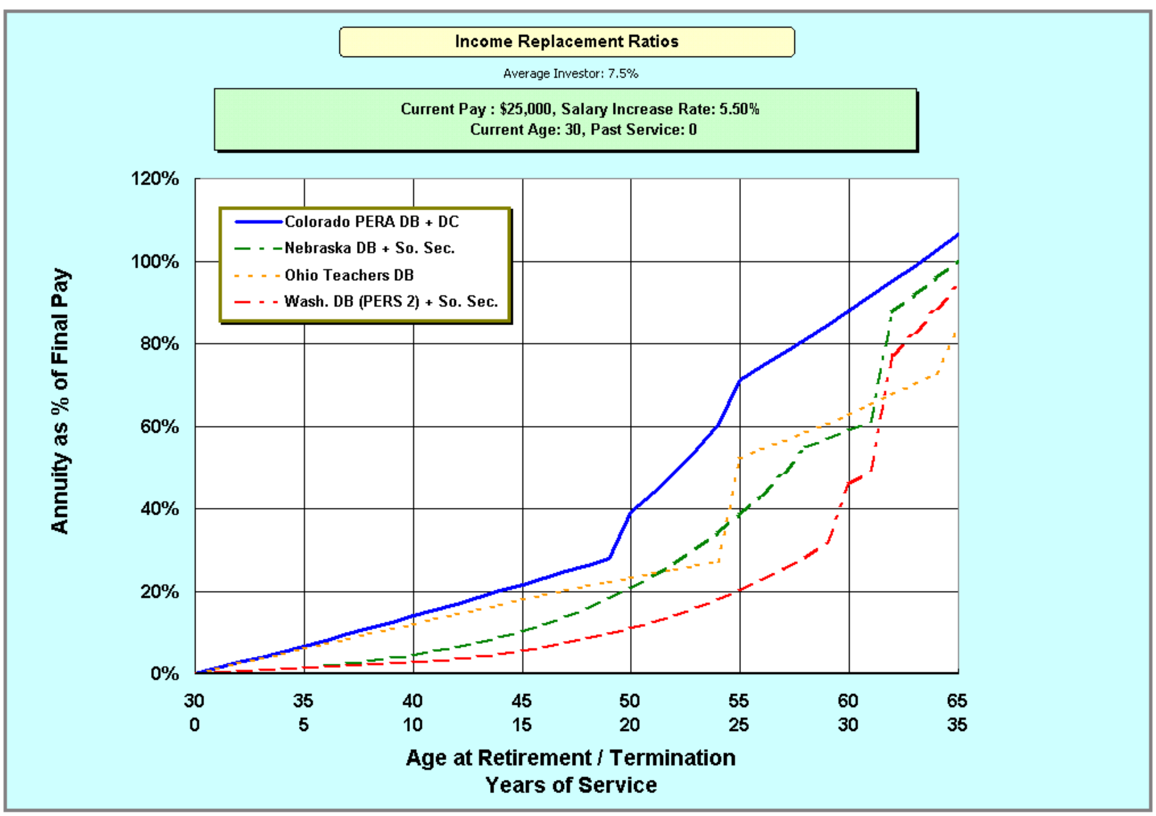
The investment return assumptions are consistent with long-term expectations for DC plan investors and PERA return expectations as discussed in Section V.E.

The graphs on pages 33 through 37 consider benefits accruing under Colorado PERA's DB plan plus a DC employer MatchMaker assuming 3% employee contributions are made to a DC plan. This level was included because:

- 3% is the level which generates a MatchMaker contribution
- Many other statewide systems have contribution rates in excess of PERA's 8%, particularly when considering Social Security
- Some other systems also have voluntary employee contributions

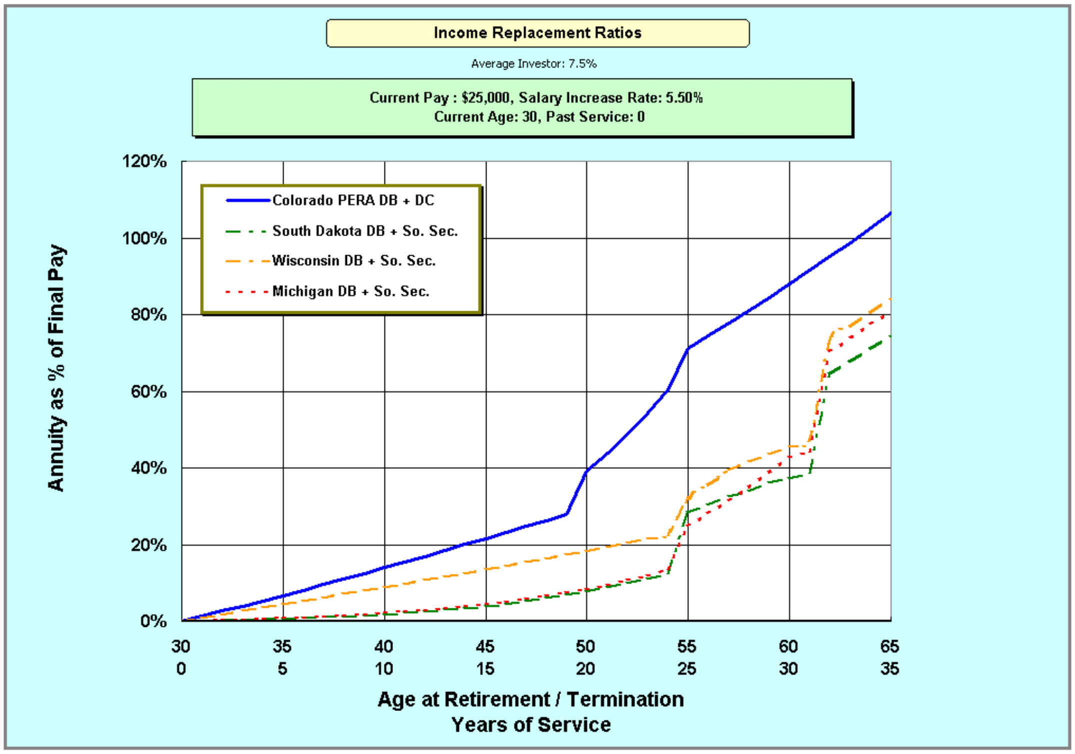
The accumulating benefit value is shown for a sample employee hired at age 30 earning a starting annual salary of $25,000, with salary increasing at 5.5% per year. The salary increase assumption is consistent with the salary increases assumed by PERA's actuary.

The first and second graphs show that PERA benefits are higher at all age/years of service levels than other DB plans in our comparison. The first graph compares the income replacement ratios for PERA with the ratios provided by the Nebraska DB plan (with Social Security), the Ohio Teachers' DB plan, and the State of Washington DB plan (with Social Security). The graph assumes an average investor, earning a 7.5% annual rate of return.

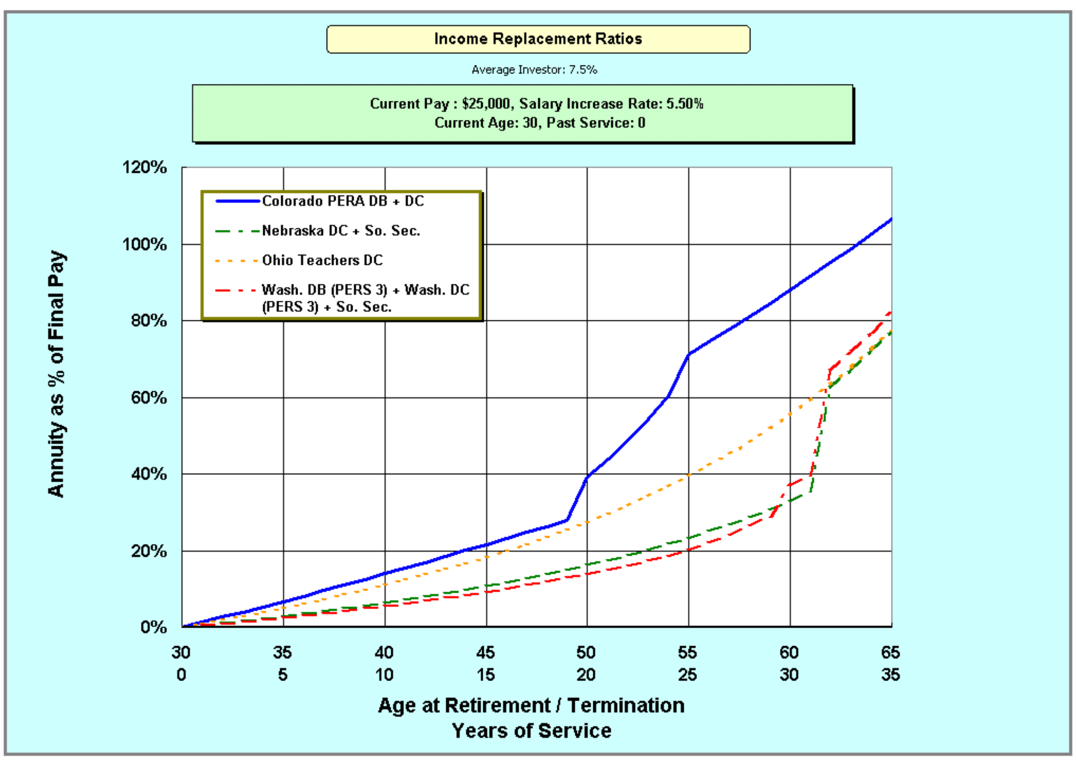


IV. BENEFITS

The second graph compares the income replacement ratios for PERA with the ratios for the South Dakota, Wisconsin, and Michigan DB plans (all with Social Security). This graph also assumes a 7.5% investment return.

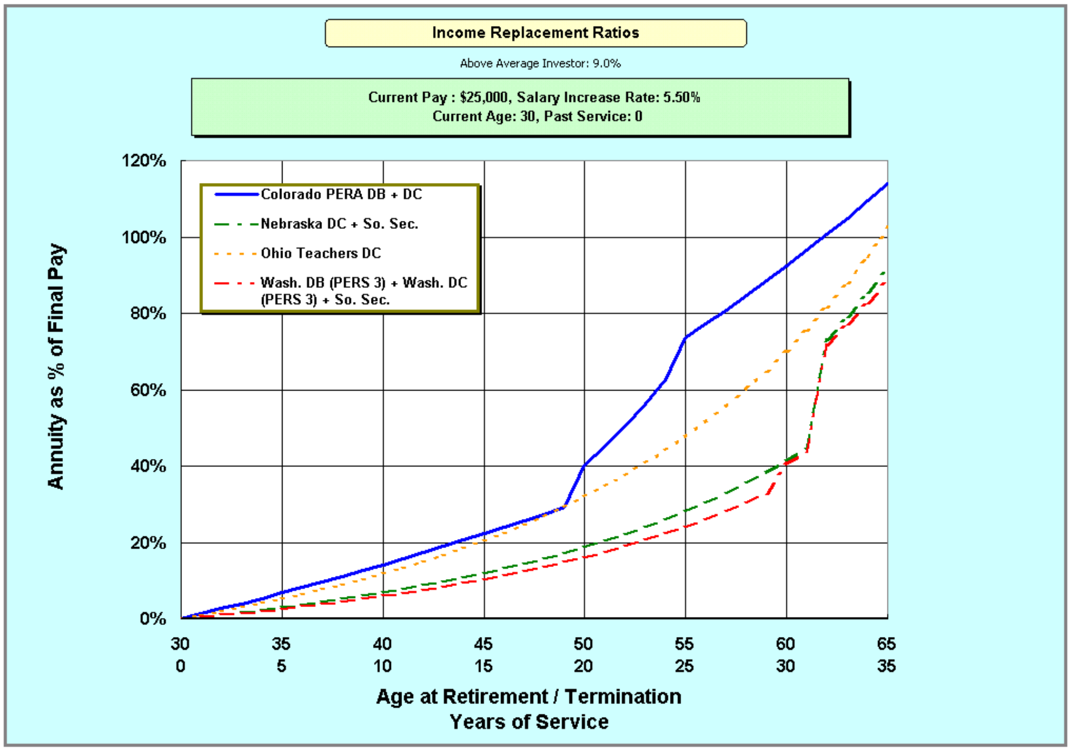


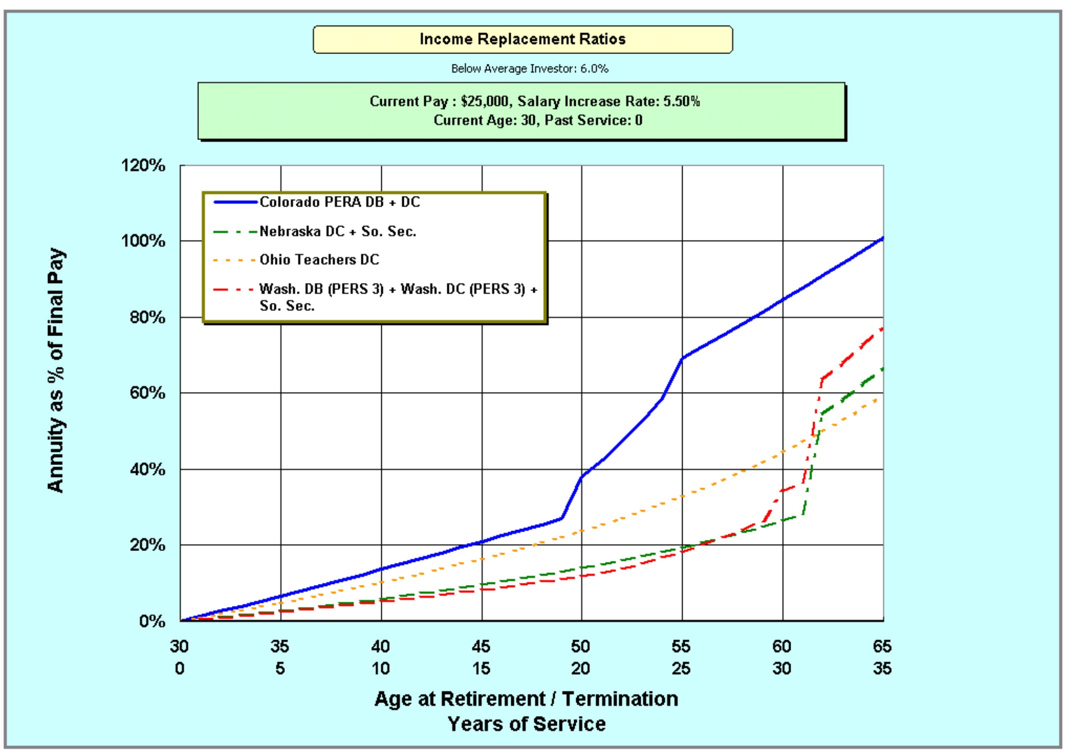
The next graph compares Colorado PERA to DC plans in three other states assuming a 7.5% annual DC plan return is experienced by an average investor. Colorado PERA benefits again are higher at all age/years of service levels.



IV. BENEFITS

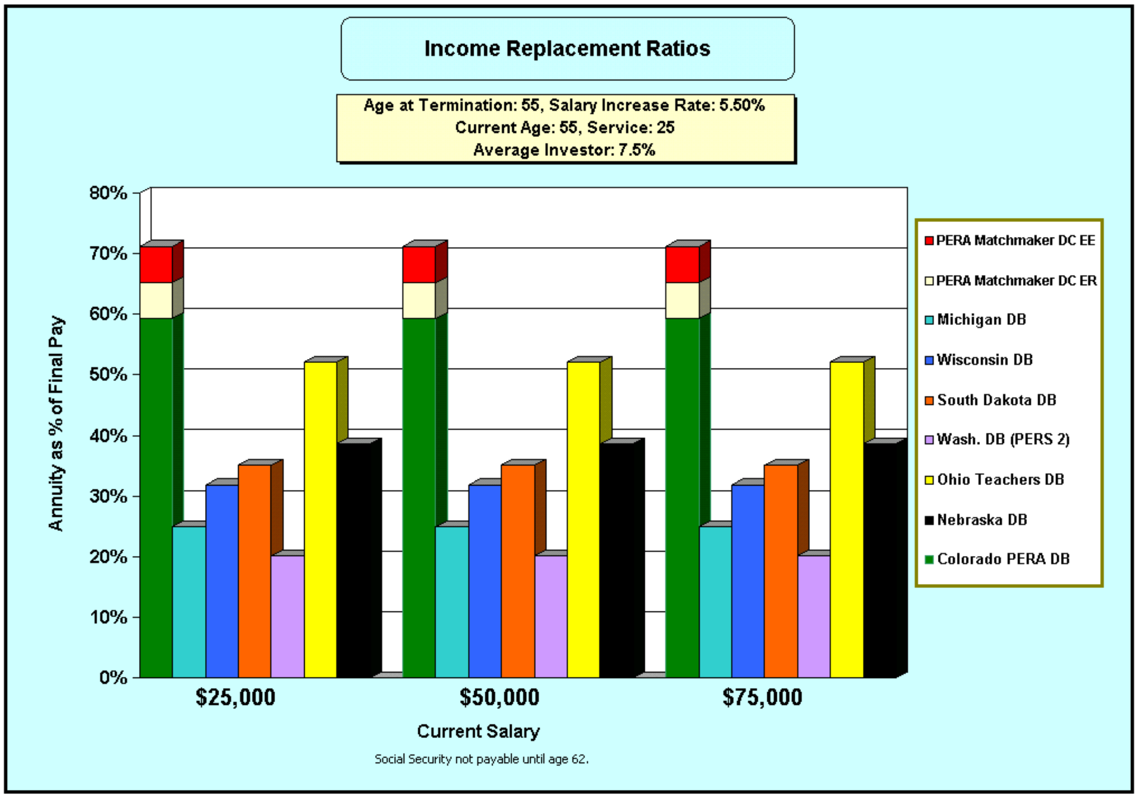
The next two graphs compare Colorado PERA to other State DC plans for an above average investor earning a 9.0% annual return, and a below average investor earning 6.0% annual return. Colorado PERA still provides higher benefits under both scenarios due to its hybrid features.

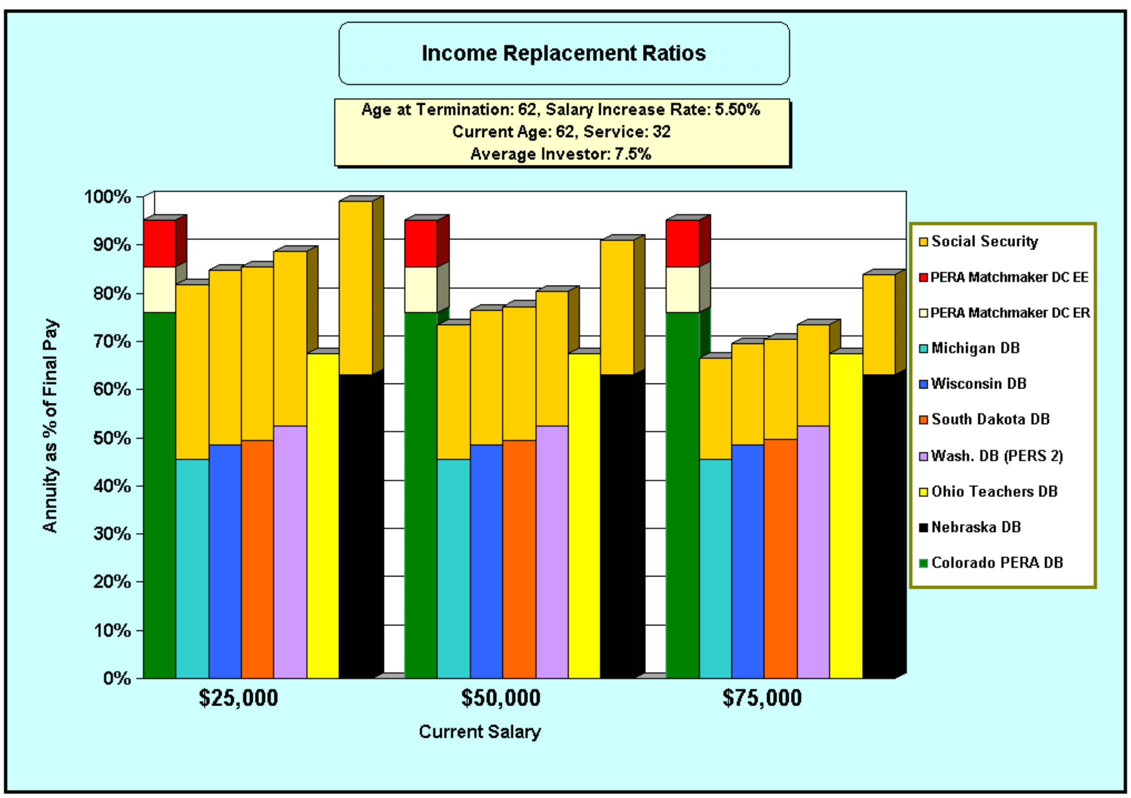




IV. BENEFITS

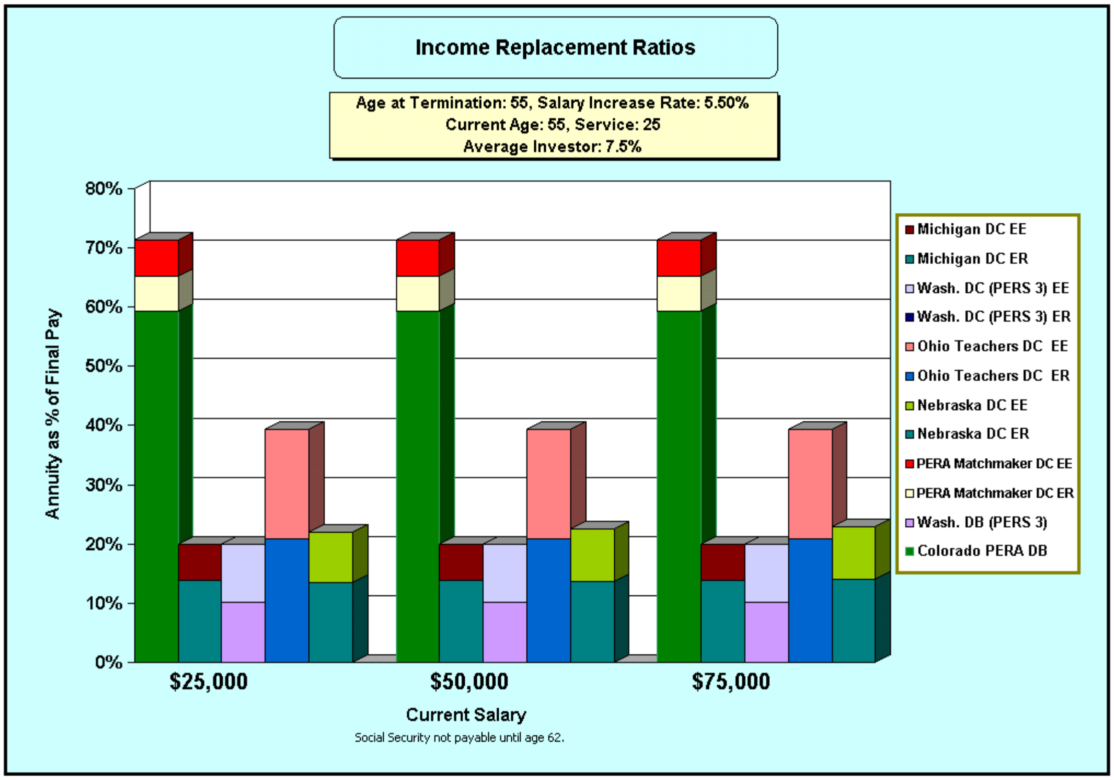
The next two graphs show the income replacement rate for Colorado PERA when compared to other State DB plans for a retiree age 55 and the impact of Social Security when the retiree is age 62. These graphs illustrate the strength of PERA's early retirement feature.

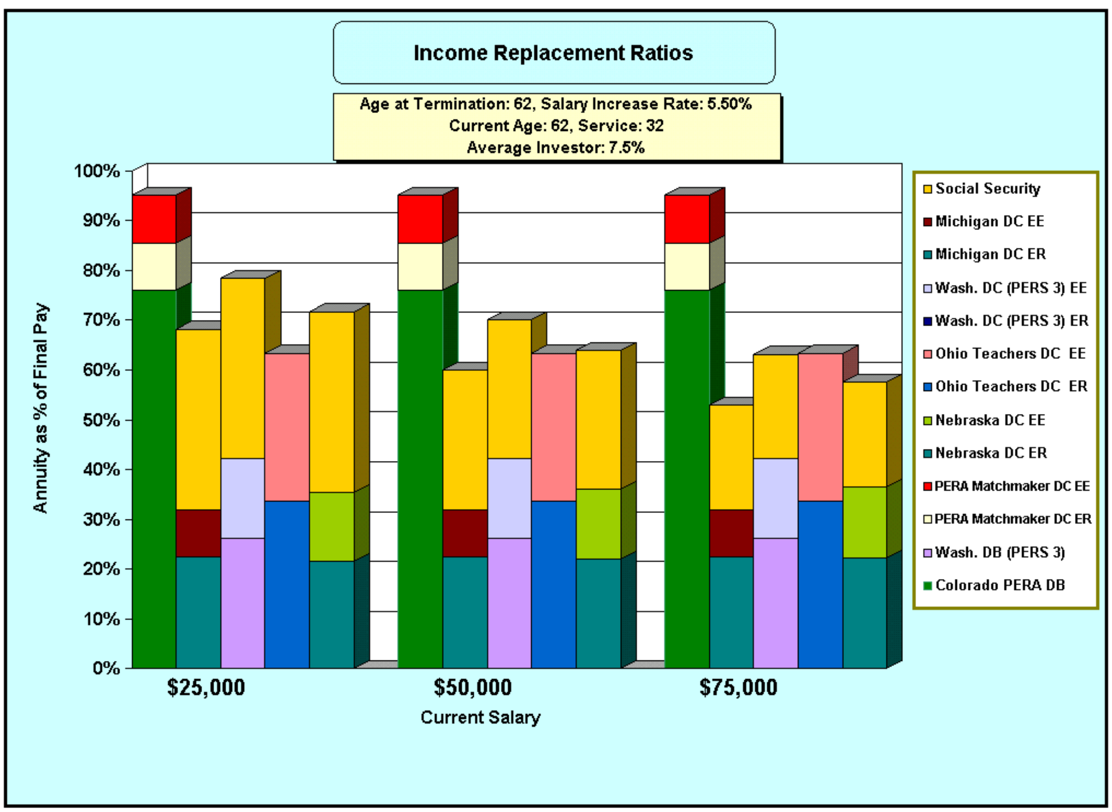




IV. BENEFITS

The last two graphs show the income replacement rate for Colorado PERA when compared to other State DC plans for a retiree age 55 and the impact of Social Security when the retiree is age 62.





D. COMPARISON OF PERA TO PRIVATE SECTOR PLANS

Buck contacted ten large Colorado employers to obtain relevant information on their retirement programs for non-union employees (non-union plans were used because they cover the same type of employees covered under PERA):

- AT&T Broadband
- Ball Corporation
- Coors Brewing Company
- Coors Tek
- First Data Corporation
- Gates Rubber Company
- Great West
- Johns Manville
- Qwest Communications
- Storage Tek

The companies used for the comparison are referred to as "Company A" through "Company J" in the following discussion.

It is important to note that all private employers are required to participate in Social Security. This is funded through employer and employee contributions of 6.2% of payroll, up to the Social Security wage base ($80,400 in 2001). As the private pension plan graphs on pages 40 and 41 show, Social Security benefits provide 23% income replacement for lower income workers and 14% for higher income workers at age 62. The trend toward defined contribution plans is supported in part because private sector workers have this "safety net" of Social Security. Public sector employers who do not participate in Social Security do not have this "safety net". Consequently, a defined benefit "safety net" is more important for such public sector employees.

Overall, we found that the average private employer in our comparison matches 72% of employee contributions up to 5.8% of pay. Five of the ten employers sponsor ongoing defined benefit pension programs. Only one of the ten employers provides benefits comparable to PERA.

IV. BENEFITS

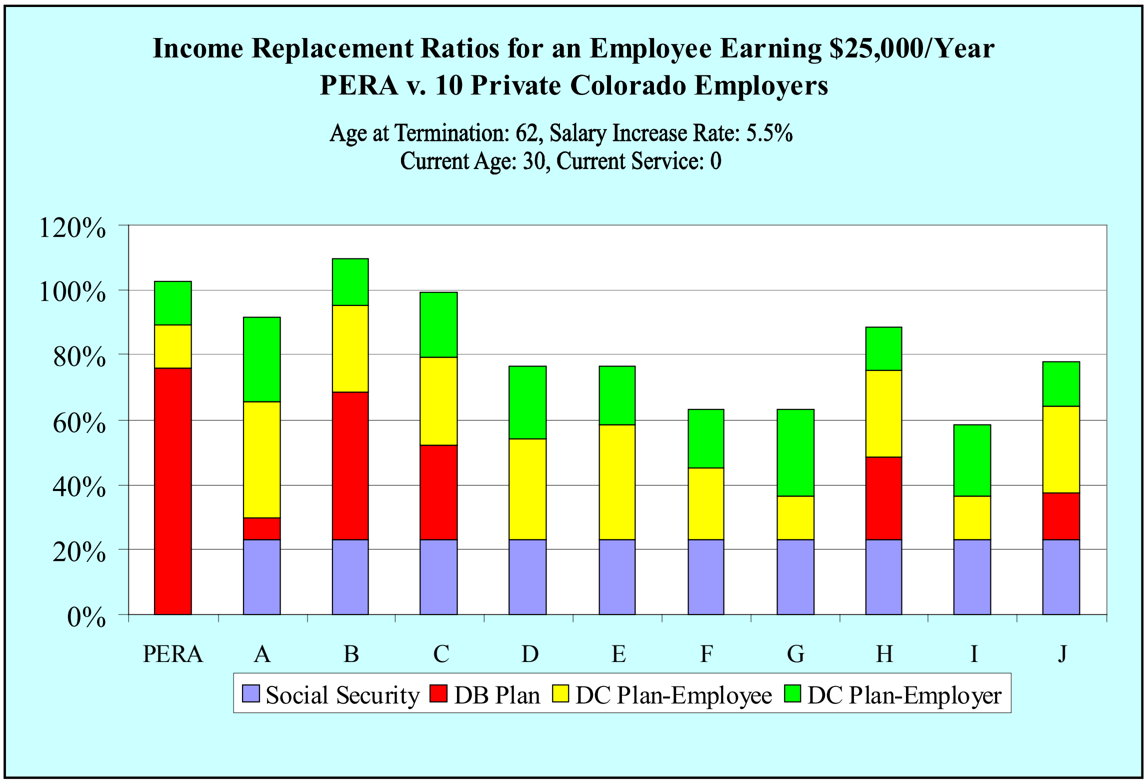
Below is a summary of benefits provided by the participating companies.

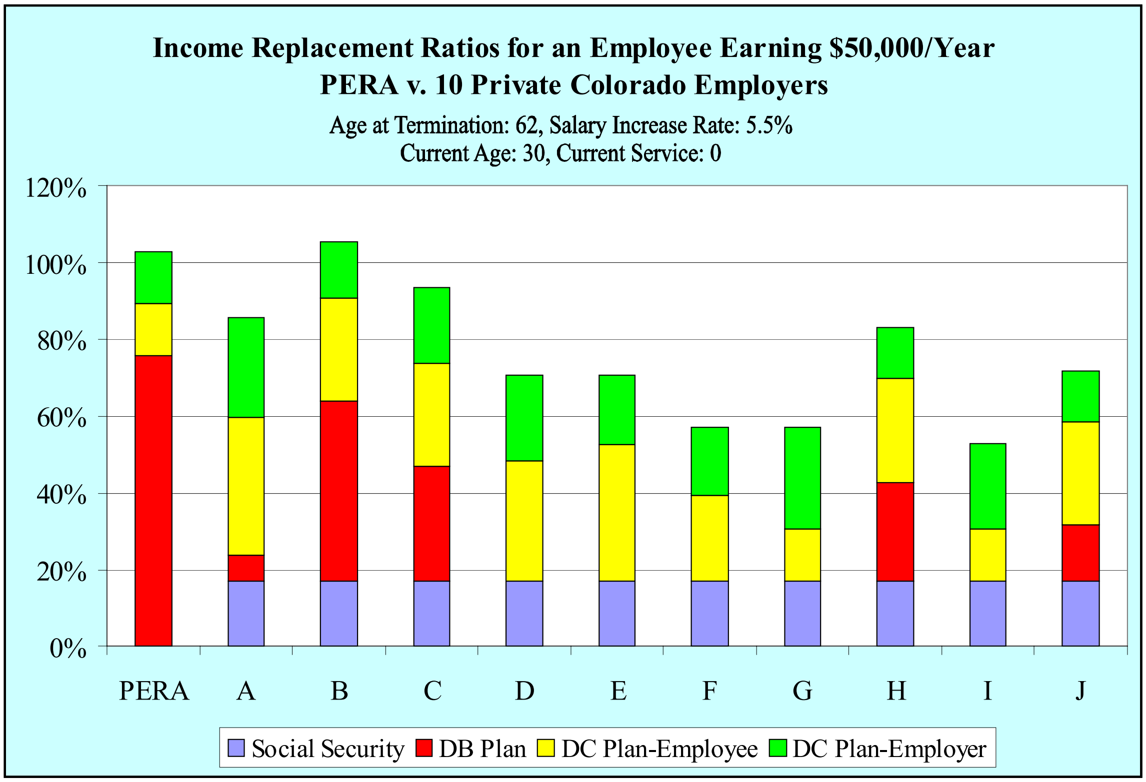
PRIVATE PENSION PLAN DESIGNS		
Company	**401(k) DC Plan**	**Pension DB Plan**
A	☐ 75% match up to 8% contributions ☐ Six months of service required to get the match	☐ 3% of pay credits to cash balance account ☐ Annual Interest credits of 4% applied to cash balance account ☐ Cash balance account converted to annuity using 30 year treasury rates at retirement ☐ One year of service required to join the plan
B	☐ 50% match up to 6% contributions ☐ Plus profit based match which has increased the 50% to 55% in last two years (i.e., total of 3.3% on 6%) ☐ No waiting period	☐ 1.5% of FAE3[1] per year of service ☐ Plus 0.5% of FAE3-covered comp[3] per year of service ☐ Unreduced at either age 62 or under rule of 85 (must be age 55, have 25 years, and have 85 points) ☐ Reduced 4% per year from 62 to as young as 55 if not rule of 85
C	☐ 50% match up to 6% contributions ☐ Additional variable match – assume 25% ☐ No waiting period	☐ 1.02% of FAE5[2] per year of service ☐ Plus 0.38% of FAE5-covered comp per year of service, up to 35 ☐ Plus 0.31% of FAE5 per year of service in excess of 35 ☐ Unreduced at either age 65 or age 62 with 25 years of service ☐ Reduced 4% per year from 62 if age 55 and 25 years of service ☐ Reduced 4% per year from 65 if age 55 and 10 years of service ☐ Actuarial equivalent from age 65 (39% at age 55) if terminate before 55 & 10, benefit payable at age 55
D	☐ 100% match up to 3% contributions ☐ 50% match on next 4% contributions ☐ No waiting period	☐ No pension plan
E	☐ 50% match up to 8% contributions ☐ No waiting period	☐ No pension plan
F	☐ 100% match up to 3% contributions ☐ 50% match on next 2% contributions ☐ 30 day waiting period	☐ No pension plan
G	☐ 100% match up to 3% ☐ Plus 3% company contribution ☐ No waiting period	☐ Frozen DB plan, no new employees are eligible to join the plan.
H	☐ 50% match up to 6% ☐ No waiting period	☐ 1% of FAE5 per year of service ☐ Plus 0.5% of FAE5-covered comp per year of service ☐ Unreduced at 65 ☐ Early retirement age 55 with 10 years of service; reduced 4% per year from 60-65; reduced 6% per year from 55-60
I	☐ 100% match up to 3% ☐ 1 year waiting period to get match ☐ Special contribution of 1.5% on 5th anniversary and 3.0% on 10^{th}	☐ Frozen DB plan, no new employees are eligible to join the plan.
J	☐ 50% match up to 6% ☐ No waiting period	☐ 3% of pay credits to cash balance account ☐ Annual Interest credits of 4% applied to cash balance account ☐ Cash balance account converted to annuity using 30 year treasury rates at retirement ☐ One year of service required to join the plan
Notes 1 FAE3 is Final Average Earnings over Three Years. 2 FAE5 is Final Average Earnings over Five Years. 3 Covered Comp is Social Security covered compensation.		
Source: Information provided by ten private Colorado employers.		

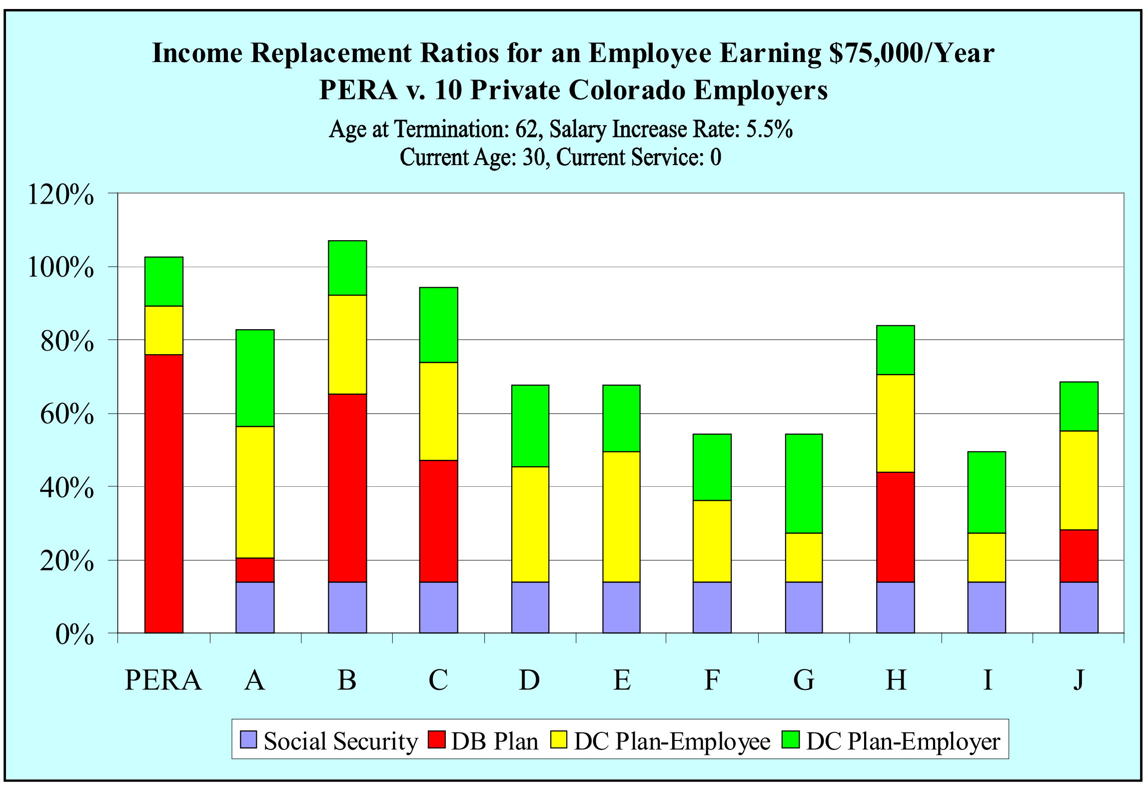
Comparison of Income Replacement Ratios

Below are three graphs that compare the levels of benefits provided by the ten private employers we contacted with the benefits provided by PERA. We analyzed both defined benefit programs as well as defined contribution programs. The graphs compare hypothetical employees earning $25,000 (graph 1), $50,000 (graph 2), and $75,000 (graph 3) per year and all use the following assumptions:

- The employee is hired today at age 30.
- The employee continues in service until retiring at age 62.
- Compensation increases by an average of 5.5% per year.
- Defined contribution plan investments earn 7.5% per year.
- Benefit levels do not change.
- Employees contributed the level required to get a full plan match.




Income Replacement Ratios for an Employee Earning $50,000/Year
PERA v. 10 Private Colorado Employers
Age at Termination: 62, Salary Increase Rate: 5.5%
Current Age: 30, Current Service: 0
120%
100%
80%
60%
40%
20%
0%
PERA
A
B
C
D
E
F
G
H
I
J
Social Security
DB Plan
DC Plan-Employee
DC Plan-Employer


Income Replacement Ratios for an Employee Earning $75,000/Year
PERA v. 10 Private Colorado Employers
Age at Termination: 62, Salary Increase Rate: 5.5%
Current Age: 30, Current Service: 0
120%
100%
80%
60%
40%
20%
0%
PERA
A
B
C
D
E
F
G
H
I
J
Social Security
DB Plan
DC Plan-Employee
DC Plan-Employer

IV. BENEFITS

The bottom line is that only one of the ten employers (Company B) provides benefits as high as those provided under the current PERA structure. Three of the employers (Companies F, G, and I) provide benefits at only about half the level of PERA. The following table compares PERA with the average private employer.

PERCENT OF REPLACEMENT INCOME PROVIDED				
Replacement Income From:	**PERA Covered Employee**	**Avg. Private Employee with Annual Salary of:**		
		$25,000	**$50,000**	**$75,000**
Social Security	0.0%	23.0%	17.1%	14.0%
DB Plan	75.9%	12.2%	12.4%	13.6%
DC Plan - Employer non-elective	0.0%	2.2%	2.2%	2.2%
Subtotal Non-elective	**75.9%**	**37.4%**	**31.7%**	**29.8%**
DC Plan – Employee Voluntary	13.4%	25.9%	25.9%	25.9%
DC Plan -- Match	13.4%	17.3%	17.3%	17.3%
Subtotal - Voluntary and Match	**26.8%**	**43.2%**	**43.2%**	**43.2%**
Total Replacement Income	**102.7%**	**80.6%**	**74.9%**	**73.0%**
Required Employee Contributions	8.0%	6.2%	6.2%	6.2%
Voluntary Employee Contributions	3.0%	5.8%	5.8%	5.8%
Total Employee Contributions	**11.0%**	**12.0%**	**12.0%**	**12.0%**

Source: Data provided by private companies and PERA.
Assumptions: Employee is hired today at age 30 and retires at age 62. Compensation increases by an average of 5.5% per year. DC plan investments earn 7.5% per year. Benefit levels do not change.

V. COSTS

This chapter discusses our comparison of the costs of PERA with the costs of other state and private sector retirement systems. As described in the Benefits chapter, we collected information on state and school retirement plans in Minnesota, Kansas, North Dakota, South Dakota, Iowa, Wyoming, Nebraska, Missouri, Utah, and New Mexico, as well as on the retirement plans of the Denver and Omaha public school systems. This chapter also contains an analysis of the overall value of PERA when costs and benefits are considered together. Based on these measures, we conclude that:

- PERA has the lowest retirement benefit cost of any of the public systems in our comparison.

- PERA scores the highest within our comparison with other public systems for both State and School employees when considering both cost and benefit levels.

- PERA's current employer cost for retirement is more than 3 percentage points lower than the average private sector employer.

- PERA is well funded, with a funded ratio of 102% as of December 31, 2000. A funded ratio of 100% or greater indicates a well-funded plan.

- PERA's expected rate of return is higher than that of an average DC plan. In a recent report, Wilshire Associates, an investment consulting firm, calculated a 9.3% expected long-term rate of return for PERA, ranking its future expected return first out of the 80 systems included in the survey. Buck estimates the average DC plan would have a 7.5% average annual rate of return.

A. COMPARISON OF PERA COSTS TO OTHER PUBLIC SECTOR PLANS

The following tables compare the retirement benefit costs for Colorado with retirement systems in ten other states. The contributions are shown as a percent of salary by employer and employee, both with and without Social Security, where appropriate. For Social Security, the cost of Medicare is excluded, resulting in a 6.2% of salary contribution (up to the maximum wage base) for both the employee and the employer. Other contributions made to fund health care programs have been excluded. PERA's employer cost was based on the current employer contribution of 9.9% of salary, less the 1.10% minimum contribution to the Health Care Trust Fund. Scoring is based on a median score of 100 points for the average total cost of 23.37% of pay for State employees (23.60% for School employees). The median point total was then adjusted by the ratio of the average total contribution rate to the total contribution rate for each system.

As the tables show, Colorado PERA has the lowest retirement benefit cost of any of the systems in the comparison. This is true for both State and School members and is particularly evident when Social Security costs are considered. Given PERA's gain sharing program, the costs shown for PERA could potentially be even less in future years. Under gain sharing, 20% of the ten-year amortization of overfunding, determined as a percentage of pay, reduces the employer contribution rate otherwise payable in the following year. Systems like PERA that do not participate in Social Security generally have lower costs due to the efficiency of pre-funding retirement benefits.

COMPARISON OF CONTRIBUTION RATES FOR STATE RETIREMENT SYSTEMS AS OF DECEMBER 31, 2000
STATE EMPLOYEES

Rank	State	System	Social Security Coverage?	Without Social Security			6.2% With Social Security			Score
				Employee	Employer	Total	Employee	Employer	Total	
1	***Colorado***	***PERA***	***No***	***8.00%***	***8.80%***	***16.80%***	***8.00%***	***8.80%***	***16.80%***	***139***
2	Minnesota	SERF	Yes	4.00%	4.00%	8.00%	10.20%	10.20%	20.40%	115
3	Kansas	PERS	Yes	4.00%	4.19%	8.19%	10.20%	10.39%	20.59%	114
4	North Dakota	PERS	Yes	4.00%	4.12%	8.12%	10.20%	10.32%	20.52%	114
5	Iowa	PERS	Yes	3.70%	5.75%	9.45%	9.90%	11.95%	21.85%	107
6	South Dakota	SDRS	Yes	5.00%	5.00%	10.00%	11.20%	11.20%	22.40%	104
7	Wyoming	WRS	Yes	5.57%	5.68%	11.25%	11.77%	11.88%	23.65%	99
8	Nebraska*	State	Yes	4.53%	7.07%	11.60%	10.73%	13.27%	24.00%	97
9	Missouri	MOSERS	Yes	0.00%	11.91%	11.91%	6.20%	18.11%	24.31%	96
10	Utah	SRS	Yes	0.00%	13.69%	13.69%	6.20%	19.89%	26.09%	90
11	New Mexico	PERA	Yes	7.42%	16.59%	24.01%	13.62%	22.79	36.41%	64
	Average		**Yes**	**4.20%**	**7.89%**	**12.09%**	**9.84%**	**13.53%**	**23.37%**	
	National Average (GFOA survey)			**4.16%**	**8.07%**	**12.23%**				

* Defined Contribution plan.

Source: Buck Consultants analysis of data provided by PERA and other states.

COMPARISON OF CONTRIBUTION RATES FOR STATE RETIREMENT SYSTEMS AS OF DECEMBER 31, 2000
SCHOOL EMPLOYEES/TEACHERS

Rank	State / Local	System	Social Security Coverage?	Without Social Security			6.2% With Social Security			Score
				Employee	Employer	Total	Employee	Employer	Total	
1	***Colorado***	***PERA***	***No***	***8.00%***	***8.80%***	***16.80%***	***8.00%***	***8.80%***	***16.80%***	***140***
2	Kansas	PERS	Yes	4.00%	4.19%	8.19%	10.20%	10.39%	20.59%	115
3	Denver Public Schools	DPSRS	No	8.00%	12.90%*	20.90%	8.00%	12.90%	20.90%	113
4	Missouri	PSRS	No	10.50%	10.50%	21.00%	10.50%	10.50%	21.00%	112
5	Iowa	PERS	Yes	3.70%	5.75%	9.45%	9.90%	11.95%	21.85%	108
6	Minnesota	TRA	Yes	5.00%	5.00%	10.00%	11.20%	11.20%	22.40%	105
7	South Dakota	SDRS	Yes	5.00%	5.00%	10.00%	11.20%	11.20%	22.40%	105
8	Wyoming	WRS	Yes	5.57%	5.68%	11.25%	11.77%	11.88%	23.65%	100
9	Utah	SRS	Yes	0.00%	13.69%	0.00%	6.20%	19.89%	26.09%	91
10	Omaha Public Schools	OSERS	Yes	6.30%	7.60%	13.90%	12.50%	13.80%	26.30%	90
11	North Dakota	TFFR	Yes	7.75%	7.75%	15.50%	13.95%	13.95%	27.90%	85
12	Nebraska	School	Yes	7.25%	8.62%	15.87%	13.45%	14.82%	28.27%	84
13	New Mexico	ERB	Yes	7.60%	8.65%	16.25%	13.80%	14.85%	28.65%	82
	Average		**Yes**	**6.05%**	**8.01%**	**14.06%**	**10.82%**	**12.78%**	**23.60%**	
	National Average (GFOA survey)			**6.81%**	**9.63%**	**16.44%**				

* Includes Pension Obligation Bond payment.
Source: Buck Consultants analysis of data provided by PERA and other states.

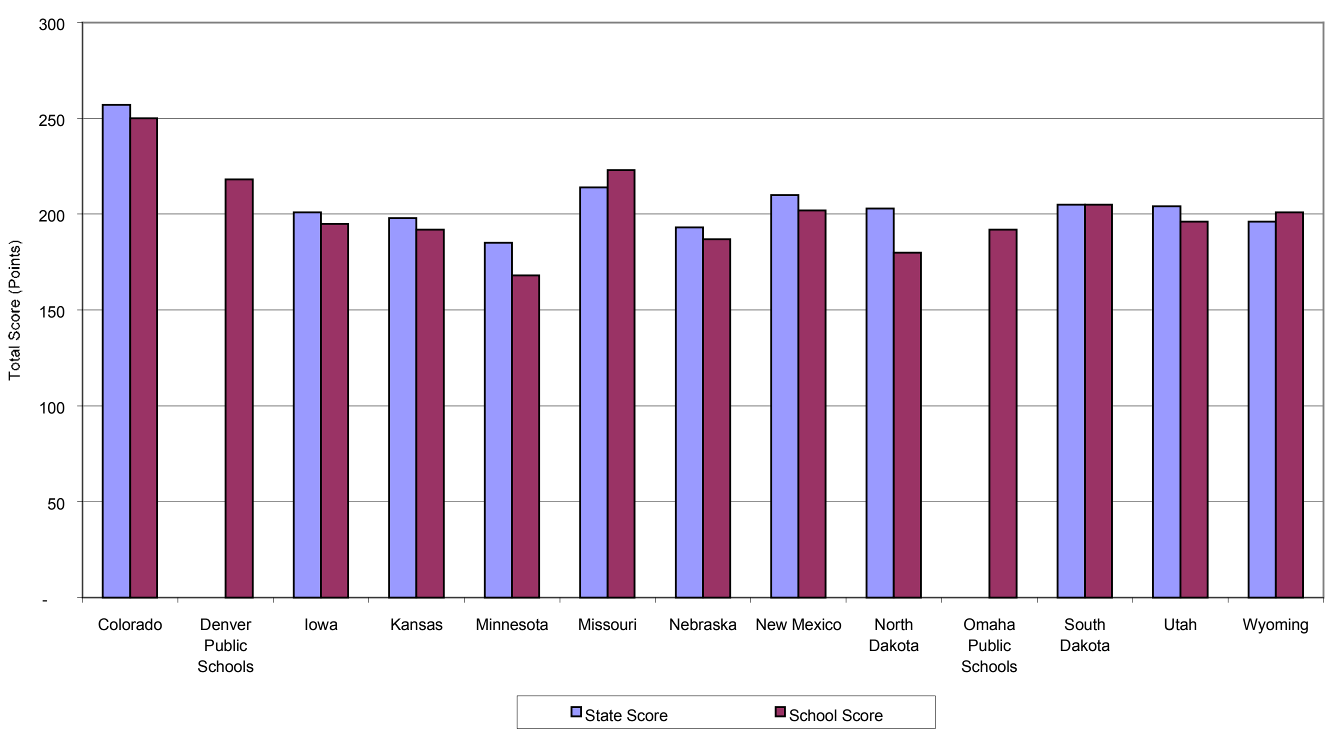
Other Retirement Plans in Colorado

About ten years ago, legislation was passed in Colorado to allow state colleges and universities (except the University of Colorado) to offer DC plans as Optional Retirement Plans (ORPs) to eligible employees instead of PERA. Generally, all of these institutions have adopted an ORP for eligible employees. With the exception of Colorado Mountain College, which has set the employer contribution rate equal to PERA, all other institutions are contributing at about 11.5%, about 2.5% higher than PERA employers.

B. OVERALL VALUE OF COSTS AND BENEFITS: PERA V. OTHER STATES

The relative value of benefits delivered by each public retirement system in our comparison can be measured when considering both cost and benefit levels. To determine a value score, the score for costs and benefits are added together. The result is a value score where the median system's total score is 200, or the sum of the median benefit score of 100 and the median cost score of 100. Colorado PERA scores the highest for both State and School employees when considering both cost and benefit levels, as shown in the following chart.

Comparison of Value Based on Total Scoring of Costs and Benefits
State & School Employees



C. COMPARISON OF PERA COSTS TO COLORADO PRIVATE EMPLOYERS

It is difficult to compare the costs of DB plans offered by the ten private employers we reviewed since most of them are overfunded and no contributions are currently being made. However, the 2000 Employee Benefits Study recently published by the U.S. Chamber of Commerce surveyed the benefit programs of 532 companies and found the average employer cost for retirement and savings plans was 6.6% of pay. When mandatory Social Security cost of 6.2% of pay (up to the maximum wage base) is added, the average cost of a retirement program in the private sector is over 12% of pay. By statute, PERA's maximum employer cost for retirement is 9.05% and the current contribution rate is 8.80%, about 3 percentage points lower than the average private sector employer. It should be noted that the MatchMaker comes from PERA funding; it is not an additional employer contribution.

For defined contribution plan costs alone, the following table summarizes the contributions provided by the ten large private employers we reviewed

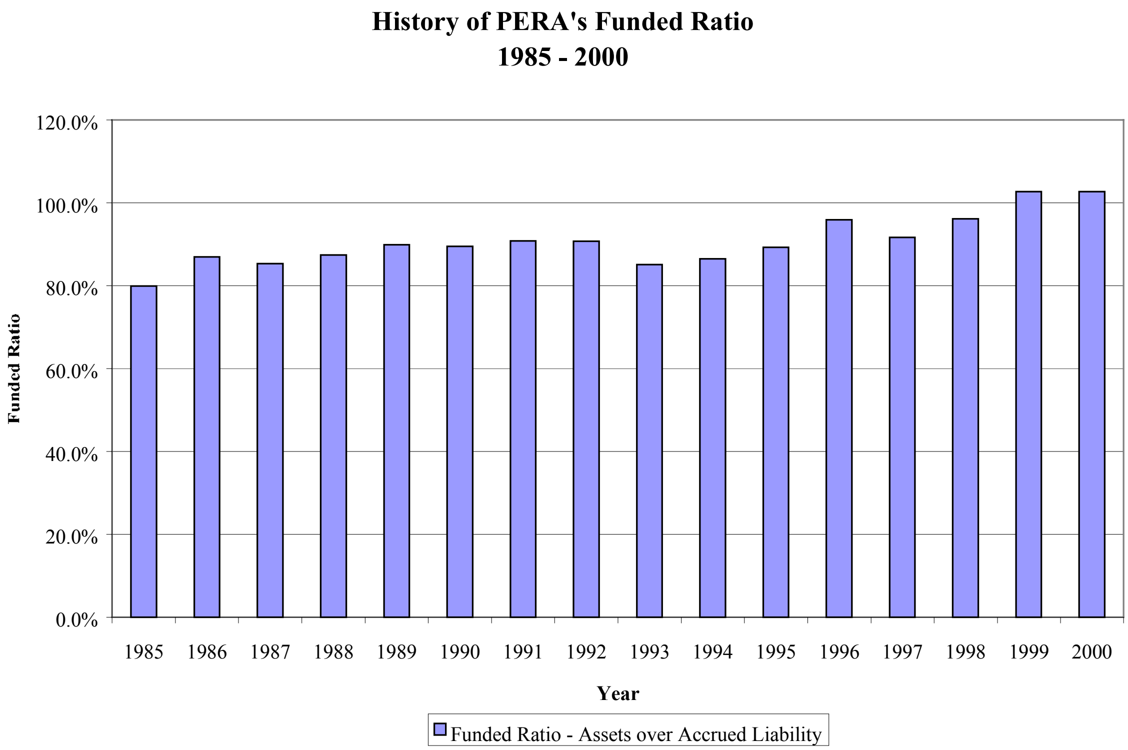
Company	Employee Contribution	Employer Contribution
A	8%	6.0%
B	6%	3.3%
C	6%	4.5%
D	7%	5.0%
E	8%	4.0%
F	5%	4.0%
G	3%	6.0%
H	6%	3.0%
I	3%	3.0%
J	6%	3.0%
Average	5.8%	4.2%
Source: Data provided by ten private employers.		

The employee contribution rates in the table above are the rates required for employees to receive the maximum employer match shown. The employer contribution includes both fixed and variable matching contributions. For example, Company G actually provides a fixed 3% contribution, plus a 100% match of 3%, resulting in an employer contribution twice as much as the employee contribution. Companies B and C have profit-based matches, and Companies D and F have slightly more complex matching formulas. PERA's new MatchMaker is a DC program with a 3% match, all of which comes from PERA funding, and is not an additional employer contribution.

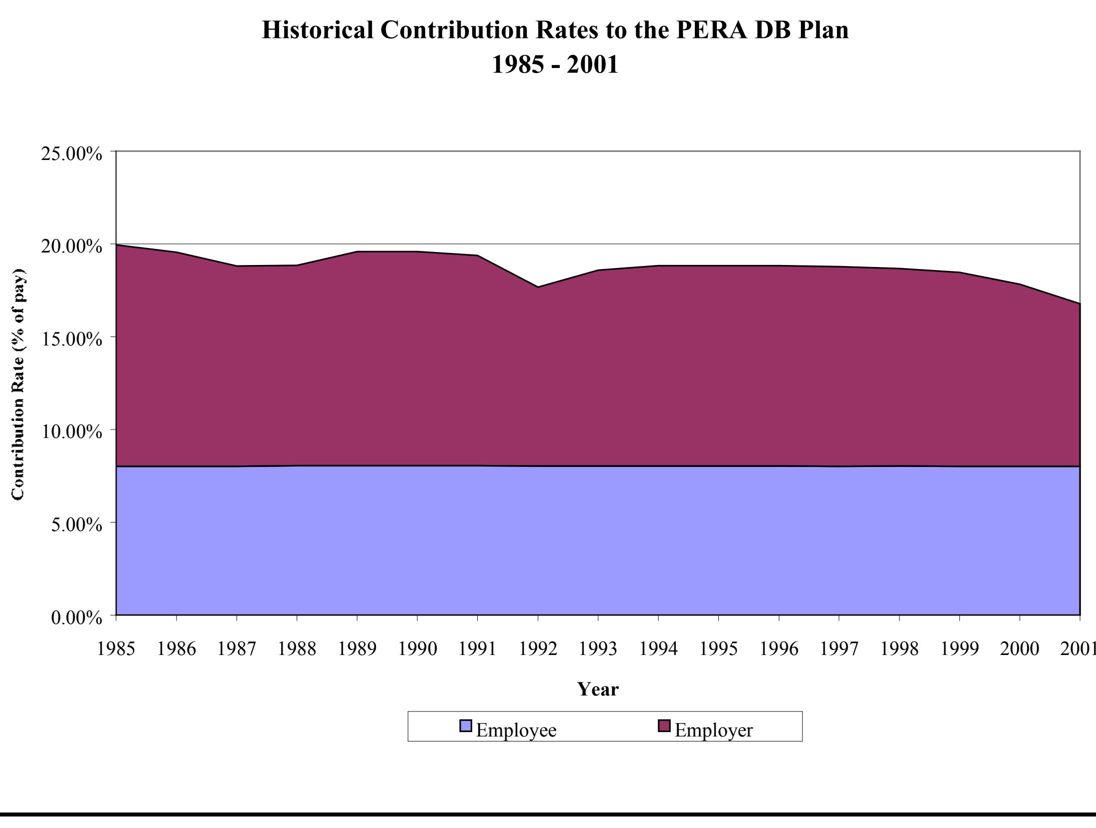
When compared to private employers, PERA has a competitive retirement benefit package due to higher benefits and lower employee contributions. Most private employers provide lesser benefits, particularly because of the trend to reduce benefits and switch from more generous defined benefit plans to less generous defined contribution plans.

D. FINANCIAL CONDITION

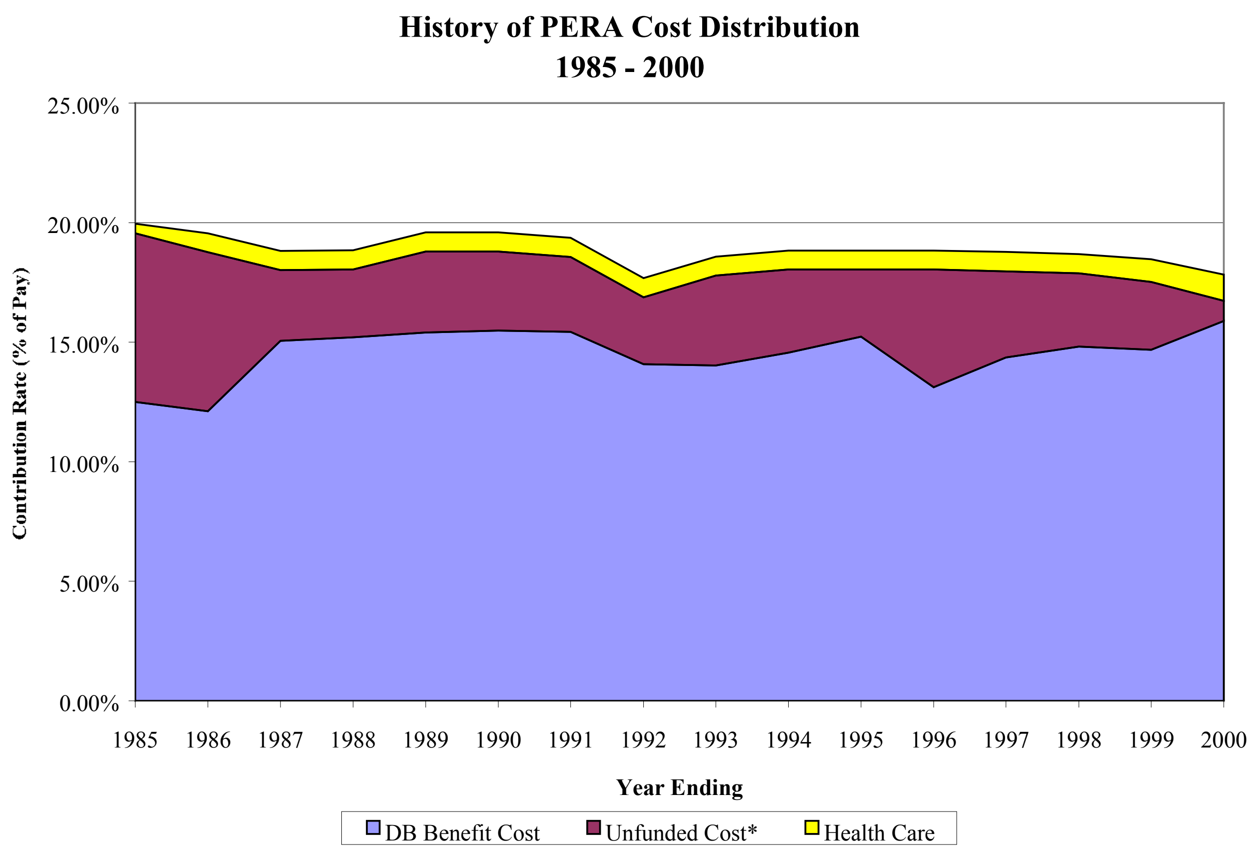
The costs of a retirement system are tied to its financial condition because the stronger the system, the lower its costs can be, and vice versa. Over the life of a pension system, the benefits and expenses paid out are equal to the contributions and investment return earned by the fund. For a given level of benefits, the better the investment return, the lower the contribution needs to be to fund the benefit. The financial condition of a retirement system is typically measured by the ratio of the plan assets to accrued liabilities. As of December 31, 2000, PERA's funded ratio was 102%. This was determined using the new actuarial assumptions recommended by PERA's actuary and adopted by PERA's Board to measure the accrued liabilities. Assets are based on the actuarial value that smoothes the swings in market value. At the end of 2000, the actuarial value represented 98% of market value. The actuarial value was less than the market value in each of the previous years shown except for 1987 when actuarial value was slightly greater than market value. A funded ratio of 100% or greater indicates a well-funded plan. PERA's funded ratio has improved over the last sixteen years, as shown in the following graph.



As the following chart shows, the employee and employer contributions to the PERA DB plan have remained relatively level as a percentage of pay since 1985, with the exception of a one-time reduction in the State contribution during 1992.



These contributions have been used to pay for the accruing benefits of active members and to pay off unfunded liabilities that existed when PERA's benefits were increased applicable to past service rendered by active members and increases made to retirees already in pay status. A graph illustrating the allocation of cost since 1985 follows.



*Includes over-funding amount in 1999 and 2000.

Due to PERA's well-funded status, we expect employer matching contributions will continue to be available to support PERA's MatchMaker program. The projected amount available varies from about 2.5% to 3.5% of pay over the next 30 years. This rate is based on the salary of all members.

Appendix E shows funded ratios, contribution rates, total normal cost rates and unfunded contribution percentages historically since 1985. Appendix F shows our projections for the MatchMaker program.

E. RETURN ON INVESTMENT

PERA's status as a well-funded plan relates to its investment returns which are the result of investment policy and asset allocation decisions of the PERA Board and its investment managers. PERA uses a Trust to pre-fund pension payments to members. Employee and employer contributions are placed into the Trust Fund and invested for future growth. An illustration of how PERA's asset allocation has changed since 1989 is provided in the following table.

SUMMARY OF PERA ASSET ALLOCATION 1989 –2000			
Asset Class	**Year Ending December 31**		
	1989	**1995**	**2000**
Cash	4.8%	2.7%	3.3%
Fixed Income	41.9%	23.3%	9.1%
Domestic Stocks	34.9%	49.9%	53.2%
International Stocks	12.8%	13.8%	13.9%
Real Estate	4.5%	6.9%	8.4%
Alternative Investments	1.1%	3.4%	12.1%
Total	100.0%	100.0%	100.0%
Source: Data provided by PERA.			

The table indicates that since 1989, PERA's investments in domestic stocks, alternative investments, and real estate have increased, while investments in fixed income have declined. This has been a fortuitous shift since over this timeframe equity investments have outperformed fixed income investments by a wide margin. A history showing PERA's investment return since 1970 can be found in Appendix F.

However, past returns are no guarantee of future performance. PERA's actuary assumes the Trust Fund will earn a future long-term rate of return of 8.75% per year, net of expenses. PERA's funded status uses this assumption when measuring the DB plan's liability, also known as the benefit obligation. PERA's ability to maintain its funded status and continue the gain sharing and MatchMaker programs are dependent on achieving the actuarial return assumption long-term.

Wilshire Associates, an investment consulting firm, recently issued the 2000 Wilshire Report on State Retirement Systems which compares the funding status and asset allocation practices of 80 state-sponsored DB pension systems in the United States. Wilshire calculated the expected return using long-term assumptions for the major asset classes together with each retirement system's actual asset allocation. Their calculations resulted in a 9.3% expected long-term rate of return for PERA, ranking its future expected return first out of the 80 systems included in the survey. Buck performed a similar calculation for a comparable result, taking into PERA's investment management and administrative fees, and determined an expected return of 8.98% net of expenses.

In addition, Buck calculated the expected long-term rate of return for the average DC plan portfolio using information contained in surveys of 401(k) plans performed by Buck, Hewitt Associates, and Fidelity as well as a recent study titled "Mutual Fund Advisory Fees: The Cost of Conflicts of Interest". The result was a long-term expected return of about 7.5% per year for the average DC plan member.

The following table shows our calculations of the expected returns for PERA and an average DC plan portfolio. We have used 7.5% as the expected rate of return for the average DC plan member throughout this report. We recognize that not all DC plan members will achieve an annualized return of 7.5% long-term. Some members will do better and some will do worse. The ability of a DC plan investor to achieve the level of returns identified by standard indices over long periods of time are highly dependent on staying with a disciplined asset allocation. However, recent studies indicate many individual investors are not able to stay with a disciplined allocation during volatile market swings, and as a result, their investment performance lags common indices.

COMPARISON OF EXPECTED RATES OF RETURN BETWEEN PERA AND AN AVERAGE DC PLAN

Asset Class	Expected ROR	PERA DB Plan		Average DC Plan		Difference
		Allocation %	Portfolio Return	Allocation %	Portfolio Return	
Large cap equities	9.50%	51.0%	4.84%	55.0%	5.23%	-0.39%
Small cap equities	10.50%	5.0%	0.53%	8.0%	0.83%	-0.30%
International equities	9.50%	16.0%	1.52%	2.0%	0.19%	1.33%
Corp Bond	6.25%	3.0%	0.19%	10.0%	0.63%	-0.44%
US LT bond	5.50%	3.0%	0.17%	10.0%	0.55%	-0.38%
US Intermed bond*	4.75%	4.0%	0.19%	15.0%	0.71%	-0.52%
Real Estate	8.25%	7.0%	0.58%	0.0%	0.00%	0.58%
Alternative	12.50%	11.0%	1.37%	0.0%	0.00%	1.37%
1. **Total (before adjustments)**		**100.0%**	**9.39%**	**100.0%**	**8.14%**	**1.25%**
2. Expenses						
a. investment			0.30%		0.50%	
b. administration			0.06%		0.12%	
3. Conservatism			0.28%		0.00%	
Total (after adjustments) (1) – (2a) – (2b) – (3)			**8.75%**		**7.52%**	**1.23%**

Notes: * Includes money market and short term cash investments.

Expenses for the average DC plan assume institutional class mutual funds are used for investments and assumes accounts are valued daily.

Through gain sharing PERA is able to allocate its over-funding to reduce employer contributions and to fund the Health Care Trust Fund. This would not be possible in a DC only plan approach.

VI. PORTABILITY

A. DEFINITION OF PORTABILITY

Portability is an important element of retirement plans, particularly for shorter-term, younger employees who change jobs and want to be able to receive benefit for the contributions and earnings in their retirement accounts. Portability can be characterized by the following three important features:

- **Vesting** – the years of service required for an employee to be eligible to receive the employer contribution upon termination of service. Vesting of employer-funded benefits generally occurs earlier in defined contribution plans than in defined benefit plans. A recent Buck survey of 401(k) plans found that 29% of the plans surveyed provided immediate vesting of employer contributions and 55% fully vest after no more than five years of service. In comparison, according to a 2000 survey released by the U.S. Department of Labor, of public DB plans, only 4% had full vesting before five years of service, 48% had full vesting at five years of service and 47% required more than 5 years of service for full vesting.

- **Amount** – the value of the benefit the terminating employee is eligible to receive. The benefit amount or value of a traditional final average pay DB plan is generally lower than a DC account balance for younger, shorter service employees. However, as employees age and accrue more service, the value of the DB plan benefit almost always exceeds the DC account balance by the time an employee is eligible to retire.

- **Transferability** – the ability to transfer, rollover, or cash-out the value of the retirement benefit upon termination of service. While lump sum cash-outs are available in a limited number of DB plans, virtually all DC plans offer lump sum payments.

B. IMPORTANCE OF TRANSFERABILITY

Transferability is probably the most valued aspect of portability. A recent 401(k) survey performed by Hewitt Associates found that on average, 94% of terminating plan participants elected to take their distribution in a lump sum, when it was available. The remaining participants elected either installment payments or an annuity. The survey also found that 57% of participants who removed their assets from a previous employer's plan took the cash, while 42% rolled their money to another plan or an IRA. The amounts that were cashed out were considerably lower on average than the amounts rolled over. In addition, a study published by Putnam Investments entitled "Retirement Savings in an Unsettled Economy", indicates that 30% of investors cashed out their 401(k) assets upon leaving a job, while 19% left their money in the plan, and 10% transferred the assets to their new employer's plan. These studies indicate that younger, shorter-service workers are more likely to cash-out (i.e., 39% of 18 to 34 year-olds opted for the cash-out) and do not use these plans for retirement income purposes.

C. Improvements In Portability Within DB Plans

Defined contribution plans are typically valued for their portability features, as described in the Background chapter. However, rather than offering a DC plan, some states are adding portability features to their existing DB plans. Along with Colorado, South Dakota and Wisconsin added improved refund benefits to their DB plan. This feature, which allows a refund to include either all or a portion of the employer contribution, operates much like a cash balance plan benefit within the existing DB plan. The contribution balances are credited with interest at a defined rate under the plan. When a member terminates or retires, he or she can chose a lump sum refund of the cash balance or a monthly pension. This is another approach to offering choice, only the decision is offered to the member at termination instead of hire date. A description of some of the more significant changes made by other state retirement systems can be found in Appendices G and H.

D. Portability of PERA Benefits

We found Colorado PERA has implemented features which result in a level of portability that is competitive with most other plans. In particular, through the MatchMaker program employees voluntarily contributing an additional 3% of pay to an already available defined contribution plan can currently receive a matching 3% of pay contribution that is immediately vested. At the same time, the Money Purchase Retirement Benefit allows a terminating member to elect to receive a refund of employee contributions and an additional 50% matching amount.

The portability of employee and employer contributions is a substantial strength of PERA. The following is a breakdown of the contributions that are immediately vested and available at termination of service prior to reaching retirement age.

	Contribution Rate		
	Employee	**Employer**	**Total**
No DC Plan Contributions			
Portable DB Contributions	8.0%	4.0%	12.0%
Total Contributions	8.0%	8.8%	16.8%
Portability Rate (Portable Contributions ÷ Total)			71.4%
With DC Plan (MatchMaker) Contributions			
Portable DB Contributions	8.0%	4.0%	12.0%
Portable DC Contributions	3.0%	3.0%	6.0%
Total Portable Contributions	11.0%	7.0%	18.0%
Total Contributions	11.0%	8.8%	19.8%
Portability Rate (Portable Contributions ÷ Total)			90.9%

Source: Buck Consultants analysis of data provided by PERA.

With the availability of the contributions as listed above, another strength is that the choice between DB and Cash Balance is offered at the most opportune time for members, i.e., at termination or retirement.

VI. PORTABILITY

The passage of the Economic Growth and Tax Relief Reconciliation Act (EGTRRA) of 2001 greatly enhanced portability of retirement savings. A summary of EGTRRA's provisions can be found in Appendix I. The legal barriers to transferring assets between qualified plans, 403(b) Tax Sheltered Annuities, 457 Deferred Compensation Plans, and IRAs, have been eliminated beginning in 2002. In addition, the act allows DB plans to accept transfers from DC plans to purchase service credits and annuitize additional benefits. This feature has recently been adopted by PERA. Given PERA's various features, implementation of a defined contribution plan would only marginally improve the portability of the PERA benefit.

Many public retirement systems have maintained the traditional DB plan structure and, as a result, do not offer the level of portability that exists in PERA's hybrid design. Private sector employers fall into three groups, in terms of portability:

- 401(k) plan only – fully portable
- Cash balance plan plus 401(k) – mostly portable
- Traditional DB plan plus 401(k) – partially portable

PERA's hybrid plan design is more portable than the traditional DB plan employer's designs, and about as portable as the typical private cash balance program. This is because the PERA program incorporates all three plan design categories: traditional final pay pension, cash balance and 401(k). PERA is not as portable as pure 401(k) plan programs, but the benefit levels are much higher than most 401(k) plans. PERA provides portable contributions which total 18.0%. This level of portable contributions exceeds the level provided by nearly all private employers.

VII. RECRUITMENT AND RETENTION

A. EFFECTIVENESS OF RETIREMENT PLAN DESIGN IN ATTRACTING AND RETAINING EMPLOYEES

An important element of our study is to review the effectiveness of retirement plan designs for attracting and retaining qualified state and school employees. This is certainly an important objective for any employer who sponsors a retirement plan for the benefit of its employees. This objective can be addressed two primary ways: first, by addressing the financial security needs of employees; and second, by providing a benefit that is competitive with or better than the benefits offered by other local and regional employers who are competing for the same employees. For state government, that can include general laborers, clerks, word processors, bookkeepers, accountants, computer programmers, engineers, financial analysts, technicians, and lawyers. School districts require certified teachers in a variety of subjects and administrators experienced with educational organizations. All of these people, whether seeking employment or presented with a new job opportunity, must carefully weigh their options. We will focus our attention on two questions. To what extent does a retirement plan weigh in the decision process? And does it make a difference whether the retirement plan is a defined benefit plan or a defined contribution plan?

To answer these questions, we searched for reliable survey information that would reveal what current workers value when making job decisions. WorldatWork, formerly the American Compensation Association, and the Employee Benefit Research Institute (EBRI) provided the needed data.

To determine the value employees place on benefits in a changing job environment, WorldatWork and EBRI jointly published the 2000 Value of Benefits Survey. The results of this survey of American workers indicate that employer-provided benefits are a very important part of the total reward package in attracting and retaining workers. Health insurance was found to be the most important employee benefit, while savings and pension plan benefits were a distant second and third, respectively, as shown in the following table.

Benefit	Percentage Ranking as Most Important
Health Insurance	65%
Retirement Savings	21%
Pension Plans	6%
Life Insurance	3%
Long-term Care	2%
Disability Insurance	1%
Stock Options	1%

Source: 2000 Value of Benefits Survey from WorldatWork and EBRI.

These results indicate that employers looking to adjust or improve their benefit packages to meet employee recruitment and retention goals are more likely to achieve their goals by improving health insurance benefits than by enhancing retirement benefits.

Additional findings of the 2000 Value of Benefits Survey include:

- Employee benefits are more important in good economic times, less important during a weak economy.

- 78% of workers in 1999 said benefits were very important to job choice compared to 71% in 1991.

- 36% of workers under age 35 had changed jobs because of benefits, compared to 15% of workers ages 55 and over.

- Ranking of retirement savings plans did not vary by age, although workers over age 55 are more likely to choose the pension plan as most important.

- Ranking of health insurance as most important decreased with age; 70% under age 35 ranked health insurance as most important compared to 55% over 55.

Although this survey found a growing percentage of American workers prefer the retirement savings form of retirement plan versus the traditional pension plan, few workers have accepted, quit or changed jobs because of the pension or retirement savings plan that their employer offered or failed to offer. Of those surveyed, 6% of workers covered by a DB plan said they have accepted, quit, or changed jobs because of the pension plan compared with 5% of those covered by a DC plan. Factors that influence this preference include:

- The high percentage of workers surveyed with short service.
- The robust investment returns during the late 1980s and 1990s.
- The growth of retirement savings plans and the decline in pension plans.

It should also be pointed out that this survey was performed in 1999 during a sustained bull market. Some statewide retirement systems that are implementing the choice between DB and DC today (during a bear market) are finding the majority of employees opting for the defined benefit plan. The economic environment and recent stock market performance greatly influence the employee decision between DB and DC.

Benefits definitely play a role in attracting and retaining qualified employees. But as indicated in the survey cited above, benefits are not the only factor, nor are they usually the most important factor in an organization's ability to attract and retain employees.

B. EMPLOYEE TURNOVER

For most organizations, some turnover is generally considered healthy, creating opportunities for promotions and lateral transfers. It allows for new blood and thus new ideas and approaches enter the organization when vacancies are replaced from the outside. Most organizations would not want to retain all of their employees forever. On the other hand, excessive turnover can cause organizations problems with productivity, customer service and quality.

The Society of Human Resource Management conducted a study of American companies that showed average annual turnover at 17%, with organizations of more than 5,000 employees having an average annual turnover of 25%. Having to replace one-quarter of the workforce each year puts an incredible strain on an organization.

This study showed that the three most common reasons for employees leaving an organization were:

- Better career opportunities 78%
- Better compensation or benefits 65%
- Poor management 21%

It is generally perceived that DB plans act as retention devices or "golden handcuffs" for mid to late career employees because of the valuable benefit provided at retirement. We have not found any evidence that would either prove or deny this belief. However, data does exist that can compare PERA's turnover experience to the experience of other similar statewide plans covering similar employees. This is because most state and school employees are covered by DB plans that make assumptions for turnover in their actuarial valuations. These valuations set assumptions on the basis of a detailed analysis of actual experience.

To compare PERA's turnover experience, we collected the actuarial assumption information for five other regional statewide pension systems. Actuaries for large pension plans generally use historical individual plan experience to develop assumed turnover rates for use in their actuarial projections. The results of the comparison at ages 25, 35, and 45 follows.

Survey of Actuarially Assumed Turnover Rates (per 100 Employees)
Used by Statewide Systems

	State Employees				School Employees			
	Age			Average	Age			Average
State	25*	35	45	Rate	25*	35	45	Rate
Colorado	12.25	4.23	2.81	6.43	12.25	4.23	2.81	6.43
Kansas	21.75	7.25	4.50	11.17	19.85	5.10	2.65	9.20
Nebraska	N/A	N/A	N/A	N/A	20.00	5.10	3.45	9.52
New Mexico	12.50	3.25	2.00	5.92	22.51	3.86	2.00	9.46
South Dakota	18.20	11.10	6.25	11.85	18.20	11.10	6.25	11.85
Wyoming	22.82	11.57	6.78	13.72	22.82	11.57	6.78	13.72
Average Rate	**17.50**	**7.48**	**4.47**	**9.82**	**19.27**	**6.83**	**3.99**	**10.03**

*For systems that use service as a criteria for applying turnover rates, rates during the third year of service were used.

With the exception of Nebraska State employees who are covered by a DC plan, all other state and school employees shown above are covered by a DB plan. The comparison indicates that PERA's overall assumed turnover rates are second lowest only to New Mexico for state employees, and are the lowest overall for school employees.

PERA employers also have a low turnover rate when compared with five of the private sector employers we reviewed, as shown below. Only employers with an on-going DB plan (not frozen) are considered since turnover experience for employers with a DC plan only are not available.

	Average Annual Assumed Turnover Rates (per 100 employees)
Company A	6.15
Company B	16.03
Company C	9.50
Company H	7.09
Company J	9.00
Average Rate	**9.55**
PERA	**6.43**

Although we cannot conclude that the PERA plan is acting as a retention device, we can conclude that the retention rate of PERA employers is better than most. Consequently, we would not anticipate that any changes to PERA would improve retention.

We do not believe that any changes in the PERA benefit design would significantly improve recruitment and retention. This is because:

- The current level of PERA turnover is low relative to other employers.
- PERA provides significant benefits in terms of portability.
- Surveys indicate that savings and retirement plans are a distant second and third to healthcare benefits in terms of importance to employees.
- Studies indicate that only about 5-6% of employment decisions are a result of retirement and savings plans.

If other evidence is found which demonstrates that a recruitment or retention problem exists, we would recommend that prior to further consideration of changes to PERA, the State identify if the problem is related to pay issues, work environment issues, or other benefit issues. We also believe that an enhancement in the communication of PERA's strong portability benefits may improve recruitment.

VIII. ALTERNATIVES FOR COLORADO

Prior sections of this report have confirmed the comprehensive nature of the PERA benefit structure and the numerous DC features currently present in the program. There are no significant weaknesses in the current structure in our opinion since PERA offers a blend of both DB and DC features and a high degree of portability. The Legislature, therefore, is in a favorable position in terms of considering what changes, if any, should be made to PERA. This section discusses four alternatives for PERA that could be considered to achieve specific goals or as a result of a change in philosophy regarding the goals of the plan. The attractiveness of any of these alternatives will require clear policy statements or clarifications with regard to:

- The importance of guaranteed lifetime income to meet some or all of public employees' retirement needs.
- The importance of adequate retirement income compared to enhanced early termination benefits.
- The amount of risk transfer to employees that is acceptable and the amount of risk transfer that is desirable to employers.
- The responsibility and liability for adequate employee education.
- The need for employee choice with regard to retirement benefits.

A. ALTERNATIVE 1 – MAKE NO CHANGES

Maintain PERA as is with both DB and DC elements, including the gain sharing program as a mechanism to reduce future employer contributions. Benefits and costs would remain unchanged. Communication of PERA's MatchMaker and portability benefits should be increased to improve understanding of the portability benefits available to both current employees and in materials available to potential new employees.

B. ALTERNATIVE 2 – ADD MINOR ENHANCEMENTS

Maintain the current PERA DB structure and consider making one or more of the changes described below. The suggested improvements in this alternative would not result in a change in the basic public policy with regard to providing retirement income for Colorado public employees since the basic PERA DB plan structure remains unchanged. The changes could be implemented in a time frame of several months since major new programs or systems are not necessary. All the enhancements in this alternative would generate some additional administrative complexity and require a significant communication effort. Personal counseling to explain the provisions of a DROP program would be needed so that employees can make informed decisions. However, we would expect the additional cost to PERA to be minimal. Therefore, each of the changes is projected to be cost neutral to PERA overall, but would result in funding being redirected as described in each section. However, it is important to note that our cost estimates for all the alternatives presented in this chapter are general in nature. PERA's actuary would need to prepare official fiscal analysis on proposals before any alternative plan designs are implemented.

i) Redesign the DC benefit to help attract employees for high turnover positions. This change would replace the MatchMaker program with an employer basic contribution to the DC plan for all employees, thereby allocating the MatchMaker contribution more evenly to younger and lower paid employees. Young, low paid members are currently participating in the DC program at a low level. Lower paid members will appreciate the basic contribution much more than a matching program, providing a recruitment tool for these positions. However, this change would reduce the contribution rate to the DC plan, with a likely decrease from the current 3% of pay to an estimated 2.5%. The PERA Board would determine the basic contribution rate each year. Under this alternative, employees should have the ability to direct the contribution to the DC plan of their choice, with PERA 401(k) plan as the default. The portability feature would be changed and applied equally to all members as follows:

	Contribution Rate		
	Employee	Employer	Total
Portable DB Contributions	8.0%	4.0%	12.0%
Basic DC Contribution	0.0%	2.5%	2.5%
Total Portable Contributions	8.0%	6.5%	14.5%
Total Contributions	8.0%	8.8%	16.8%
Portability Rate			86.3%

The availability of the basic contribution could also be expanded to a contribution to a Flexible Benefit Plan. Employees could elect to use the contribution to pay for health insurance premiums, to take it in the form of cash. The cash option could then be directed to a DC plan.

ii) Enhance portability for younger workers. Any of the following three changes would improve portability which may improve recruitment and retention of younger workers:

- *Increase the employer match on the Cash Balance plan feature from 50% to 75% of the Member Contribution Balance after five years of service.* This would increase the amount employees could receive if they terminate service before retirement. It could also help retention during the first five years of service. This change would reduce funds available to match voluntary contributions to the DC plan from the current maximum of 3% of pay to an estimated 2.4% of pay.

- *Provide a full refund of employer contributions in the Cash Balance benefit after five years of service.* A contribution credit of 8.8% of pay would be allocated to the Cash Balance benefit, thus redirecting most of the additional DB funding to younger members. Separate accounts would be credited with 7% interest annually. The account balance could be distributed upon termination with a refund benefit or included with the minimum pension determination at retirement. This change would reduce funds available to match voluntary contributions to the DC plan from the current maximum of 3% of pay to about 1.4% of pay.

- *Index the deferred vested benefit from the DB plan by 3.5% per year*. Cost-of-living adjustments would be applied to the DB retirement benefit a member had accrued at their termination date equal to a fixed annual increase of 3.5% per year from date of termination to the benefit commencement date. The DB retirement benefit would have a greater value for younger terminated members and would provide an enhanced level of guaranteed benefits. This change may also reduce the need to improve the Cash Balance plan feature. This change would reduce the funds available to match contributions to the DC plan from the current maximum of 3% of pay to about 1.3% of pay.

iii) Enhance features to retain experienced staff. Adding a Deferred Retirement Option Plan (DROP) provision may help retain older skilled workers by offering lifetime retirement income *plus* a lump sum benefit. DROPs are a perceived enhancement to a traditional DB plan in which a retirement-eligible employee promises to retire on a date certain in the future. The employee's benefit entitlement is calculated immediately and the monthly benefit amount is paid to an escrow account on the employee's behalf, from the date the employee enters the DROP until the date the employee leaves employment. During the interim, usually limited by the plan's terms, the DROP account is credited with an agreed amount of earnings or interest. For this alternative, an interest rate of 7% compounded annually is suggested. The employee receives no further service credit or salary credit in the DB plan, which makes the DROP approximately cost-neutral. On the agreed date, the employee retires with the monthly lifetime benefit as calculated when he or she entered the DROP, and the accumulated amount in the DROP account is distributed as either a lump sum or an annuity. DROP programs generally offer the employer a reduction in recruitment costs and more predictability in the timing of retirements.

C. ALTERNATIVE 3 – ENHANCE HYBRID FEATURES

In addition to the current PERA program, make a combination DB/DC plan available to future PERA members only. This alternative would increase the contribution to the DC plan, most likely resulting in enhanced benefits for employees leaving PERA at younger ages. A combination DB/DC plan directs a higher contribution to the DC plan which may increase the perceived value for potential employees. However, the change would also result in smaller benefits for most career employees at retirement.

The design would include using the 8% employee contributions to fund a DC plan and 10.15% employer contributions to fund a DB plan and the Health Care Trust Fund. DB plan features include:

i) Reducing the COLA benefit to 2.0% per year.

ii) Reducing the benefit formula multiplier to 1.75%.

iii) Reducing pre-retirement death and disability benefits consistent with the change in multiplier to 1.75%

iv) Offering a refund in lieu of a pension equal to 4% of salary accumulated with 7.0% interest for termination before eligibility for retirement and twice that amount if eligible for retirement.

This alternative results in a shift in public policy since it reduces the guaranteed lifetime income provided by PERA and allocates some of the current funding to enhanced DC benefits. The policy statements implicit in Alternative 3 are that future Colorado public employees will bear the risk for the adequacy for a significant part of their retirement income and a significantly smaller lifetime income will be guaranteed by PERA.

Alternative 3 would be designed to have the same relative costs as the current program when compared to the funding available but the DB plan cost is expected to be 9.0% of pay. As such, it would not be expected to result in higher contribution requirements long-term or expose PERA to the likelihood of adverse experience. In short, the funded status would not be expected to change from the current program since the reduction in DB benefits would match the reduction in funding. Choice is given to new hires only to reduce implementation complexity associated with introduction of a new plan, but this alternative would require that PERA develop a new program for new members that would have a different or reduced benefit structure. In effect, PERA would administer both old and new plans. Unless the administrative costs of the new DC plan were paid for out of participant accounts, this would significantly increase administrative costs and communication efforts. We estimate that Alternative 3 would require up to one year to implement due to the need to fully design the new PERA DB/DC structure and to adequately prepare the communications materials for employees to understand the reduced role of guaranteed benefits. Implementation could be simplified by using PERA's 401(k) plan for the DC plan, which could be expanded to include separate investment options and administrative services. To maintain cost-neutrality of the plan, no MatchMaker contribution would likely be available to new members who elect the combination DB/DC plan.

D. ALTERNATIVE 4 – OFFER A FULL DC PLAN

Add a full DC option plan, giving current and future employees the opportunity to elect out of the PERA guaranteed benefits at retirement, disability, and death in return for exclusive participation in a DC plan. Choice between DB and DC is seen as appealing to new employees. DC plan members could be given an irrevocable choice after five years of service to opt into the DB plan, transferring their DC account balance to the DB plan, thereby gaining credit under the DB plan for past service. An important policy consideration for the General Assembly is that employees who opt for the DC plan under this alternative would have no “safety net” in retirement since they are not covered by Social Security while a PERA member. Alternative 4 would result in a significant change in public pension policy because employees who elect the DC plan will have no guarantee of adequate retirement income and will bear all the risk for adequacy. These employees are likely to receive even less in retirement income than under Alternative 3 since all the retirement accumulation will come from the DC plan. They would likely, however, receive higher benefits at early termination of employment.

Alternative 4 would introduce a level of uncertainty to the PERA funding requirements and likely increase the cost of the current benefit structure for those remaining in the DB plan due to adverse selection. Informed employees will opt for the program that they anticipate will give them the greatest financial gain or that best matches their career plans. As a result it is likely that the average entry age of employees choosing the DB plan will increase when compared to the current mandatory program, and PERA costs will increase. This would occur if younger employees elect the DC plan and older employees elect the DB plan, increasing the cost of the DB plan. For example, an increase of five years in the average age would make PERA 5% more costly than the current program. The DC plan would be based on the same employee/employer contribution levels and include Health Care Trust Fund participation, but there is the likelihood of higher contribution requirements or a decrease in the funds available for the current DC funding by PERA. The amount of cost increase cannot be accurately predicted until experience develops under any program so offered, although we believe an increase in the DB plan cost of 0.3% of pay is a reasonable estimate. Also, no gain sharing might be available to reduce employer contributions to the DC plan.

The adoption of a defined contribution plan as an option to an existing defined benefit plan may place a burden of responsibility on individuals for their investments both during active work-life and in retirement. Offering a choice between DB and DC appears to provide fairness, but the timing of the choice is critical. Employees may have less information about their long-term needs, with respect to retirement planning, at the time they are hired than later in their careers.

Alternative 4 would add substantial program redesign. Tasks such as designing the DB opt-out provisions, developing modeling software so employees could project long-term financial impact under different scenarios, and developing contracts with insurance companies to provide annuity payment options for employees who elect this form of distribution, would be required. Overall, this alternative would require a significant lead-time to implement due to its complexity. We estimate that 18-36 months would be required for implementation.

APPENDIX A

PERA PROVISIONS FOR COLORADO STATE AND SCHOOL EMPLOYEES

Effective Date	Established in 1931, most recently amended during 2000.
Definitions	
Affiliated Employers	State agencies, political subdivisions of the state, school districts, courts, cities and municipalities and any other public entities which affiliate with PERA.
Covered Members	Employees of Affiliated Employers who work in a position subject to membership and for whom contributions are made.
Division	One of three separate divisions which include: State and School, Municipal and Judicial. Upon affiliation, employers are assigned to one of these divisions. The financial activities of each division are accounted for in separate trust funds.
Highest Average Salary (HAS)	One-twelfth of the average of the highest annual salaries upon which contributions were made during three periods of twelve consecutive months of Service Credit; or for a member with less than three years of Service Credit, one-twelfth of the average of the annual salaries upon which contributions were made. Annual salary increases recognized in the determination of HAS are limited to 15% a year.
Service Credit	The total of all earned, purchased (disability) projected, and military service credit.
Contributions	
Member Contributions	Members contribute 8.0% of salary.
Employer Contributions	10.4% of salary, through 6/30/2001, 9.9% from 7/1/2001 to 6/30/2002, and 10.04% after 7/1/2002. Gain sharing based on a 10-year amortization of 20% of any overfunding will reduce the employer contribution. The maximum employer rate set by State statute is 10.15% beginning 7/1/2002. These contribution rates include a contribution of 1.42% allocated to the Health Care Trust Fund.
Matching Employer Contributions	A percentage of the member contribution account less: 1. Any amount paid for the purchase of service credit, 2. Any payments in lieu of member contributions, and 3. Any interest accrued on 1 and 2.

For members who meet the requirements for a service or reduced service retirement at the time the refund is paid, or for payments made to survivors or beneficiaries of members who die before retirement, the percentage is 100%.

For members who receive a refund prior to meeting the requirements for a service or reduced service retirement, the percentage is 50%.

Eligibility for Benefits

Service Retirement

Retire with one of the following age and Service Credit requirements:

Age	Service Credit
50	30
55	Age and Service = 80 years or more
60	5

Reduced Service Retirement

Retire with one of the following age and Service Credit requirements:

Age	Service Credit
50	25
55	20
60	5

Vested Benefit

Terminate with five or more years of Service Credit and leave member contributions in the plan.

Disability Retirement

Become permanently disabled prior to being eligible for service retirement with five or more years of Service Credit (at least 6 months being earned during the last period of membership).

Survivor Benefits

Die prior to retirement with at least one year of Service Credit. (The one-year Service Credit requirement is waived if death is job-related.)

Monthly Benefit Amounts

Service Retirement	The greater of a or b a) 2.5% of HAS times years of Service Credit up to 40 years b) The money purchase benefit which is actuarially determined based on the value of the member contribution account and matching employer contributions on the effective date of retirement.
Reduced Service Retirement	The service retirement benefit calculated in (a) above reduced 4% for each year after age 60, 3% for each year from age 55 to age 60, 6% for each year prior to 55, and proportionately for fractions of a year, from the effective date of reduced service retirement to the date the member would have been eligible for a service retirement benefit.
Vested Benefit	The greater of the benefit calculated based on Service Credit and HAS at the date of termination or the money purchase benefit based on the value of the member contribution account and the matching employer contribution account on the date payments begin. The vested benefit is payable upon reaching the age required for a reduced service retirement benefit. If the member elects to begin receiving payments prior to reaching the age required for a service retirement benefit, the benefit calculated based on Service Credit and HAS will be reduced in accordance with the reduced service retirement provision.
Disability Retirement	If years of Service Credit at disability are greater than 20, the service retirement benefit is calculated based on actual Service Credit at disability; otherwise, the service retirement benefit calculated based on actual Service Credit at disability plus Service Credit projected to age 65, but not to exceed a total of 20 years of Service Credit. Benefits for disability retirees with an effective disability retirement date on or after July 1, 1988, and before January 1, 1999, who work after retirement will be reduced by 1/3 of the amount, if any, by which the initial annual PERA benefit plus earned income exceeds the annualized HAS.

Survivor Benefits

- Not Eligible for Reduced Service Retirement	Benefits are payable in the following order: (a) Qualified Children Under Age 23: 40% of HAS for one child, an equal share of 50% of HAS if there are two or more children. (b) Spouse: If no qualified children in (a) exist: I) less than 10 years of Service Credit, 25% of HAS, benefits begin at age 60; ii) 10 or more years of Service Credit, the greater of 25% of HAS or the benefit which would have been payable as a 100% joint and survivor option if the deceased member has been eligible for service retirement and retired on the date of death, benefits begin immediately. (c) Qualified Children Age 23 or Over: If no persons in (a) or (b) exist, 40% of HAS for one child, an equal share of 50% of HAS if there are two or more children. (d) Dependent Parents: If no persons in (a) to (c) exist, 25% of HAS for one dependent parent or 40% of HAS for two dependent parents (minimum of $100 per month for each dependent parent). Benefits begin immediately and continue until the death of the parent(s). (e) Named Beneficiary: If no persons in (a) to (d) exist, single payment equal to the member contribution account plus the matching employer contribution, plus interest. (f) Estate of Deceased Member: If no persons in (a) to (e) exist, single payment equal to the member contribution account plus the matching employer contribution, plus interest.
- Eligible for Reduced or Service Retirement	The benefit that would have been payable had the member retired on the date of death and elected the 100% joint and survivor option. If there is no designated co-beneficiary or surviving spouse, then qualified children, dependent parents, named beneficiary or estate are eligible for the same benefits payable on behalf of a deceased member who was not eligible for reduced service retirement.
Refund of Member Contributions	In the event a member leaves service for a reason other than death or retirement, member contribution accounts including interest plus matching employer contributions with interest are refunded upon request.
Benefit Options	Benefits are payable for the life of the retired member. Optional

reduced benefits may be elected at the time of retirement to provide for continuation of 50% or 100% of a reduced benefit amount to a designated co-beneficiary. If the member retires any time after their service retirement eligibility, the reduction for 50% or 100% continuation option will be based on the reduction factors at the time they first became eligible for service retirement.

Post-Retirement Benefit Increases	Each year on March 1, benefits which have been paid for at least three months are increased. The increase is 3.5% compounded annually for each year of retirement.

APPENDIX B

Example of Determination of Income Replacement Needs

As an example of the determination of income replacement needs, we considered a Colorado State employee earning $50,000 and retiring at age. The employee had pre-retirement disposable income of 73.6% of pay, determined as follows:

Column	Item	
(1)	Gross Pay	= $ 50,000 100.00% of pay
Less (2)	Medicare Taxes	= - 725 1.45% of pay
Less (3)	Federal and State Income Taxes	= - 7,000 14.00% of pay
Less (4a)	Required Retirement Plan Contributions	= - 4,000 8.00% of pay
Less (4b)	Voluntary Retirement Plan Contributions	= - 1,500 3.00% of pay
= (5)	Pre-Retirement Disposable Income	= $ 36,775 73.55% of pay

An analysis of typical spending patterns for retired employees compared to working employees indicates that employees retiring at this wage level require some additional income because their spending needs change after retirement. For example, while work related expenses are eliminated and the need for other savings may be reduced, expenses for items such as health care and medical insurance, including payment of Medicare's Part B premium, may increase. Therefore, to determine the amount of pre-tax income the employee would need at retirement to have the same disposable income as calculated above, the expected change in expenditures after retirement must be added in. In addition, estimated taxes on the PERA benefits must be considered, as shown below.

Column	Item			
(5)	Pre-Retirement Disposable Income	=	$ 36,775	73.55% of pay
Plus (6)	Net Change in Expenditures After Retirement*	=	+ 150	0.30% of pay
Plus (7)	Federal and State Income Taxes	=	+ 7,250	14.50% of pay
= (8)	Net Disposable Income Needed at Retirement	=	$ 44,175	73.85% of pay

* Includes estimates of all changes in purchases for a retiree compared to a working employee - housing, food, travel, entertainment, clothing, medical insurance, etc. Data for change in expenditures was taken from the 2001 Georgia State University Retiree Project Report and adjusted for changes in medical insurance for Colorado retirees.

Total Retirement Income of $44,175 or 88.35% of this employee's pre-retirement gross pay will enable this employee to suffer no reduction in his or her standard of living at retirement. However, cost of living adjustments would be required during retirement to keep up with inflation.

APPENDIX C

Summary of Benefit Provisions of State Retirement Systems

Provisions	Colorado	Iowa	Kansas	Minnesota	Missouri	New Mexico	North Dakota	South Dakota	Utah	Wyoming
Year of Origin of Plan	1931	1953	1962	1929	1957 (orig. plan)	1947	1965	1974	1960s	1949
Plan Type	DB	DB, Mult Empl, cost sharing	DB, Multi ER, Cost Sharing	DB, Mult Empl, Cost Sharing	DB, Single Employer	DB, Multiple ER, Agent	DB, Multiple ER. Cost Sharing	DB, Multiple ER, Cost Sharing	Sharing	DB, Multiple ER, Cost Sharing
Benefit Formula	2.5%*FAS*svc.	2%*FAS*svc. + 1%*FAS*(svc. from 30-35)	1.75*FAS*Svc.	1.7%*FAS*Svc.	1.7%*FAS*Svc., temp ben at 62=0.8%*FAS*Svc .	(3%*Svc)*FAS	1.89%*FAS*Svc.	1.55%FAS*Svc. Before 7/1/2000 +1.3%FAS*Svc. after7/1/200; alternate 2.25% for all Svc. less 80% of primary SS benefit	Noncontributory; 2.0%*FAS*Svc. Plus additional 3% if member before 1/1/1989	2%FAS*Svc.
Vesting Requirement	5	4 immediate at 55	10; immediate at 65	3	5	5	3; Immediate. At 65	5	4	4
Maximum benefit	100%FAS	65%FAS	None	None	None	80% of FAS	None	None	No	None
Health Insurance	Health insurance premium benefit up to $115/mo (svc=20) - $5.75*(20-svc) if svc<20. Starting July 1,2000 subsidy goes up to $230/mo before age 65	No provisions in Pension Plan itself, however Premium for emp. Under 65 is $277.07 and over 65--$149.61 (with Medicare) with no contribution from the state.	No Provisions in Pension plan, Premium for emp. Under 65 is$215.96 and over 65 - $141.16 (with Medicare). No contribution from the State.	No Provisions in Pension Plan, retirees under 65 pay $223.36/mo and over 65-- $236.42 (+Medicare). No contributions from the state.	Costs vary based on location and type of plan, with at least one no-cost option available. State Pays 34% of retiree premium.	No provisions in pension plan.	Family coverage cost to retiree over age 65 is $264.98 and $438.48 for retiree under age of 65. State Retiree Health Credit Fund which provides credit toward the premium of $4.50 per year of svc.	Premium for retiree under 65 is $154.34, and over 65 -- $82.86 (with Medicare). No contribution from the State.	No provisions in pension plan.	WRS does not provide a health insurance premium subsidy, nor sponsor coverage. Premium for retiree under 65 is $278.72 and over 65 -- $189.16 (with Medicare)
Final Average Salary (FAS)	Highest 3 years	Highest 3yrs(to 52,000); or max (aver of 5 or 52000)	Highest 3 years	Highest 5 years	Highest 3 years	Highest 36 months	Highest 36(non-consecutive) of last 120 months.	12 highest quarters of the last 40 quarters.	Highest 3 years	Highest 3 years
Normal Retirement Age/Service	Rule of 80 (age >=55),none/35; 50/30; 60/20; 65/5;	Rule of 88; 62/20;65/4;	62/10;65/any, rule of 85	65/1; 62/30; Rule of 90	62/5; Rule of 80;	Any/25 or 60/20 or 61/17 or 62/14 or 63/11 or 64/8 or 65/5	Rule of 85; 65/any	65/3	65/4; any/30	Rule of 85; 60/4
Early Retirement Eligibility	50/25; 55/20; 60/5;	55/any	55/10	55/3	57/5;	None	55/5	Special:Rule 85, age>55; Early: anytime in 10 yrs prior Normal Ret	62/10; 60/20; any age/25	50/4; any age/25;

Summary of Benefit Provisions of State Retirement Systems (cont'd)

Provisions	Colorado	Iowa	Kansas	Minnesota	Missouri	New Mexico	North Dakota	South Dakota	Utah	Wyoming
Early Retirement Reduction	3% per yr for ages 55-60, 4% -- 60-65; 6% prior to 55	3% per year	Reduction is 0.6%/mo between 55-60; 0.2%/mo btw 60&62.	Actuarially Reduced	Base benefit is reduced by o.5% per month prior to normal ret. Age	None	6% per year	Reduced 0.25%/mo prior to Norm Ret or Special Early	if <30 svc. 3% per year 60-65; 7% per year<60	Reduced 5% per year prior to 60
Normal Form of Payment	Life with cash refund	Life with cash refund	Life annuity with cash refund	Life with cash refund	Life with cash refund (from last actuarial report); Survey states that benefit includes 50% survivor's ben.	Straight life	Life with cash refund	50% survivor benefit	Life with cash refund	Life with cash refund
Social Security Coverage	None	Yes	Yes	Depends on Employer elect.; Public safety - not covered	Yes	Yes	Yes	Yes	Yes	Yes
COLA	Automatic 3.5%	min(3%,0.8*CPI) for retired bfr 7/1/90; for those retiring after a favorable experience div paid up to 3% if sufficient funds are available from investment earnings	Ad Hoc, approved by legislature	CPI, up to 2.5% plus investment surplus(11.1436% total post-ret increase payable to elig. Ret. On 1/1/2000)	80%CPI, up to 5%	After two full calendar years of retirement – 3% annually effective July 1. Only 1 year if retired due to disability or age 65.	Ad hoc, as approved by legislature.	Automatic 3.1%	Min (4.0%; CPI)	Min (2.5%, CPI); some ad hoc increases
Member Contributions	Required; 8%	Required; 3.7%	Required; 4%	Required; 4%	Not required	Required; 7.42%	Required; 4%	Required; 5%	0%	Required; 5.57%
Employer Contributions	10.4% of which 1.1% is for retiree medical	5.92%(in 1996), 5.75% in general	Determined by actuary; 3.2% in 1996;4.78% in 1999; FY2000 - 4.19%State agencies and schools; 3.22% Local	4.2% in 1996; 4% in the most recent survey	Employers make all contributions; Board of Trustees-rate every fiscal year; most recent 11.91%	16.59%	4.12%; State contributes an additional 1% of salary to pre-fund a health insurance program for retirees.	Match: 5%	13.69%	Contribution rate is statutorily set at 11.25%; employer decides the division: currently 5.68%

** Supplemented by most recent State Employee Benefits Survey 1/1/2000

APPENDIX C (CONT'D)
Summary of Benefit Provisions of School Retirement Systems

Provisions	Colorado	Iowa	Kansas	Minnesota	Missouri	New Mexico	North Dakota	South Dakota	Utah	Wyoming
Benefit Multiplier Formula	2.50%	2% (3% for years 30 to 35)	1.75%	1.70%	2.50%	2.35%	1.88%	1.55% (or 2.25% with Social Security offset)	2.0%*FAS*Svc + 3% if member before 1989	2%
Cost of Living Increase	Automatic 3.5% per year	80% of CPI, not greater than 3% per year (or greatest amount affordable as determined by actuary)	Last ad hoc in 1994: 3.0%	Variable based on investment performance & CPI	Based on CPI, not to exceed 5% per year or 75% over lifetime	Equal to 50% CPI but not >4% or <2%	Last ad hoc effective 7/1/1999: $2.00 per month of service plus $1.00 per month since retirement	3.1% per year	Min (4.0%, CPI)	1.5% per year
Early Retirement Age	50/25, 55/20, 60/5	55	55/10	55/3	55/5 or 25 years of Service	RO75	55/3	55/5	62/10; 60/20, any age/25	50/4
Employee Contribution	8%	3.70%	4%	9% w/o Social Security, 5% w/ Social Security	10.50%	7.60%	7.75%	5%	0.00%	5.57%
Employer Contribution	10.4% (includes 1.1% for health insurance)	5.75%	4.19%	9% w/o Social Security, 5% w/ Social Security	10.50%	8.65%	7.75%	5%	13.69%	5.68%
Final Average Salary (FAS)	Highest 3 years	Highest 3 years (not greater than $52,000)	Highest 3 years	Highest 5 consecutive years	Highest 3 consecutive years	Highest 5 consecutive years	Highest 3 years	Highest 3 of last 10 years	Highest 3 years	Highest 3 consecutive years
Health Insurance	yes	none	n/a	none	none	no	none	none	no	none
Maximum Benefit	100% of FAS	65% of FAS	No	None	100%	None	None	IRC Section 415 Limit	None	No
Normal Form of Payment	Life Annuity with Refund	Life Annuity with Refund	Life Annuity with Refund	Life Annuity with Refund	Life Annuity with Refund	Life Annuity with Refund	Life Annuity with Refund	Life Annuity (with additional 60% spousal survivor feature)	Life Annuity with Refund	Life Annuity with Refund
Normal Retirement Age	Rule of 80 at 55, 65/5, 60/20, 50/30	65/4, 62/20, Rule of 88	65, 62/10, Rule of 85	65 if born before 1943, 66 if born after 1943	60/5, 55/25, Rule of 80, or 30 years of Service	If older than 60, RO 75. 65/5; any/25	Age 65 or Rule of 85	Rule of 85 at age 55, 65/5	65/4; any/30	Age 60 or Rule of 85
Plan	Included in Public Employees' Retirement Association of Colorado (except Denver Public Schools)	Included in Iowa Public Employees Retirement System	Included in Kansas Public Employees Retirement System	Minnesota Teachers Retirement Association	Public School Retirement System of Missouri	New Mexico Educational Retirement Association	North Dakota Teachers' Fund for Retirement	Included in South Dakota Retirement System (Class A employees)	Included in Utah Public Retirement system (Noncontributory)	Included in State of Wyoming Retirement System
Reduction for Early Commencement	3% after age 55, 6% before age 55	3% per year	0.6% for each month between ages 55-60 and 0.2% for each month between 60-62	4.0-5.5% per year (unreduced at Rule of 90)	Unreduced if 30 years of Service Or Rule of 80	If <60 years old & <25 svc, 2.4% per year between 55 & 60, 7.2% per year less than 55	6% per year from earlier of age 65 or Rule of 85 age	Unreduced if Rule of 85 at 55	If <30 svc. 3% per year from 60 to 65, and 7% per year <60	5% per year prior to age 60
Social Security Coverage?	No	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes
Vesting	5 years	4 years	10 years	3 years	5 years	5 years	3 years	3 years	4 years	4 years

APPENDIX D

SELECTED DEFINED CONTRIBUTION AND HYBRID PLANS IN OTHER SYSTEMS

Washington Teachers' Retirement System

Washington adopted a hybrid plan (PERS Plan 2), for teachers only, effective for members who joined the system on or after July 1, 1996. The state adopted a new hybrid plan (PERS Plan 3) that will go into effect March 1, 2002 for state and higher education employees and September 1, 2002 for local government employees. The defined benefit portion of PERS Plan 3 is calculated using a 1 percent formula (years of service x 1 percent) instead of the 2 percent formula used in PERS Plan 2. The defined benefit provided in Plan 3 is funded solely by employer contributions. The defined contribution portion is funded by employee contributions (5 to 15%), a transfer payment, gain-sharing payments, and investment returns. Members are provided with investment options and contribution rate options by the Employee Retirement Benefits Board (ERBB).

All employees hired after the implementation date of the bill have the option of joining PERS Plan 2 or PERS Plan 3. Members of PERS Plan 2 will have the option of transferring during a pre-established transfer window. If they do not transfer to PERS Plan 3 within the open window, they will have an option to do so each January. However, to receive the transfer payment, members must transfer during the initial transfer window. Once a member selects PERS Plan 3, he or she cannot move back to Plan 2.

PERS Plan 2 members who transfer to PERS Plan 3 during the open window and earn service credit in February 2003 will receive a transfer payment in June 2003. For state and higher education employees it is equal to 110 percent of the employee contributions and interest in their accounts on March 1, 2002, and 111 percent of local government employees' accounts on March 1, 2002.

The gain-sharing component of Plan 3 is a way to pass on to members a portion of extraordinary investment returns earned by the state on invested retirement trust funds. When the average earnings on assets invested average greater than 10 percent over 4 fiscal years, 50 percent of the amount over 10 percent will be distributed to Plan 3 members based on their service credit. The gain-sharing amount will be allocated to the members' investment accounts in January of even-numbered years when there are extraordinary returns.

Michigan State Employees' Retirement System

All new employees hired on or after March 31, 1997, participate in a new defined contribution plan. Under the plan, the state contributes 4% and additionally matches employee contributions of up to 3%. One-half of employer contributions are vested after two years, two-thirds are vested after three years, and 100% are vested after four years. The Plan offers over 20 investment options.

Ohio State Teachers' Retirement System (STRS)

Ohio STRS began offering a DC Plan option to new members July 2001. The plan is also available to current non-vested members. Members can elect to participate in the DC plan with a Health plan, a DC plan (4.5% of pay employer contributions paid to plan in lieu of Health Plan coverage), and a combination DB/DC plan.

Nebraska Public Employees Retirement System

All state employees hired since January 1, 1964, participate in Nebraska's Defined Contribution Plan. The employer contribution rate is 6.75% on the first $19,654 and 7.5% on compensation above $19,654. The employee contribution rate is 4.33% on the first $19,654 and 4.8% on compensation above $19,654. Full vesting occurs at five years or age 55. Members have eleven investment fund options available to them. Nebraska PERS also provides financial planning and investment seminars for their members. The State Legislature is currently considering a proposal to convert the DC plans for State and County to Cash Balance defined benefit plans.

North Dakota Retirement System

North Dakota's defined contribution plan, a 401(a) plan, covers elected officials and non-classified employees. These employees were given the option of staying in the defined benefit plan or rolling over their assets into the new 401(a) plan when it was instituted. In the 401(a) plan, each participant contributes 4% of his or her compensation to the plan monthly while the state contributes 4.12 % of each participant's compensation monthly. Employee contributions are always immediately 100% vested. After two years of service, 50% of the employer contributions are vested; after three years of service, 75% are vested; after four years of service, 100% are vested.

South Dakota Retirement Systems

South Dakota has implemented a hybrid system that gives members a choice at termination of employment between a return of member and employer contributions plus guaranteed investment return or a defined benefit. The defined benefit is indexed at 3.1% per year until benefits commence and the benefits are also increased 3.1% per year while paid.

Employees who terminate employment before three years of service receive a return of all member contributions plus 75% of employer contributions, plus investment return. After three years of service, all the employer contribution is refunded also. The guaranteed investment return is 90% of the 90-day T-bill rate, but not less than 5% or more than 10% per annum.

Wisconsin Retirement System

Wisconsin adopted a choice plan effective January 1, 1990. The two methods of calculating retirement benefits are by formula and money purchase methods. A member of the system is entitled to the higher amount calculated at retirement.

The formula benefit is based on 3-year final average earnings, a formula factor based on the member's employment category, and years of creditable service. The money purchase benefit is a balance which consists of employee required contributions, employer matching contributions, and interest on the employee and employer contributions.

APPENDIX E

COLORADO PERA STATE & SCHOOL DIVISION
HISTORICAL FUNDING INFORMATION

Year Ending	Total Actuarial Value of Assets	Total Accrued Liability	Funded Ratio	Amortization Period	School Contribution %	State Contribution %	Employee Contribution %	Average Employer Contribution	Health Care Fund	Total Normal Cost %	Unfunded Contribution Percentage
1985	4,901,100,000	6,128,200,000	80.0%	30	11.80%	12.10%	8.01%	11.95%	0.40%	12.51%	7.46%
1986	5,890,000,000	6,771,900,000	87.0%	13	11.40%	11.70%	8.01%	11.55%	0.80%	12.11%	7.46%
1987	6,613,000,000	7,749,000,000	85.3%	26	10.40%	11.20%	8.01%	10.80%	0.80%	15.05%	3.76%
1988	7,332,000,000	8,385,000,000	87.4%	24	10.40%	11.20%	8.04%	10.80%	0.80%	15.21%	3.63%
1989	8,226,000,000	9,150,000,000	89.9%	21	11.40%	11.70%	8.04%	11.55%	0.80%	15.40%	4.19%
1990	8,932,000,000	9,974,000,000	89.6%	24	11.40%	11.70%	8.04%	11.55%	0.80%	15.49%	4.11%
1991	9,903,231,000	10,897,508,000	90.9%	26	11.10%	11.55%	8.04%	11.33%	0.80%	15.43%	3.94%
1992	10,693,236,000	11,781,970,000	90.8%	17	9.30%	10.00%	8.03%	9.65%	0.80%	14.08%	3.61%
1993	11,939,036,000	14,024,337,000	85.1%	18	10.30%	10.80%	8.03%	10.55%	0.80%	14.02%	4.56%
1994	12,915,187,000	14,924,107,000	86.5%	20	10.80%	10.80%	8.03%	10.80%	0.80%	14.56%	4.27%
1995	14,438,014,000	16,170,728,000	89.3%	19	10.80%	10.80%	8.03%	10.80%	0.80%	15.24%	3.60%
1996	16,279,813,000	16,979,142,000	95.9%	5	10.80%	10.80%	8.03%	10.80%	0.80%	13.12%	5.72%
1997	18,572,185,000	20,264,739,000	91.6%	12	10.75%	10.75%	8.02%	10.75%	0.80%	14.36%	4.41%
1998	21,644,949,000	22,498,963,000	96.2%	6	10.65%	10.65%	8.03%	10.65%	0.80%	14.82%	3.86%
1999	24,976,228,000	24,311,246,000	102.7%	0	10.45%	10.45%	8.02%	10.45%	0.95%	14.68%	3.79%
2000	27,749,435,000	27,027,469,000	102.7%	0	9.80%	9.80%	8.02%	9.80%	1.10%	15.89%	1.93%
2001							8.02%	8.75%	1.28%		

Note: Employer contributions exclude funding to the Health Care Fund.

Employee contributions represent a weighted average considering 8% State and School rate, and 9%-12.3% State Trooper rate.

Amortization period has been within the statutory requirement throughout the period. No contributions above the statutory rate have been actuarially recommended.

APPENDIX F

COMPARISON OF HISTORICAL RATES OF RETURN BETWEEN PERA AND VARIOUS ASSET ALLOCATION POLICIES FROM 1970 THROUGH 2000

Year Ending	Actual Investment Return	Equity / Fixed Income Allocation % 0/100	20/80	40/60	60/40	80/20	100/0
1970	14.10%	9.94%	7.25%	4.55%	1.86%	-0.84%	-3.53%
1971	15.15%	6.92%	9.01%	11.11%	13.20%	15.30%	17.39%
1972	8.80%	4.91%	7.55%	10.20%	12.84%	15.49%	18.13%
1973	0.20%	5.47%	0.65%	-4.18%	-9.00%	-13.82%	-18.65%
1974	3.25%	6.44%	0.32%	-5.81%	-11.94%	-18.06%	-24.19%
1975	11.35%	7.72%	14.40%	21.07%	27.74%	34.42%	41.09%
1976	10.95%	9.09%	13.11%	17.14%	21.16%	25.19%	29.21%
1977	5.85%	4.02%	4.20%	4.39%	4.58%	4.76%	4.95%
1978	4.55%	5.37%	7.28%	9.20%	11.12%	13.03%	14.95%
1979	6.05%	7.10%	10.25%	13.41%	16.56%	19.71%	22.86%
1980	9.00%	7.51%	12.63%	17.74%	22.86%	27.97%	33.08%
1981	0.20%	11.26%	9.08%	6.90%	4.73%	2.55%	0.37%
1982	31.00%	19.81%	19.79%	19.77%	19.75%	19.74%	19.72%
1983	12.20%	7.79%	11.66%	15.52%	19.39%	23.25%	27.12%
1984	10.40%	12.05%	10.29%	8.54%	6.78%	5.03%	3.27%
1985	21.50%	14.53%	18.41%	22.30%	26.19%	30.08%	33.97%
1986	13.80%	11.05%	13.50%	15.95%	18.39%	20.84%	23.29%
1987	2.90%	3.97%	4.09%	4.20%	4.32%	4.44%	4.55%
1988	11.80%	7.51%	10.02%	12.54%	15.06%	17.58%	20.09%
1989	17.20%	11.21%	13.58%	15.95%	18.32%	20.69%	23.06%
1990	1.50%	8.06%	4.30%	0.53%	-3.24%	-7.01%	-10.77%
1991	19.82%	10.14%	14.38%	18.63%	22.87%	27.12%	31.36%
1992	6.35%	5.41%	6.06%	6.71%	7.36%	8.01%	8.66%
1993	14.90%	7.01%	8.84%	10.68%	12.51%	14.35%	16.18%
1994	1.15%	0.86%	1.24%	1.62%	2.01%	2.39%	2.77%
1995	24.61%	12.47%	16.54%	20.61%	24.67%	28.74%	32.81%
1996	13.60%	4.09%	7.11%	10.14%	13.16%	16.18%	19.20%
1997	20.10%	7.97%	11.58%	15.19%	18.80%	22.41%	26.02%
1998	15.70%	7.35%	9.56%	11.76%	13.96%	16.17%	18.37%
1999	19.00%	1.44%	5.98%	10.53%	15.08%	19.62%	24.17%
2000	0.20%	9.48%	5.89%	2.30%	-1.28%	-4.87%	-8.46%
Geometric Mean:	**10.94%**	**7.93%**	**9.20%**	**10.38%**	**11.47%**	**12.46%**	**13.36%**
Standard Deviation:	**7.80%**	**3.82%**	**4.90%**	**7.29%**	**10.10%**	**13.06%**	**16.09%**

Note: Returns are gross of fees and transaction costs.

Ability of investors to achieve the portfolio returns shown above are highly dependent on maintaining asset allocation throughout the entire period.

APPENDIX G

PROJECTION OF ESTIMATED PERA COSTS - CURRENT PLAN
DEFINED CONTRIBUTION MATCHMAKER BEGINNING IN FISCAL YEAR 2001
STATE & SCHOOL DIVISION (INCLUDES STATE TROOPERS)

Total Payroll Increase:	5.50%
Assumed Rate of Return:	8.75%
Projected Rate of Return:	9.03%

Fiscal Year Begin	Projected Salaries	Total Employer Cont Rate	Employee Cont Rate	Total Contribution Rate	Normal Cost Rate	10 Year Amortization Rate	DB Contribution	Allocation to Health Care Fund	Available DC Matchmaker Contribution*
2001	$ 4,561,132,894	10.17%	8.02%	18.19%	15.89%	-1.86%	14.23%	1.42%	2.54%
2002	4,811,995,203	9.96%	8.02%	17.98%	15.89%	-2.87%	13.39%	1.66%	2.93%
2003	5,076,654,939	9.89%	8.02%	17.91%	15.89%	-2.87%	12.51%	1.96%	3.44%
2004	5,355,870,961	9.86%	8.02%	17.88%	15.89%	-1.57%	12.48%	1.96%	3.44%
2005	5,650,443,864	9.97%	8.02%	17.99%	15.89%	-1.48%	13.63%	1.57%	2.79%
2006	5,961,218,276	10.04%	8.02%	18.06%	15.89%	-1.51%	13.78%	1.54%	2.74%
2007	6,289,085,282	10.07%	8.02%	18.09%	15.89%	-1.56%	13.78%	1.55%	2.76%
2008	6,634,984,972	10.08%	8.02%	18.10%	15.89%	-1.61%	13.75%	1.57%	2.78%
2009	6,999,909,146	10.08%	8.02%	18.10%	15.89%	-1.66%	13.71%	1.58%	2.81%
2010	7,384,904,149	10.07%	8.02%	18.09%	15.89%	-1.71%	13.66%	1.60%	2.83%
2011	7,791,073,877	10.06%	8.02%	18.08%	15.89%	-1.76%	13.61%	1.61%	2.86%
2012	8,219,582,940	10.05%	8.02%	18.07%	15.89%	-1.79%	13.56%	1.63%	2.88%
2013	8,671,660,002	10.05%	8.02%	18.07%	15.89%	-1.83%	13.53%	1.64%	2.90%
2014	9,148,601,302	10.04%	8.02%	18.06%	15.89%	-1.86%	13.49%	1.65%	2.92%
2015	9,651,774,373	10.03%	8.02%	18.05%	15.89%	-1.89%	13.46%	1.66%	2.93%
2016	10,182,621,964	10.03%	8.02%	18.05%	15.89%	-1.92%	13.43%	1.67%	2.95%
2017	10,742,666,172	10.02%	8.02%	18.04%	15.89%	-1.94%	13.40%	1.68%	2.96%
2018	11,333,512,811	10.02%	8.02%	18.04%	15.89%	-1.96%	13.39%	1.68%	2.97%
2019	11,956,856,016	10.01%	8.02%	18.03%	15.89%	-1.98%	13.36%	1.69%	2.98%
2020	12,614,483,097	10.01%	8.02%	18.03%	15.89%	-2.00%	13.35%	1.69%	2.99%
2021	13,308,279,667	10.01%	8.02%	18.03%	15.89%	-2.02%	13.33%	1.70%	3.00%
2022	14,040,235,049	10.00%	8.02%	18.02%	15.89%	-2.03%	13.30%	1.71%	3.01%
2023	14,812,447,976	10.00%	8.02%	18.02%	15.89%	-2.04%	13.29%	1.71%	3.02%
2024	15,627,132,615	10.00%	8.02%	18.02%	15.89%	-2.03%	13.29%	1.71%	3.02%
2025	16,486,624,909	10.00%	8.02%	18.02%	15.89%	-2.02%	13.29%	1.71%	3.02%
2026	17,393,389,279	10.00%	8.02%	18.02%	15.89%	-2.01%	13.30%	1.71%	3.01%
2027	18,350,025,689	10.00%	8.02%	18.02%	15.89%	-2.00%	13.31%	1.70%	3.01%
2028	19,359,277,102	10.00%	8.02%	18.02%	15.89%	-1.99%	13.32%	1.70%	3.00%
2029	20,424,037,343	10.00%	8.02%	18.02%	15.89%	-1.98%	13.32%	1.70%	3.00%
2030	21,547,359,397	10.00%	8.02%	18.02%	15.89%	-1.97%	13.34%	1.69%	2.99%
							Average:		2.95%

* Assumes all members elect to contribute to an eligible DC plan the amount required to receive the maximum match.

APPENDIX H

SUMMARY OF SIGNIFICANT STATEWIDE RETIREMENT SYSTEM CHANGES SINCE 1991 REGARDING PORTABILITY

State Plan	Year Adopted	Portability Feature Adopted: Cash Balance	Portability Feature Adopted: DC	Members Eligible: Limited Group	Members Eligible: All	How Is New Feature Made Available? Current Members: Choice	Current Members: No Choice	New Members: Choice	New Members: No Choice	Benefit Types Utilized: DB	Cash Balance: Option	Cash Balance: Minimum	DC	DB/DC
West Virginia TRS	1991		X		X		X		X	X			X	
Colorado PERA	1995	X			X		X		X	X		X		
Washington TRS	1995		X		X	X			X					X
California STRS	1996	X		X			X		X	X	X			
Michigan SERS	1996		X		X	X			X	X			X	
Iowa PERS	1998	X			X		X		X	X		X		
Ohio STRS	1998		X	X		X(<5)		X		X			X	
South Dakota RS	1998	X			X	X		X		X	X			
Vermont SRS	1998		X	X		X		X		X			X	
Virginia RS	1998		X	X		X		X		X			X	
Arizona SRS	1999		X	X		X		X		X			X	
Colorado PERA	1999	X	X		X	X		X		X		X	X	
Idaho PERS	1999		X		X		X		X	X			X	
Louisiana TRS	1999		X	X		X		X		X			X	
Montana PERS	1999		X		X	X		X		X			X	
North Dakota PERS	1999	X	X	X(DC)	X(Cash Balance)	X		X		X	X		X	
California STRS	2000	X			X		X		X	X		X		
Florida RS	2000		X		X	X		X		X			X	
Ohio STRS	2000		X		X	X		X		X			X	X
South Carolina RS	2000		X	X			X	X		X			X	
Utah SRS	2000		X	X		X		X		X			X	
Washington SERS	2000		X		X		X		X					X

APPENDIX I

Key Public Pension and Benefit Provisions in the Economic Growth and Tax Relief Reconciliation Act of 2001 (H.R. 1836) (Signed into law June 7, 2001)[1]

Provisions	H.R. 1836
Portability of Pension Assets	Permits rollovers between and among governmental section 457(b) plans, section 403(b) plan, and qualified plans, effective for distributions after 12/31/2001. A rollover notice would be required to include a description of the different distribution restrictions and tax consequences applicable to distributions from the transferee plan compared to distributions from the distributing plan. The new rollover rules would apply to distributions made after 12/31/2001. 457(b) plans must agree to maintain separate accounts for money rolled in from qualified plans and the accounts would be subject to the 10% early distribution penalty (if applicable). After-tax employee contributions can be included in a direct rollover to an IRA or another qualified plan (if the plan agrees to separately account for such contributions and earnings). However, after-tax contributions cannot be rolled over from an IRA to a retirement plan or to 403(b) or 457(b) plans. Effective for distributions made after 12/31/2001. Surviving spouses can roll over distributions to a qualified plan, 403(b) plan, or governmental 457(b) plan in which the spouse participates effective for distributions made after 12/31/2001.
Purchase of Permissive Service Credit	Funds from 403(b) plans and 457(b) plans can be transferred to a governmental qualified DB plan to purchase permissive service credit or for the repayment of refunds, effective for transfers made after 12/31/2001.
State and Local Government 457 Plan Flexibility	Provides flexibility in distributions for 457(b) plans by repealing the 457 irrevocable distribution election and 15 year minimum rule, generally making 457(b) plans subject to the standard minimum distribution rules; effective for distributions after 12/31/2001. Distributions from governmental 457(b) plans are subject to withholding, notice and 1099-R reporting rules applicable to other pension arrangements.
Treatment of 457 Benefits Upon Divorce	Applies the tax treatment applicable to domestic relations orders of other governmental plans to domestic relations orders for section 457(b) plan benefits, for transfers, distributions, and payments made after 12/31/2001.
Waiver of 60-Day Rule for Hardship	Provides the Secretary of the Treasury authority to waive the 60-day limit on rollovers in the case of casualty, disaster, or other events beyond the control of the individual, effective for distributions after 12/31/2001.
Rollovers of Certain Hardship Distributions	Hardship distributions (whether or not attributable to elective deferrals, including 457(b) plan hardship distributions) generally are not eligible for rollover, effective after 12/31/2001.
Safe Harbor Relief for Hardship Withdrawals	The suspension period is reduced to 6 months, effective for plan years commencing after 12/31/2001.
Repeal of "Same	Effective for distributions made after 12/31/2001, the "same desk" rule is

[1] Analysis of H. R. 1836 provided by NASRA.

Provisions	H.R. 1836
Desk" Rule	repealed for 401(k), 403(b) and 457(b) plans.
Default Rollover of Small Distributions	Plans are required to automatically roll over distributions of between $1,000 and $5,000 to a designated IRA, unless the participant affirmatively elects to receive the distribution. This rule is effective for distributions made after final DOL rules are issued (no later than 3 years after enactment) providing fiduciary "safe harbors" for the designation of an institution and the investment funds. Currently, it is unclear how (or even if) this is applicable to governmental plans. Presumably, if this provision does apply, public retirement plans would not be protected by these safe-harbors and would need to consider state remedies for potential liability.
Defined Benefit Dollar Limit	Defined benefit dollar limit is increased to $160,000, effective for limitation years ending after 12/31/01, and indexed for inflation in $5,000 increments (as under current law) thereafter. This limit applies to benefits beginning at age 62 (rather than Social Security Retirement Age), for all plans, effective for limitation years ending after 12/31/2001, allowing public plans that exercised the 1988 TAMRA grandfather election to treat their post-1990 hires the same as the grandfathered participants. The age 55/$75,000 floor for governmental employers is also repealed (which has no effect, as the dollar limit at age 55 is now greater than $75,000 floor).
Compensation Limit	The qualified plan and 403(b) plan compensation limit is increased to $200,000 with indexing in $5,000 increments, effective for plan years beginning after 12/31/2001.
Percent of Compensation Limits and Maximum Exclusion Allowance	Effective for limitation years beginning after 12/31/2001, the 415(c) plan limit for 401(a), 401(k) and 403(b) defined contribution plans is increased from 25% of compensation to 100% of compensation effective for plan years beginning after 12/31/2001. The 457(b) limit is increased from 33-1/3% of includible compensation to 100% of includible compensation and the general maximum exclusion allowance under 403(b) is eliminated.
Deferred Compensation and Defined Contribution Dollar Limits	Increases the limitations on: 1) the exclusion for elective deferrals to 401(k) and 403(b) plans and 2) deferrals under governmental 457(b) deferred compensation plans and tax-exempt organizations, to $11,000 in 2002, $12,000 in 2003, $13,000 in 2004, $14,000 in 2005, and $15,000 in 2006; and indexed in $500 increments thereafter. The maximum dollar limit on annual contributions is increased to $40,000 with indexing in $1,000 increments, effective for plan years beginning after 12/31/2001.
Repeal of Coordination Requirement for 457(b) Plans	The coordination requirement between 457(b) plans and other plans is repealed, effective for years beginning after 12/31/2001. Thus, separate limits generally would apply to 457(b) plans and other types of plans, although the elective deferral limits would continue to apply to combined 401(k) and 403(b) deferrals.

Provisions	H.R. 1836
Catch-up Contributions	The 457(b) catch-up provision is increased to twice the regular deferral limit. The current 457(b) catch-up rule is retained. Additional catch-up contributions are provided for individuals age 50 and over, increasing the otherwise applicable contribution limits for 401(k), 403(b), 457(b) and other salary reduction plans by $1,000 in 2002, $2,000 in 2003, $3,000 in 2004, $4,000 in 2005, and $5,000 in 2006 and thereafter; indexed in $500 increments after 2006. These catch-up limits cannot be used in the same years a 457(b) plan catch-up applies.
Income Tax Credit For Low and Middle Income Savers	A temporary (sunsets after 12/31/2006) nonrefundable income tax credit of up to $1,000 is available for certain low and middle income savers. The credit does not otherwise affect the tax treatment of the contributions. The credit applies to taxpayers with AGI of not more than: $50,000 (married filing joint), $37,500 (head of household), and $25,000 (single), who are at least 18 years of age and not full-time students or claimed as dependents on another taxpayer's return. The amount of the credit depends on the AGI level, 10% - 50% of up to $2,000 in annual pre-tax or voluntary after-tax contributions to 401(a) plans, 401(k) plans, 403(a) plans, 403(b) plans, governmental 457(b) plans, traditional and Roth IRAs, SIMPLEs, and SEPs. The eligible contribution amount is decreased by any taxable plan distributions (and any Roth distributions) received in the year of the credit, the preceding two years, and through the due date for filing the tax return.
Deemed IRAs Under Employee Plans	Allows governmental 401(k), 457(b) and 403(b) plans to offer an IRA through the employer plan effective for plan years beginning after 12/31/2002. The Act is silent on the question of whether or to what extent fiduciary duties apply to deemed IRAs of public sector plans.
Creation of "Roth" 401(k) and 403(b) Accounts	Effective after 12/31/2005, employers may allow employees to make "Roth" contributions to 401(k) or 403(b) plans. Such contributions would need to be accounted for separately. The employee is taxed immediately on such contributions, but (as with Roth IRAs) both the contributions and earnings generally are not be subject to tax upon a qualified distribution from the plan (e.g. after reaching 59-1/2).

APPENDIX J

Deferred Retirement Option Plans (DROPs) in Other Systems

Florida Retirement System

Eligibility: Members are eligible to participate in the DROP when they are vested and have reached their normal retirement date.

Participation Limit: Members may participate for a maximum of 60 months following the date on which they become eligible for DROP.

DROP Benefits: DROP accounts earn interest compounded monthly at an effective annual rate of 6.5%. Retirement benefits paid into the DROP are increased by a 3% cost-of-living adjustment each July 1.

Maryland Retirement System (State Police)

Eligibility: State Police members are eligible to participate when they have at least 22 years but less than 28 years of service *and* are under age 60.

Participation Limit: DROP participation is limited to the lesser of
- Four years
- Difference between 28 years of service and the member's eligibility service upon election
- Difference between age 60 and the member's age as of the date the member elects to participate in DROP
- A term selected by the member (not to exceed four years)

DROP Benefits: DROP accounts earn interest at a rate of 6% a year, compounded monthly. Cost-of-living adjustments tied to the U.S. Department of Labor's Consumer Price Index are applied.

South Carolina Retirement System

Eligibility: Active members eligible for service retirement may participate in the DROP program, which is called the Teacher and Employee Retention Incentive (TERI) program.

Participation Limit: TERI participation is limited to five years.

DROP Benefits: DROP accounts earn interest and cost-of-living adjustments.

Louisiana State Employees' Retirement System

Eligibility: Members must meet one of the following requirements
- 30 years of service at any age
- 25 years of service at age 55
- 10 years of service at age 60

Participation Limit: DROP participation is limited to 36 months.

Louisiana Teachers' Retirement System

Eligibility: In order to participate in the current DROP plan, regular members must be:
- any age with 30 years of service
- at least age 55 with 25 years of service; or
- at least age 65 with 20 years of service

Participation Limit: DROP participation is limited to 36 months and 60 days. The extra 60 days allows time for members to have service credit certified by their employers.

Texas Teachers' Retirement System

Eligibility: TRS members are eligible to participate in the DROP plan if they meet all three of the following conditions:
- be active contributing members;
- be eligible for a service retirement annuity that is not reduced for early age; and
- have at least 25 years of service credit in TRS.

Participation Limit: Members may elect to participate in DROP for a period of one to five years, in yearly increments.

DROP Benefits: Interest is credited at the rate of five percent per annum to members' DROP accounts until final distributions are made.

APPENDIX K

November 20, 2001

Members of the Legislative Audit Committee
Legislative Services Building
200 E. 14th Avenue
Denver, CO 80203-2211

Dear Committee Members:

PERA appreciates the opportunity to comment on the Study of Retirement Plan Designs that was authorized pursuant to SB 01-149, and recently completed.

Buck Consultants, the national benefits consulting firm that conducted the Study, compared PERA's benefits, costs, and portability to retirement plans of other public and private employers. The comparison found that PERA's total benefit package is near the top among plans surveyed. Not only are benefits excellent for employees who retire after a full career, benefits are very good for employees who work only a few years for the State or a school district.

In addition, PERA benefits have a lower cost than any other public system surveyed. Most public colleges and universities in Colorado that have established a defined contribution plans for their faculty contribute at least 11.4 percent of salary to the plan. PERA State and school employers, on the other hand, pay 9.9 percent of salary this year. The PERA State and school cost is significantly lower than the average private sector employer's cost as well.

The Study notes that PERA is a defined benefit retirement plan that includes many features of a defined contribution plan. The Legislature has adopted many of these improvements since 1995 at the urging of the PERA Board of Trustees. PERA believes public employees are well served by:

1. The ability to refund or rollover member contributions with a guaranteed 7% annual interest, plus a 50 percent or 100 percent match from employer contributions.
2. The ability to receive a dollar-for-dollar MatchMaker contribution (up to 3 percent of pay in 2001 and 2002) on the member's voluntary contribution to a 401(k), 457, or 403(b) defined contribution plan.
3. The ability to rollover retirement savings into the PERA 401(k) plan, or into the PERA defined benefit plan to purchase years of service credit at a low cost.

The Legislature and the PERA Board have developed a comprehensive plan that meets the unique needs of Colorado's public employees who are not covered by Social Security.

The Study points out that PERA members have valuable survivor, disability and retiree health care benefits, and annual cost of living increases, that usually are not provided in defined contribution plans.

PERA members have an incentive, through the MatchMaker Program, to contribute to defined contribution plans. PERA does not believe, however, that a stand-alone defined contribution plan is appropriate for employees in lieu of a defined benefit plan or Social Security.

One of the reasons PERA's benefits have improved over the years, at the same time that taxpayer contributions have been cut by over 1.5 percent of salary, is the strong investment return that PERA has earned. Because PERA has a long-term investment time horizon, the trust funds can be invested in equities, venture capital, and real estate, asset categories that perform well over time. The Study points out that another factor in PERA's good returns is that total annual administrative and investment expenses for PERA are 0.36 percent of assets, far less than the total expenses of defined contribution plans.

The Study recommends no change in retirement plans as the result of any problem in attracting or retaining employees. PERA concurs that the current PERA plan provides an attractive retirement benefit for younger employees coming from Social Security-covered employment in the private sector, as well as for employees coming to public employment in mid-career looking to earn a good monthly retirement benefit under PERA. State employees have shown recently that reducing health care premiums is their highest benefit priority.

While Buck Consultants and the State Auditor's Office previewed the Study for the PERA Board on November 16, the Board has not had the chance to review the Study. The Board will review the Study thoroughly, including the alternatives enumerated, after the Study is presented to the Committee on December 4. The Board would like to submit a written response to the Committee within two weeks after the Study's release.

Finally, I would like to thank the Office of the State Auditor for its professional work on this study. The Office outlined the key issues, gathered much information, and hired an experienced firm to conduct the Study.

Sincerely,

Meredith Williams
Executive Director

xc: PERA Board of Trustees

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