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# Report To
# The Mississippi Legislature

**FY 1994 Actuarial Review of the Public Employees' Retirement System of Mississippi**

**April 24, 1996**

**PEER's contract actuary found that the unfunded actuarial accrued liability for the Public Employees' Retirement System (PERS) is unreasonably high, that certain assumptions adopted by the PERS Board may overstate the anticipated rate of inflation, and that the board should adopt an objective standard for reducing the liability.**

**The actuary also found that the provision which allows unreduced benefits for persons retiring with twenty-five years of service weakens the system, and recommends that the PERS Board study ways to delete the "twenty-five and out" benefit from the plan with the least disruption to members.**

**The PEER Committee**

## PEER: The Mississippi Legislature's Oversight Agency

**The Mississippi Legislature created the Joint Legislative Committee on Performance Evaluation and Expenditure Review (PEER Committee) by statute in 1973. A standing joint committee, the PEER Committee is composed of five members of the House of Representatives appointed by the Speaker and five members of the Senate appointed by the Lieutenant Governor. Appointments are made for four-year terms with one Senator and one Representative appointed from each of the U. S. Congressional Districts. Committee officers are elected by the membership with officers alternating annually between the two houses. All Committee actions by statute require a majority vote of three Representatives and three Senators voting in the affirmative.**

**Mississippi's constitution gives the Legislature broad power to conduct examinations and investigations. PEER is authorized by law to review any public entity, including contractors supported in whole or in part by public funds, and to address any issues which may require legislative action. PEER has statutory access to all state and local records and has subpoena power to compel testimony or the production of documents.**

**PEER provides a variety of services to the Legislature, including program evaluations, economy and efficiency reviews, financial audits, limited scope evaluations, fiscal notes, special investigations, briefings to individual legislators, testimony, and other governmental research and assistance. The Committee identifies inefficiency or ineffectiveness or a failure to accomplish legislative objectives, and makes recommendations for redefinition, redirection, redistribution and/or restructuring of Mississippi government. As directed by and subject to the prior approval of the PEER Committee, the Committee's professional staff executes audit and evaluation projects obtaining information and developing options for consideration by the Committee. The PEER Committee releases reports to the Legislature, Governor, Lieutenant Governor, and the agency examined.**

**The Committee assigns top priority to written requests from individual legislators and legislative committees. The Committee also considers PEER staff proposals and written requests from state officials and others.**

# FY 1994 Actuarial Review of the Public Employees' Retirement System of Mississippi

**April 24, 1996**

**The PEER Committee**

**Mississippi Legislature**

**The Mississippi Legislature**

# Joint Committee on Performance Evaluation and Expenditure Review

**PEER Committee**


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**April 24, 1996**

**Honorable Kirk Fordice, Governor**
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**Honorable Tim Ford, Speaker of the House**
**Members of the Mississippi State Legislature**

**According to MISS. CODE ANN. Section 25-11-101 (1972), the PEER Committee is required "to have performed random actuarial evaluations, as necessary, of the funds and expenses of the Public Employees' Retirement System and to make annual reports to the Legislature on the financial soundness of the system."**

**The PEER Committee engaged Bryan, Pendleton, Swats & McAllister, Actuaries and Consultants, to prepare the enclosed actuarial review of PERS for FY 1994. PEER released this report, entitled FY 1994 Actuarial Review of the Public Employees' Retirement System of Mississippi, at its April 24, 1996, meeting. The Executive Summary on page 1 presents the report's findings.**

Senator Bill Canon, Chairman

## This report does not recommend increased funding or additional staff.

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# PUBLIC EMPLOYEES RETIREMENT SYSTEM OF MISSISSIPPI

## Actuarial Audit

BRYAN, PENDLETON, SWATS & MCALLISTER, LLC
Actuaries and Employee Benefits Consultants

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# Executive Summary

Bryan, Pendleton, Swats & McAllister, LLC has been commissioned to perform an actuarial audit of the Public Employees Retirement System of Mississippi (PERS) by the Joint Legislative Committee on Performance Evaluation and Expenditure Review (PEER). This report contains the findings and a description of the procedures used in the audit.

**Findings**

1. Each year on June 30, the PERS actuary prepares an Actuarial Valuation which measures the liabilities of the system and determines the appropriate amount of cost to assign to the current year. The actuarial procedures used by the PERS actuary in the June 30, 1994 Actuarial Valuation of the system conform to generally accepted actuarial procedures. In addition, we believe the system liabilities as determined in that valuation are a fair and reasonable estimation of the funded status of PERS. However, we believe some adjustments are appropriate.

   a. Valuation techniques used by the PERS actuary should include an estimate for unused leave of absence included in credited service at retirement.

   b. The valuation report prepared by the PERS actuary should include gains and losses by source for new members and the major economic assumptions.

2. We believe the Unfunded Actuarial Accrued Liabilities (UAAL), as determined in the June 30, 1994 Actuarial Valuation is unreasonably high. Under the current funding method for the system, the contribution rates are fixed by statute, leaving the amortization period of the UAAL as the balancing item determined by the Actuarial Valuation. As a result, the amortization of the UAAL should be monitored very closely. PERS currently places too much emphasis on the amortization period of the UAAL as a measure of the funding progress of PERS. The PERS Board of Trustees should consider adopting an objective standard for the amortization of the UAAL, such as reducing the UAAL to less than 80% of covered payroll over the next eight years.

3. The assumptions appear reasonable; however, we believe the economic assumptions may overstate the anticipated rate of future inflation. The assumption for rate of return is in the acceptable range but should be considered at the high end of that range. PERS has used 8% as the expected rate of return for several years. The PERS Board of Trustees should not consider this assumption as conservative as it was several years ago.

4. Benefits appear to be adequate and competitive; however, we believe unreduced benefits with 25 years of service weakens the system and is contrary to trends in the workplace and increasing life expectancy. The PERS Board of Trustees should commission a study of this benefit that covers its effects on PERS, and personnel needs. The study should include possible ways to remove the benefit with the least disruption to members.

5. The PERS member contribution rate is among the highest for the systems included in our survey group. Care should be taken before any future benefit increases are funded with member contributions.

# Introduction

The following summarizes the basic elements of the audit as requested by PEER:

- Determine if the Actuarial Valuation procedures used by the PERS actuary are technically sound, and based upon generally accepted actuarial standards using the most recent available Actuarial Valuation prepared as of June 30, 1994;

- Determine if the plan meets statutory objectives;

- Determine if the actuary's valuation reports are accurate and comprehensive; and

- Determine if any provisions in the PERS law weaken the system.

In order to aid our review of PERS, we will use the results of the June 1994 Survey of State and Local Government Employee Retirement Systems by Paul Zorn of the Public Pension Coordinating Council. For the most part, the results are for 1992. To make our comparisons we restricted our survey group to statewide public plans with over 25,000 members and over one billion dollars in assets, covering either one or all of teachers, general state, county or municipal employees. There are 62 systems included in our comparison group. To make the comparisons, we show where PERS ranks among the survey group. For each of the comparisons we will indicate the number of systems in the survey group which responded to the question from the survey. Included in Appendix B is a listing of the systems included in the survey group.

Also as part of our review, we will reference the Study of Public Employees Retirement Systems, compiled by a team from Ernst & Young and the Government Finance Officers Association for the Society of Actuaries. The study was based on 60 experience studies covering 101 plans; 78 actuarial reports covering 183 plans and 90 comprehensive annual financial reports.

The information related to PERS will, for the most part, come from the Annual Actuarial Valuations prepared by the PERS actuary, Gabriel, Roeder, Smith & Company and from the State of Mississippi Retirement Systems Experience Investigations for Four Year Period Ending June 30, 1994, also prepared by the PERS actuary.

# Funded Status of System

The following are definitions of terms which will be used in the discussion of the financing of PERS.

Actuarial Cost Method is a budgeting process that assigns a cost of the benefits payable under the system to prior, current and subsequent plan years. The cost of the benefits payable determined as of a specific date is referred to as the present value of benefits.

Normal Cost is the annual cost assigned to current and subsequent plan years by the actuarial cost method.

Actuarial Accrued Liability is the portion of the present value of benefits which is not provided through future Normal Costs. The Actuarial Accrued Liability, at any particular time, is equal to the present value of future benefits less the present value of future Normal Costs.

Unfunded Actuarial Accrued Liability is the excess of the Actuarial Accrued Liability over assets. In the following we will refer to the Unfunded Actuarial Accrued Liability as the UAAL.

Contributions are made to PERS by the employer and employees. Employee contributions are fixed by state law and are currently 7.25% of compensation. The employer contribution rate is also set by state law and is 9.75% of compensation. Compensation in excess of $125,000 is not taken into account for purposes of determining contributions or benefits.

In each year's valuation, the PERS actuary determines the portion of the employer cost which is assigned to the Normal Cost. The remaining portion of the employer cost goes toward amortization of the UAAL. In the absence of experience gains and losses, the employer and employee contribution rates prescribed in MS Code Section 25-11-123 would provide for the Normal Cost and amortize the UAAL over thirty years beginning July 1, 1991.

The above can be illustrated by the following results from the June 30, 1994 Annual Actuarial Valuation:

**June 30, 1994 Valuation of PERS**

| | |
|---|---|
| (1) Present Value of Future Benefits All Members | $ 12,541,618,708 |
| (2) Present Value of Future Normal Costs | 3,030,487,100 |
| (3) Actuarial Accrued Liability (1)-(2) | 9,511,131,608 |
| (4) Value of Assets for Valuation Purposes | 6,084,020,000 |
| (5) Unfunded Actuarial Accrued Liability (UAAL) (3)-(4) | $ 3,427,111,608 |

PERS uses the Entry Age Normal Cost Method to allocate the employer contribution between the Normal Cost and the amount to amortize the UAAL. This method determines the Actuarial Accrued Liability and Normal Cost by spreading costs over an individual's career as a level percentage of pay. The entry age Normal Cost method is generally considered a conservative method of determining the Actuarial Accrued Liability and Normal Costs. Forty-seven of the 62 systems from the survey group use the Entry Age Normal Cost Method.

Gains and losses which arise from variations in actual system experience from expected experience become part of the UAAL. The UAAL will also increase due to amendments increasing benefits and new members. MS Code Section 25-11-123 defines the employer and employee contribution rates to PERS. As a result, increases in cost due to experience losses, amendments etc. are shifted into the future through the UAAL and increase the length of time required to amortize the UAAL. This method is less conservative than funding methods which fix the amortization period of the UAAL and use the Actuarial Valuation to determine the employer contribution rate.

The Normal Cost is funded over the remaining future period of anticipated service for active members. The UAAL is funded, or amortized, over a fixed period normally 30 years or less. It is not uncommon for the employer to fund benefits through the UAAL well after the member which gave rise to a part of the UAAL has retired.

In addition to the above, we will need the following definition:

Pension Benefit Obligation (PBO) is a standardized disclosure measure of the present value of pension benefits, adjusted for the effects of projected salary increases and step-rate benefits, estimated to be payable in the future as a result of employee service to date. The PBO is independent of the funding method used by the system to determine contributions.

We will begin our comparison by looking at the PBO. Analysis of the PBO, by itself, can be misleading. Expressing the net assets available for benefits as a percentage of the PBO provides one indication of a system's funded status on an on-going basis. Analysis of this percentage over time indicates whether a system is becoming financially stronger or weaker. Generally, the greater this percentage, the stronger the system. The following uses PBO as reported in the June 30, 1994 PERS Annual Actuarial Valuation and the market value of system assets.

**Analysis of PERS Funding Progress**

($ in thousands)

| Fiscal Year Ended | (1) Market Value of Assets | (2) Pension Benefit Obligation | Percent Funded (1)/(2) |
|---|---|---|---|
| 6-30-91 | 5,016,392 | 6,656,365 | 75.36 |
| 6-30-92 | 5,814,262 | 7,326,746 | 79.36 |
| 6-30-93 | 6,623,465 | 7,821,504 | 84.68 |
| 6-30-94 | 6,795,481 | 8,697,371 | 78.13 |

When comparing PBO to other systems a problem arises because of the variation in the assumptions used to determine the PBO. The primary cause of variation is the interest rate assumption. For a given system, the PBO increases as the interest rate used declines. For purposes of making our comparison, we considered only those systems from the survey group which used an interest rate of 8% or lower. The PBO for PERS is determined using an 8% interest rate. The results for the survey group are as follows:

**Market Value of Assets as a % of PBO**

| | |
|---|---|
| 1992 Survey average | 91.33% |
| 1992 PERS | 79.36 |
| PERS Rank | 22 out of 33 highest to lowest |

The actuarial cost method used by PERS, amortizes the UAAL as a fixed percentage of covered payroll. For purposes of this amortization, total covered payroll is projected to increase at 5% a year. This projection assumes new hires to replace employees who retire, quit or otherwise terminate employment. As a result, determining the UAAL as a percentage of covered payroll is an important measure of the funded status of a system. Generally, the lower the percentage of UAAL to covered payroll, the stronger the system.

**Summary of UAAL for PERS**

($ in thousands)

| Fiscal Year Ended | UAAL | Active Member Payroll | UAAL as % of Payroll |
|---|---|---|---|
| 6-30-91 | 2,889,833 | 2,499,679 | 115.6 |
| 6-30-92 | 2,960,726 | 2,493,315 | 118.8 |
| 6-30-93 | 2,950,984 | 2,608,207 | 113.1 |
| 6-30-94 | 3,427,112 | 2,864,807 | 119.6 |

The results from the national survey are as follows:

**UAAL as a % of Covered Payroll**

| | |
|---|---|
| 1992 Survey average | 66.3% |
| 1992 PERS | 118.8 |
| PERS Rank | 50 out of 61 lowest to highest |

In 1986, the ratio of UAAL to covered payroll for PERS was 50.4%.

As mentioned above, the Actuarial Cost Method allocates cost among prior, current and subsequent plan years. If too much cost is allocated to the UAAL then the actuarial cost method may not be doing an appropriate job of budgeting for the cost of benefits. The following table shows what portion of the employer contribution is allocated to the UAAL.

**Portion of Employer Cost Allocated to UAAL for PERS**

($ in thousands)

| Fiscal Year Ended | Normal Cost Percentage | UAAL Amortization Percentage | Total Employer Contribution | Portion of Total Allocated to UAAL |
|---|---|---|---|---|
| 6-30-91 | 3.15 | 6.60 | 9.75 | 67.7% |
| 6-30-92 | 3.75 | 6.00 | 9.75 | 61.5 |
| 6-30-93 | 3.96 | 5.79 | 9.75 | 59.3 |
| 6-30-94 | 3.99 | 5.76 | 9.75 | 59.1 |

The results from the national survey are as follows:

**Portion of Employer Cost Allocated to UAAL**

| | |
|---|---|
| 1992 Survey average | 34.2% |
| 1992 PERS | 61.5 |
| PERS Rank | 51 out of 54 lowest to highest |

As mentioned above, under the cost method used by PERS, the contribution rate is fixed by law, currently 9.75%. Any increased funding requirements in excess of 9.75% of payroll are shifted to future years through the UAAL. Due to the current cost method, the amortization period of the UAAL is often used as the measure of the funded status of PERS. In contrast, a system which fixes the amortization period of the UAAL, would see any increased funding requirements reflected immediately in contribution rates. All private employer plans subject to the Employees' Retirement Income Security Act (ERISA) must use funding methods which fix the amortization period of the UAAL.

Page 39 of the June 30, 1994 PERS Annual Actuarial Valuation shows the amortization of the UAAL. The amortization assumes covered payroll will increase 5% each year. The projected covered payroll assumes no decrements for current employees, i. e. death, withdrawal, retirement, etc. The growth is assumed to be maintained by salary increases due to inflation, and new hires that replace former employees. Assuming there are no benefit increases and experience follows all assumptions, UAAL may be calculated in successive years as follows:

| | |
|---|---|
| | **(1) UAAL Prior Year** |
| + | (2) Normal Cost Prior Year |
| + | (3) Interest on (1) & (2) to end of year |
| - | (4) Actual employer contribution |
| - | (5) Interest on (4) to end of year |
| **=** | **(6) UAAL Current Year** |

If the employer contribution is not greater than the Normal Cost and interest on the UAAL, then the UAAL will increase, even if all assumptions are exactly realized. In the PERS amortization of the UAAL, the amortization payments do not cover the interest on the UAAL for 18 years. The original UAAL increases by 35% before projected amortization payments are sufficient to cover interest on the UAAL. Payment towards the original balance does not occur until the 26th year. The schedule assumes the entire UAAL is paid off over the last 6 years of the period. Appendix C contains a graph comparing the projected amortization schedules for the 1989 UAAL and the 1994 UAAL.

In the amortization schedules of the UAAL, included in the Actuarial Valuation reports of PERS, the annual contribution towards the UAAL covers an increasing portion of the interest on the UAAL until eventually the contribution covers all the interest and increasing portions of the original balance. The following is a comparison of the portion of the interest on the UAAL which is covered by the amortization payment based on actual experience and the projected amortization of the UAAL in the June 30, 1991 Annual Actuarial Valuation.

**Portion of Interest on UAAL covered by Contribution**

| | Actual Amortization | Projected 1991 Amortization |
|---|---|---|
| June 30, 1991 | 71.4% | 71.4% |
| June 30, 1992 | 63.2 | 73.4 |
| June 30, 1993 | 64.0 | 75.7 |
| June 30, 1994 | 60.2 | 78.1 |

For the period from June 30, 1991 to June 30, 1994 PERS has not amortized the UAAL and greater portions of current cost are being deferred into the future. It should also be noted that increases to the UAAL during this 3 year period due to plan amendments are cumulatively less than 3% of the UAAL.

In order for the contribution to cover the interest on the UAAL in PERS as of June 30, 1994, the UAAL must be less than 72% of covered payroll. As mentioned above, based on the June 30, 1994 Actuarial Valuation the UAAL is near 120% of covered payroll.

On page 6 of June 30, 1994 Annual Actuarial Valuation, the report rightly notes the following:

> "The existence of unfunded actuarial accrued liabilities is not bad, but the changes from year to year in amount of unfunded accrued liabilities are important and should be monitored. Unfunded actuarial accrued liabilities are not a bill payable immediately but it is important that policy makers prevent the amount from becoming unreasonably high and it is vital for plans to have a sound method for making payments toward them so that they are controlled."

Based upon both external comparisons and an internal analysis, we have concluded that the UAAL, as determined in the June 30, 1994 Actuarial Valuation, has become unreasonably high. There can be several reasons why the UAAL, as reported in the annual valuation, is too large, as follows:

a. Current contributions to the system may be inadequate to fund the system on a level cost basis, with costs correctly assigned to current years deferred through the UAAL to later generations of taxpayers.

b. The present value of future plan benefits in the valuation may be overstated due to overly conservative assumptions.

c. The value of system assets may be understated.

In an April 18, 1995 meeting, the Board of Trustees for PERS approved changes that would impact the determination of the UAAL. The approved changes were based upon the results of the four year experience study prepared by the PERS actuary mentioned in the introduction of this report. The approved changes were as follows:

1. Change the asset valuation method from book value to a market related basis;

2. Decrease the general wage inflation component of the salary assumption from 5% to 4.5%;

3. Decrease the inflation component of the rate of return assumption from 5% to 4.5% and increase the assumption for real rate of return from 3% to 3.5%; and

4. Increase the merit component of the salary assumption.

In the Board minutes, the PERS actuary stated that the changes would have reduced the amortization period of the UAAL from 32 1/2 years to 29 1/2 years. The net effect of items 2, 3, and 4 above are to decrease the UAAL by $103,698,607. Item 1 above increases the value of system assets by $210,844,200, lowering the UAAL by the same amount. The following compares the UAAL as of June 30, 1994 before and after the approved changes.

**Comparison of UAAL for June 30, 1994 Before and After Changes**

| | UAAL | UAAL as % of Covered Payroll | Portion of Interest on UAAL covered by Contribution |
|---|---|---|---|
| Before Changes | 3,427,111,608 | 119.6% | 60.2% |
| After Changes | 3,112,568,801 | 108.6 | 67.7 |

Concern over the amortization of the UAAL is heightened for PERS due to the funding method used by the system. Since the annual contribution rate is fixed by statute, the annual valuation does not determine the contribution levels, but determines the funding progress on the UAAL. Historically for PERS, the measure of such progress has been the remaining amortization period of the UAAL. As a consequence, there is no financial plan to systematically reduce the UAAL, regardless of the actual experience under the system. The current financial plan provides that the UAAL is funded by whatever is left over after the Normal Cost, experience gains or losses, new member costs and benefit increases are funded.

The UAAL is reduced by one of two ways, either increased contributions or experience gains. The current size of the UAAL for PERS makes the system particularly dependent on positive investment experience over the next several years to avoid increased contribution rates. During the four year period ending June 30, 1994, the rate of return on PERS assets was 100% of the expected rate of return, yet the UAAL increased by 34% during this same period. As a percentage of covered payroll the UAAL increased by 12%. Without material experience gains (i.e. from investments) over the next several years, the system will more than likely require increased contributions to assure amortization of the UAAL.

In October, 1995, the June 30, 1995 Valuation of PERS was released. The system did realize material experience gains. For example, the rate of return on Valuation Assets was 12.5% or 156% of expected. As a result, the UAAL declined as a percentage of covered payroll. The following compares the UAAL for 1994 and 1995.

**Comparison of UAAL**

| | UAAL | UAAL as % of Covered Payroll | Portion of Interest on UAAL covered by Contribution |
|---|---|---|---|
| June 30, 1994 | 3,427,111,608 | 119.6% | 60.2% |
| June 30, 1994 * | 3,112,568,801 | 108.6 | 67.7 |
| June 30, 1995 | 3,045,768,811 | 102.2 | 72.8 |

*UAAL after changes in assumptions and methods approved by Board.

Based upon the amortization schedule of the UAAL included in the June 30, 1995 valuation, the UAAL should be 79% of covered payroll by June 30, 2003. We recommend that PERS adopt an objective to reduce the UAAL to less than 80% of covered payroll over the next eight years.

The UAAL should be monitored carefully over the next several years. There is certainly room for honest disagreement, but we do not believe that a system with a UAAL of 120% of payroll and a contribution rate that covers a declining portion of the interest on the UAAL is being funded on a level cost basis. If the UAAL returns to levels as determined in the June 30, 1994 Valuation, then increases in contribution rates will, in our opinion, be required to return the system to a level cost basis.

# Contributions to System

By statute, the employer contribution to PERS is 9.75% of covered payroll and active members contribute 7.25% of pay. The PERS employer contribution rate is very near the average for similar systems. The following compares PERS contribution rates to the 62 systems in our comparison group.

**Employer Contribution Rates as a % of Payroll**

| | |
|---|---|
| 1992 Survey average | 9.02% |
| 1992 PERS | 9.75% |
| PERS Rank | 23 out of 57 highest to lowest |

The following compares the employee contribution rates for the survey systems to PERS. The comparison is based upon actual contributions.

**Employee Contribution Rates as a % of Payroll**

| | |
|---|---|
| 1992 Survey average | 5.84% |
| 1992 PERS | 7.25% |
| PERS Rank | 12 out of 55 highest to lowest |

The following compares the combined employer and employee contribution rates for the survey systems to PERS.

**Combined Employer and Employee Contribution Rates as a % of Payroll**

| | |
|---|---|
| 1992 Survey average | 14.68% |
| 1992 PERS | 17.00% |
| PERS Rank | 16 out of 58 highest to lowest |

The following summarizes the above comparisons:

- PERS has a high employee contribution rate, ranking in the top 25% in the survey group.
- PERS combined employee and employer contribution rate ranks in the top 30% of the survey group.
- PERS employer contribution rate is near the national average and ranks in the middle 20% of the survey group.

# System Benefits

As part of our audit, we reviewed some of the major benefit features of PERS. In general , the formula for the retirement benefit is based on final average earnings (FAE) and appears as follows:

FAE times Annual Benefit Percentage times Years of Service

The following compares the Annual Benefit Percentage times 30 Years of Service for the systems in our survey group.

| % of FAE for 30 Years of Service | |
|---|---|
| 1992 Survey average | 52.82% |
| 1992 PERS | 56.88% |
| PERS Rank | 21 out of 47 highest to lowest |

Another important factor in determining the level of benefit, is the averaging period used to determine final average earnings. To make the comparison, we calculated benefits under each system using a hypothetical employee attaining age 65 with 30 years of service and earning $25,000 in the final year of employment with a 5% salary scale. We made the comparison based upon the portion of earnings in the final year replaced by the retirement allowance.

| % of Income Replaced at Age 65 with 30 Years of Service Earning $25,000 | |
|---|---|
| 1992 Survey average | 49.85% |
| 1992 PERS | 52.94% |
| PERS Rank | 22 out of 47 highest to lowest |

A very important measure of the level of benefit provided is the age and/or service required after which benefits may be provided without a reduction for early receipt of the benefit. PERS currently allows a member to retire after 25 years of service with an unreduced immediate benefit. Of the 62 systems in the survey, 56 require a minimum age with 25 years of service before an immediate unreduced benefit is paid. Of those 56 systems, the average age requirement with 25 years of service is 61 before the member may receive unreduced benefits. The following summarizes the results of the above.

| Earliest Age Unreduced Benefits May Be Paid with 25 Years of Service | |
|---|---|
| Systems not requiring a minimum age | 6 |
| Systems requiring a minimum age | 56 |
| PERS requirement | No minimum age |
| Average age requirement for Systems requiring a minimum age | Age 61 |

Since 1988, there have been material changes in the benefit provisions of PERS. The following outlines the major changes.

| | Annual Benefit Percentage | Service requirement for Full Unreduced Benefit |
|---|---|---|
| June 30, 1988 | 1.75% first 30 year<br>2% thereafter | 30 Years |
| July 1, 1991 | 1.875% first 25 years<br>2% thereafter | 25 Years |

The following chart compares the benefit provided to a member under the provisions of PERS as of June 30, 1988 and as of July 1, 1991. For purposes of this comparison, we are assuming a member with various age and service and average earnings of $25,000.

| | Monthly Immediate Benefit Age/Service | | | |
|---|---|---|---|---|
| | **50/25** | **55/25** | **55/30** | **60/30** |
| June 30, 1988 | $608 | $608 | $1,094 | $1,094 |
| July 1, 1991 | 976 | 976 | 1,185 | 1,185 |
| % Increase in Benefit | 60.5% | 60.5% | 8.3% | 8.3% |

In general, the benefit allowance for PERS members appears to be adequate and competitive with other systems. However, we believe the system provision allowing unreduced benefits with 25 years of service and no age requirement is overly generous. We believe the benefit weakens the system, in ways described below, and is contrary to trends in the work place and longevity. The following details our concerns about the benefit.

- Members of PERS may have been better served by a benefit increase that is more evenly distributed among members with varying employment histories. For example, members hired after age 39 do not benefit at all from unreduced benefits after 25 years of service. The above table illustrates the disparity in benefit improvements due to this benefit.

- Due to increases in longevity and changes in demographics, many experts believe that working careers will lengthen in the future. When Social Security was enacted in the 1930's the retirement age was set at age 65, but the average life expectancy of male workers was age 61. Today that life expectancy is well above age 70. The earliest retirement age unreduced Social Security benefits may be received by a worker born from 1943 to 1954 is age 66, and age 67 for those born after 1959. Most solutions to Social Security's long term financing problems include recommendations to raise this age even further. Current pension simplification legislation, now before Congress, would allow private plans to follow Social Security and increase the earliest age for unreduced benefits beyond age 65.

- Rates of retirement are a critical assumption for estimating future costs of a system. The age at which an employee retires is a key factor in the cost of the retirement benefit. Rates of retirement can be difficult to predict since they are subject to employee discretion. As with rates of disability, changes in economic conditions can impact rates of early retirement. Lowering the age for unreduced benefits has only increased the cost to the system for a benefit difficult to predict.

- The impact of this benefit on personnel needs should be studied. For example, teachers typically enter the profession right out of college so that many have 25 years of service by age 50 or earlier.

The change to unreduced benefits with 25 years of service, regardless of age, came about in 1991, the same year the employee contribution rate was increased from 6.5% to 7.25%. PERS should undertake a study to determine the effects of this benefit on the system and the possibility of removing the benefit for future hires.

# Assumptions

The actuarial assumptions can be divided into economic assumptions and non-economic (or demographic) assumptions. In general, the economic assumptions have the greatest impact on funding levels and can be the most difficult to predict. As mentioned above, the PERS actuary completed an Experience Study for the four year period ending June 30, 1994. Experience studies can be of marginal value when setting economic assumptions, since there may be little correlation between past and future experience. Based upon recommendations of the PERS actuary, the PERS Board of Trustees approved certain changes in economic assumptions. The following details the economic assumptions used in the June 30, 1994 PERS Actuarial Valuation and the changes approved by the Board.

**PERS Economic Assumptions**

| | June 30, 1994 Valuation | Approved Changes |
|---|---|---|
| General wage increase | 5% | 4.5% |
| Investment return | 8% | |
| Valuation of assets | Book Value | Market Related Value |
| Growth in Membership | None | |
| Postretirement cost of living adjustment | 2.5% per year on simple interest basis | |

**Investment Return**. The assumption for investment return can have the largest impact on system funding levels. The rate of return is used, among other things, to discount the anticipated stream of future benefit payments for all participants. Since these streams of payments often begin many years into the future and are expected to continue for many years, a small change in the interest assumption can have a major impact on the level of system liabilities. As the interest rate increases, the estimation of the liabilities of a system decline.

The investment return rate consists of two components. One is for inflation and the other is for a real rate of return. The 8% assumption used in the June 30, 1994 Valuation consisted of a 5% inflation assumption and a real rate of return of 3.0%. The recommendation of the Experience Study was to continue the 8% rate, but to consider it made of a 4.5% inflation rate and a real rate of return of 3.5%. To assist the PERS Board in review of the investment rate, the PERS actuary developed historical rates of return for a sample portfolio that is likely to represent the future asset mix of the system. The sample portfolio consisted of an asset mix of 60% common stock, 10% corporate bonds and 30% long term government bonds. By statute, equities may not constitute more than 50% of the book value of the total investments of PERS. Historically, equities have represented closer to 45% of the system portfolio. The hypothetical portfolio used in the PERS Experience Study seems to have overstated the potential investment in equities.

The Study of Public Employees Retirement Systems from the Society of Actuaries, mentioned in the Introduction, contains the following statement, "The consensus on long-term inflation among economists recently has been an expectation of 4% or less." In addition, this same study reported that 70% of the plans used a real rate of return of *less* than 3.5%. The average of the real rate of return implicitly included in the assumptions for the systems in our survey group was 3%. The above would seem to indicate an expectation for a future interest rate of near 7.5%.

Because of the long-term nature of the investment assumption, current investment experience for the system may not be a good indicator of future sustainable results. The results from our survey group for 1992 are as follows:

**Investment Rate of Return**

| | |
|---|---|
| 1992 Survey average | 8.08% |
| 1992 PERS | 8.00% |
| Number using 8% | 27 of 61 |
| Number using a rate between 7.75% and 8.25% | 41 of 61 |

We believe the 8% salary assumption is in an acceptable range, but it should now be considered at the high end of that range. Reasoned expectations for future inflation and real rate of return may indicate a long term rate of 7.5% may be more appropriate.

**Wage Increases.** In general, the investment return assumption and the wage increase assumption (salary scale) are somewhat offsetting. As the salary scale assumption increases, the estimated liabilities under the system increase. The investment assumption has a greater impact; however, since the salary scale only covers workers during employment and the investment return applies before and after retirement. The investment return and the salary scale should be consistent in their expectation of future inflation. In other words, if we assume very favorable investment returns in the future (which reduces expected cost), then we should also assume greater pressure for wage increases (which increases expected cost) since both are impacted by inflation.

PERS, like many systems, divides the salary scale into components. One component is for wage inflation and the other for merit and seniority. As shown above, the assumption for general wage inflation will change from 5% to 4.5% for the June 30, 1995 Valuation. To go along with this change, the PERS actuary proposed and the Board approved a change in the merit and seniority portion of the salary scale. The following compares the salary scale for the June 30, 1995 Valuation to the average of the total wage increase assumptions for the survey group at selected ages.

**Total Wage Increase Assumption**

| Ages | 30 | 40 | 50 | 60 |
|---|---|---|---|---|
| 1992 Survey | 7.17% | 6.57% | 5.87% | 5.88% |
| PERS Men | 10.20 | 7.95 | 6.28 | 5.52 |
| PERS Women | 8.69 | 7.26 | 6.00 | 5.01 |

The salary scale for PERS is much higher at most ages than the average for the survey group. However; the PERS scale is justified by system experience. In the June 30, 1994 Experience Study, the ratio of actual to expected experience based upon the above salary scale was very close to 1. Until system experience shows otherwise, we believe the salary scale recommended in the Experience Study is appropriate for PERS.

**Valuation of Assets.** We agree with the recommended change in the valuation of system assets to a market related value. It is important that PERS retain a smoothing technique to avoid volatility in asset values that mask the underlying funded status of the system. The smoothing technique proposed by the PERS actuary is reasonable and appropriate.

**Other Economic Assumptions.** Post retirement cost of living adjustments are assumed to be 2.5% per year on a simple interest basis. This assumption seems reasonably related to the other economic assumptions.

As mentioned earlier, the UAAL is amortized over total payroll. For this purpose, the current workforce is assumed to continue indefinitely into the future with the only change being an increase in total payroll equal to the general wage inflation rate. No growth in membership is assumed. We agree with this approach. We believe an assumed growth in total membership would be unreasonable for the purpose of amortizing the UAAL.

# Experience Studies

Only within the last several years, has the system undertaken experience studies to measure the deviations of actual from expected experience. Actuarial Gain or Loss is a measure of the difference between actuarial experience and that expected based upon a set of Actuarial Assumptions. Experience studies can be of questionable value for setting economic assumptions since these are driven more by economic conditions than past system experience. However, experience studies can be very valuable for setting demographic assumptions.

In an experience study, the actuary will determine the actual number of the occurrence of an event, such as withdrawal by age, and compare that to the expected number to occur based upon the assumptions. One measure of how close the assumptions have come to anticipating plan experience is by the ratio of actual to expected occurrences of the event.

The following compares the actual to expected ratio from the Society of Actuaries Experience Study and the PERS Experience Study for three of the demographic assumptions which generally have a material impact on costs.

**Ratios of Actual to Expected Experience**

| | SOA Study | PERS Study |
|---|---|---|
| Withdrawal rates | 94% | 1.15% |
| Retirement rates | 94% | 1.09% |
| Retiree mortality | 98% | 1.12% |

The PERS Study indicates that the system experienced gains from withdrawals and retiree mortality. For example, PERS experiences a reduction in cost when a member terminates employment and withdraws his contributions thereby forfeiting benefits derived form employer contributions. The system experienced a gain because more of these withdrawals occurred than was anticipated by the assumptions. The system experienced a loss from early retirement, since more employees took the subsidized early retirement benefit than expected. We agree with the recommendations of the PERS actuary that no changes be made in these three assumptions at this time.

Each year the system will experience gains and losses as actual experience varies from expected. Under the method used by PERS to amortize the UAAL, these gains and losses become part of the UAAL. From June 30, 1990 to June 30, 1994, the system has experienced average net losses equal to approximately 1.5% of the Actuarial Accrued Liability. These cumulative net losses since June 30, 1990 have increased the June 30, 1994 UAAL by 18%.

In addition to gains and losses, new members and amendments increasing benefits also increase the UAAL. As part of each valuation, the actuary may determine the increases and decreases to the UAAL by source. For example, if investment earnings are greater than anticipated, the UAAL will decline due to an experience gain. Likewise, if more members take an early retirement benefit than anticipated, the UAAL will increase due to an experience loss.

The prior PERS actuary included in the annual valuation reports a description of the change in the UAAL for several sources. These sources included the economic assumptions for investment earnings and salary increases and the increase due to new members. These items are combined in the current valuation reports under one item. We are not recommending a complete analysis of gains and losses by source for each valuation; however, we do believe the valuation report should include gains and losses by source for new members and the major economic assumptions.

# Actuarial Procedures

Each year on June 30, the PERS actuary prepares an Actuarial Valuation which measures the liabilities of the system and determines the appropriate amount of cost to assign to the current year. As part of the valuation, the actuary must inventory each person likely to receive benefits from the system. As part of our audit we traced the valuation process from the data submitted by PERS to the liabilities determined by the actuary.

The PERS actuary provided us with detailed information concerning the liabilities determined for three participants. From this information we were able to verify the use of the assumptions as included in the June 30, 1994 valuation. We were also able to verify the use of the Entry Age Normal Cost Method as the funding method used to determine liabilities under the system.

In an additional test, we selected 24 employees at random who were included in the June 30, 1994 valuation as active members and who subsequently retired and began receiving benefits during the 1994-95 fiscal year. We compared the results of the June 30, 1994 valuation for each of these employees with the actual benefits determined subsequent to the valuation.

Of the 24 participants, we found one with an incorrect date of birth. We also found one with an incorrect salary. These discrepancies appear to be random and we assumed that such errors were not commonplace.

There was one area in which there was a consistent discrepancy between the results of the valuation and the actual experience of the 24 members. Under PERS, 15 to 77 days of unused leave give rise to 1/4 a year of credited service with each additional 63 days of leave adding an additional quarter year of credited service. Fourteen of the 24 retiring members had actual credited service greater than used for purposes of the valuation. Of the 24 retiring members, 14 had credit for unused leave.

To prepare the valuation, the PERS actuary summarizes the data by age, service and sex. Age and service are based on the nearest whole year. We recommend that for future valuations the actuarial procedures change to round service to the next whole year, instead of nearest, to take into account unused leave of absence. Rounding to the next whole year is approximately equivalent to adding 1/4 year of credited service to the projected service of each member for unused leave.

In addition to the above, we compared the total number of records included on the data tape sent to the actuary with the number of members reported in the valuation. We then worked with PERS to reconcile any differences. On the 1994 data tape there were a group of "special records" totaling 23,791 consisting of the accounts of former members who had terminated some years in the past but still had nominal amounts of accumulated employee contributions. PERS estimated the liabilities for these former members to be approximately $6 million. The liability for these "special records" was not included in the June 30, 1994 valuation. This liability was included in the June 30, 1995 valuation.

The following gives an estimate of the effect on system liabilities for 1994 and 1995 taking into account the adjustments for unused leave and, for 1994, the liability for "special records" described above.

| Valuation Date | UAAL | UAAL as % of Covered Payroll | Portion of Interest on UAAL covered by Contributions |
|---|---|---|---|
| June 30, 1994 | 3,659,020,004 | 121.9% | 58.7% |
| June 30, 1995 | 3,106,540,811 | 104.3% | 70.8% |

# Qualified Status under Internal Revenue Code Section 401(a)

A pension plan is qualified if it meets certain requirements under Internal Revenue Code Section 401(a). Qualification status is important to PERS members because without it employer contributions to PERS would be currently taxable to members. In 1984 PERS received a favorable determination letter from the Internal Revenue Service concerning the qualified status of the system. The 1986 Tax Reform Act extended certain provisions of the Internal Revenue Code to governmental plans; however, application of the provisions has been deferred. PERS should continue to carefully monitor this situation and take the appropriate steps to continue the qualified status for the system.

# Conclusions

1. Each year on June 30, the PERS actuary prepares an Actuarial Valuation which measures the liabilities of the system and determines the appropriate amount of cost to assign to the current year. The actuarial procedures used by the PERS actuary in the June 30, 1994 Actuarial Valuation of the system conform to generally accepted actuarial procedures. In addition, we believe the system liabilities as determined in that valuation are a fair and reasonable estimation of the funded status of PERS. However, we believe some adjustments are appropriate.

   a. Valuation techniques used by the PERS actuary should include an estimate for unused leave of absence included in credited service at retirement.

   b. The valuation report prepared by the PERS actuary should include gains and losses by source for new members and the major economic assumptions.

2. We believe the Unfunded Actuarial Accrued Liabilities (UAAL), as determined in the June 30, 1994 Actuarial Valuation is unreasonably high. Under the current funding method for the system, the contribution rates are fixed by statute, leaving the amortization period of the UAAL as the balancing item determined by the Actuarial Valuation. As a result, the amortization of the UAAL should be monitored very closely. PERS currently places too much emphasis on the amortization period of the UAAL as a measure of the funding progress of PERS. The PERS Board of Trustees should consider adopting an objective standard for the amortization of the UAAL, such as reducing the UAAL to less than 80% of covered payroll over the next eight years.

3. The assumptions appear reasonable; however, we believe the economic assumptions may overstate the anticipated rate of future inflation. The assumption for rate of return is in the acceptable range but should be considered at the high end of that range. PERS has used 8% as the expected rate of return for several years. The PERS Board of Trustees should not consider this assumption as conservative as it was several years ago.

4. Benefits appear to be adequate and competitive; however, we believe unreduced benefits with 25 years of service weakens the system and is contrary to trends in the workplace and increasing life expectancy. The PERS Board of Trustees should commission a study of this benefit that covers its effects on PERS, and personnel needs. The study should include possible ways to remove the benefit with the least disruption to members.

5. The PERS member contribution rate is among the highest for the systems included in our survey group. Care should be taken before any future benefit increases are funded with member contributions.

## Appendix A

Glossary

The following is a glossary of some of the terms closely associated with the funding of pension plans. These definitions are from the Actuarial Standards Board, Actuarial Standard of Practice No. 4.

**Actuarial Accrued Liability**. That portion, as determined by a particular Actuarial Cost Method, of the Actuarial Present Value of pension plan benefits and expenses which is not provided for by future Normal Costs.

**Actuarial Assumptions**. Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; changes in compensation and Government provided pension benefits; procedures used to determine the Actuarial Value of Assets; and other relevant items.

**Actuarial Cost Method or Funding Method**. A procedure for determining the Actuarial Present Value of pension plan benefits and expenses and for developing an actuarially equivalent allocation of such value to time periods, usually in the form of a Normal Cost and Actuarial Accrued Liability.

**Actuarial Gain (Loss) or Experience Gain (Loss)**. A measure of the difference between actual experience and that expected based upon a set of Actuarial Assumptions, during the period between two Actuarial Valuation dates, as determined in accordance with a particular Actuarial Cost Method.

**Actuarial Present Value.** The value of an amount or series of amounts payable or receivable at various times, determined as of a given date by the application of a particular set of Actuarial Assumptions.

**Actuarial Valuation or Valuation**. The determination, as of a valuation date, of the Normal Cost, Actuarial Accrued Liability, Actuarial Value of Assets and related Actuarial Present Values for a pension plan.

**Actuarial Value of Assets or Valuation Assets**. The value of cash, investments and other property belonging to a pension plan, as used by the actuary for the purpose of an Actuarial Valuation.

**Amortization Payment**. That portion of the pension plan contribution which is designed to pay interest on and to amortize the Unfunded Actuarial Accrued Liability.

**Entry Age Normal Cost Method**. A method under which the Actuarial Present Value of the Projected Benefits of each individual included in an Actuarial Valuation is allocated on a level basis over the earnings or service of the individual between entry age and assumed exit age(s). The portion of this Actuarial Present Value allocated to a valuation year is called the Normal Cost. The portion of this Actuarial Present Value not provided for at a valuation date by the Actuarial Present Value of future Normal Costs is called the Actuarial Accrued Liability.

**Normal Cost.** That portion of the Actuarial Present Value of pension plan benefits and expenses which is allocated to a valuation year by the Actuarial Cost Method.

**Pension Benefit Obligation (PBO).** A standardized disclosure measure of the present value of pension benefits, adjusted for the effects of projected salary increases and step-rate benefits, estimated to be payable in the future as a result of employee service to date. The PBO is independent of the funding method used by the system to determine contributions.

**Unfunded Actuarial Accrued Liability**. The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets.

## Appendix B

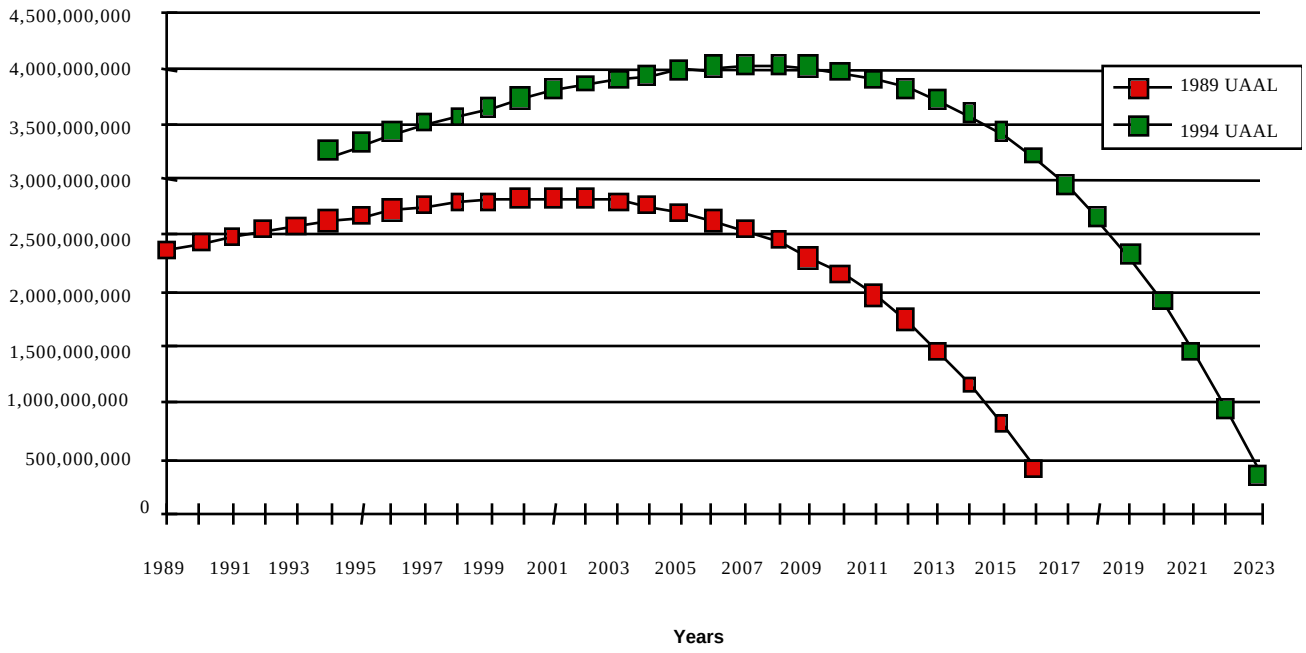
List of Systems Included in Survey Group

PERS OF NEVADA GENERAL EMPLOYEES' PLAN
NEW MEXICO EDUCATIONAL RETIREMENT BOARD PLAN
SOUTH CAROLINA RETIREMENT SYSTEM - GENERAL PLAN
TEXAS MUNICIPAL RETIREMENT SYSTEM GENERAL PLAN
RETIREMENT SYSTEMS OF ALABAMA EMPLOYEES
RETIREMENT SYSTEMS OF ALABAMA TEACHERS' PLAN
PERS OF MISSISSIPPI GENERAL PLAN
ILLINOIS STATE EMPLOYEES' RETIREMENT SYSTEM
TEACHERS' RETIREMENT SYSTEM OF LA - REGULAR EMPLOYEES
PA PUBLIC SCHOOL EMPLOYEES' RETIREMENT PLAN
CONNECTICUT TEACHERS' RETIREMENT SYSTEM
MN STATE RETIREMENT SYSTEM GENERAL EMPLOYEES' PLAN
KENTUCKY EMPLOYEES' RETIREMENT SYSTEM - GENERAL EMPLOYEES
KENTUCKY COUNTY EMPLOYEES' RETIREMENT SYSTEM
WYOMING PUBLIC EMPLOYEES' SYSTEM
TEACHERS' RETIREMENT SYSTEMS OF ILLINOIS
EMPLOYEES' RETIREMENT SYSTEM OF GEORGIA - GENERAL
EMPLOYEES' RETIREMENT SYSTEM OF TEXAS
NEW JERSEY TEACHERS' PENSION AND ANNUITY FUND
NEW JERSEY PUBLIC EMPLOYEES' RETIREMENT SYSTEM - GENERAL
ARKANSAS TEACHERS' RETIREMENT SYSTEM
NC TEACHERS' AND STATE EMPLOYEES' RETIREMENT SYSTEM
OHIO SCHOOL EMPLOYEES' RETIREMENT SYSTEM
OKLAHOMA TEACHERS' RETIREMENT SYSTEM
PUBLIC SCHOOL RETIREMENT SYSTEM OF MISSOURI
TEACHER RETIREMENT SYSTEM OF TEXAS
WISCONSIN RETIREMENT SYSTEM
TENNESSEE CONSOLIDATED RETIREMENT SYSTEM
KENTUCKY TEACHERS' RETIREMENT SYSTEM
CALIFORNIA STATE TEACHERS' RETIREMENT SYSTEM
ILLINOIS MUNICIPAL RETIREMENT FUND
ARKANSAS PUBLIC EMPLOYEES' RETIREMENT SYSTEM
VIRGINIA RETIREMENT SYSTEM
PENNSYLVANIA STATE EMPLOYES' RETIREMENT SYSTEM

PUBLIC EMPLOYEES' RETIREMENT ASSOCIATION OF COLORADO
MN PUBLIC EMPLOYEES' RETIREMENT ASSOC. - REGULAR FUND
MISSOURI STATE EMPLOYEES' RETIREMENT SYSTEM
OREGON PUBLIC EMPLOYES' RETIREMENT SYSTEM
PERS OF OHIO - STATE AND LOCAL DIVISION
PERS OF IDAHO - GENERAL MEMBERS
TEACHERS' RETIREMENT SYSTEM OF GEORGIA
IOWA PUBLIC EMPLOYEES' RETIREMENT SYSTEM
INDIANA TEACHERS' RETIREMENT PLAN
UTAH PERS PUBLIC EMPLOYEES' NON-CONTRIBUTORY PLAN
FLORIDA RETIREMENT SYSTEM
OKLAHOMA PUBLIC EMPLOYEES' RETIREMENT SYSTEM
WASHINGTON PUBLIC EMPLOYEES' RETIREMENT SYSTEM - PLAN I
WASHINGTON PUBLIC EMPLOYEES' RETIREMENT SYSTEM - PLAN II
WASHINGTON TEACHERS' RETIREMENT SYSTEM - PLAN I
SOUTH DAKOTA RETIREMENT SYSTEM
MICHIGAN PUBLIC SCHOOL EMPLOYEES' RETIREMENT SYSTEM
MICHIGAN STATE EMPLOYEES' RETIREMENT SYSTEM
MICHIGAN MUNICIPAL EMPLOYEES' RETIREMENT PLAN
OHIO STATE TEACHERS' RETIREMENT SYSTEM
KANSAS PUBLIC EMPLOYEES' RETIREMENT PLAN
MONTANA PUBLIC EMPLOYEES' RETIREMENT SYSTEM
NEW YORK STATE & LOCAL EMPLOYEES' RET. SYSTEM - GENERAL
NEBRASKA PERS SCHOOL PLAN
CALIFORNIA PUBLIC EMPLOYEES' RETIREMENT SYSTEM
CONNECTICUT STATE EMPLOYEES' RETIREMENT PLAN
ALASKA PUBLIC EMPLOYEES' RETIREMENT SYSTEM
MAINE STATE RETIREMENT SYSTEM

# Appendix C

Comparison of Amortization Schedule of UAAL of 1989 and 1994



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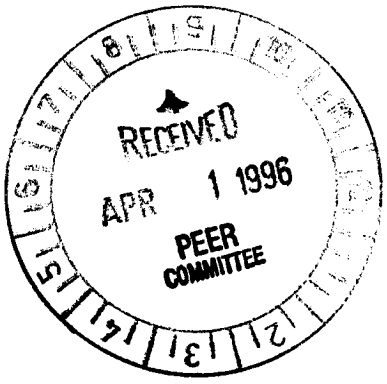
**March 26,1996**




**Mr. Max Arinder**
**Interim Director**
**PEER Committee**
**P. O. Box 1204**
**Jackson, MS 39215-1204**

**RE: Response to Draft of FY 1994 Actuarial Review of the Public Employees' Retirement System of Mississippi**

**Dear Mr. Arinder:**

**PERS had the opportunity to review a copy of the proposed draft of the FY Actuarial Review in the offices of the PEER Committee on March 22, 1996. Because we understand that the Committee will be meeting prior to the end of the current Legislative Session, we are providing you with the following response to the proposed draft that will be discussed with the Committee. Please note that these responses are developed on the basis of notes taken at the review of the draft in your offices and may be somewhat limited because we have not had the full draft for study and response.**

**First, let me say that staff agrees with the conclusion of the reviewing actuary that the actuarial procedures used in the 1994 Valuation of the System conform to generally accepted actuarial procedures. In addition, we agree that the System liabilities as determined in that valuation are a fair and reasonable estimation of the funded status of PERS.**

**With regard to some of the specific comments and recommendations, however, we offer the following in the order in which they appear in the body of the review:**

**1)** **The statement is made that " The UAAL will also increase due to amendments increasing benefits and new members." It is PERS understanding that based on the funding method used by PERS, i.e., entry age normal, the normal cost portion of the employer contribution in tandem with the employee contribution for a new member should adequately finance the liability associated with the future service of that new member. Thus, it would appear that to the extent that we are collecting the employer portion attributable to the accrued liability in addition to the foregoing, the System would actually experience a gain rather than a loss or an increased liability from new members. We are unsure of the basis for statements throughout the report regarding the negative impact of new members on the System.**

**2)** **We would point out that while state statutes currently express the employer contribution as 9.75% of compensation that, Section 25-11123 actually provides that "Upon the basis of each actuarial valuation provided herein, the Board of Trustees shall biennially determine the normal contribution rate and the accrued liability contribution rates as provided in this section. . . " Thus, the rates have been and may be periodically adjusted when, based on the actuarial valuation, such is deemed necessary.**

**3)** **We would also point out that throughout the report that some of the tables utilize information through 6-30-94, and others use information through 6-30-95. The inconsistency with which this information is utilized results in negative comments and attendant recommendations which, if the 1995 information were used consistently, would show improvements or movements consistent with the recommendations. An example of this is in the tables setting forth the Summary of UAAL for PERS on page 6. The UAAL as a percent of payroll was 119.6% for FY 94. It was 102.2% as of June 30,1995 which means that PERS funding is moving in exactly the direction desired. This positive improvement was a result of (1) a move to a market related asset value, (2) an excellent rate of return on investments and (3) gains in actual experience. Thus, we feel that the 1995 figures are a better reflection of the System's actual funding status.**

**4)** **There is also concern regarding the portion of the report, beginning on page 7, discussing the employer cost allocated to UAAL . The report comments that the employee contribution rate is one of the highest of those surveyed. In the comparison of the portion of the employer cost allocated to UAAL for PERS, comments are made that the percent of**

**the employer contribution rate going to the UAAL is greater for PERS than the average of those systems in the survey used as a benchmark. We would note that when you look at the employers' split between normal and accrued costs, the amount of the employer contribution that is needed to cover the normal cost is affected by the amount of member contributions, all of which go to the normal cost. The higher the member rates, all other things being equal, the less money you need from the employer rate to complete the normal contributions. Because our member contributions are relatively high, more of the employer contribution rate goes into the unfunded accrued liability. Thus, the comparison to other systems in the survey does not permit any meaningful conclusions to be drawn.**

**While we know that PERS has made significant benefit improvements during the last six years, we do not know the status of those systems against which the comparisons are being made. This issue was recently highlighted by the Governmental Accounting Standards Board's elimination of the Statement Five Disclosure, which now has all systems disclosing numbers based on their own funding because the comparison from system to system provides misleading information.**

**5) The report expresses concern over the use of a fixed employer contribution rate and variable amortization period. Our information indicates that PERS approach to using a fixed contribution rate (until such time as the valuation indicates that the rate is inadequate) is one used by many public retirement systems.**

**PERS is a multi-employer plan with approximately 800 employers, including state agencies, counties, cities, hospitals, libraries, and other juristic entities. Many of these entities are on different fiscal years. Budgeting for many of these entities takes place well in advance of the current or next fiscal year. PERS feels that it would be both imprudent and administratively unmanageable for both PERS and the various employers to change the employer contribution rate each year as suggested in the report.**

**6) As you know, the actuarial funding method used by PERS is the entry age normal actuarial cost method with unfunded actuarial accrued liabilities amortized as a level percent of the active member payroll. This report takes exception to the level percent of payroll amortization of the UAAL, a common practice in the public sector.**

**The rationale behind its use is to keep contributions as a percent of payroll from generation to generation of taxpayers. If the amortization**

**were based on a level dollar approach, the current contributions would be higher as a percent of payroll and then steadily decline in the future. The current method, when the results are adjusted for inflation, does produce a constantly decreasing UAAL.**

**On pages 8-9 of the draft, the tables which reflect the Portion of Interest UAAL Covered by Contributions would indicate a move from 60.2% actual amortization as of 6-30-94 to 72.5% as of 6-30-95 if that year were included. We would again point out that PERS had significant benefit improvements during the five year period reflected in the chart. While the report states that "In order for the contribution to cover the interest on the UAAL and PERS as of June 30, 1994, UAAL must be less than 72% of covered payroll. As mentioned above, on the June 30, 1994 actuarial valuation the UAAL is near 120% of covered payroll." While we do not agree with the funding approach recommended, we would point out that while the statistic used was 120% as of 6-30-94, that figure had dropped to 102% as of 6-30-95, thus moving in the desired direction.**

**7) In the Executive Summary and on page 9 of the Review, the reviewing actuary states, "We have concluded that the UAAL as determined in the June 30, 1994 actuarial valuation has become unreasonably high." We disagree with the findings. While the PERS unfunded accrued liabilities are significant, they are not out of line for a system that has had major benefit improvements such as ours within the last five to six years. Three reasons are given for this conclusion in the report:**

*** First, it is stated that the "current contributions may be inadequate to fund the system on a level cost basis with costs correctly assigned to current years deferred through the UAAL to later generations of taxpayers." We would disagree. Based on the current assumptions, contributions are exactly adequate to finance the benefits promised on a level cost basis.**

*** Secondly, it is stated that "The present value of future plan benefits and the valuation may be overstated due to overly conservative assumptions." We could find no other reference to conservative assumptions in the report and thus do not know the basis for this statement.**

*** And lastly, the statement is made that "The value of system assets may be understated." As the reviewing actuary later notes, PERS has already implemented a move to a market**

**related value of reporting assets for valuation purposes as is reflected in the 1995 valuation.**

**8) The report expresses concern over the use of the amortization period as a measure of funding progress and that PERS has no plan to reduce the UAAL. On the contrary, while the Board of Trustees does examine the funding ratio and other information provided in the annual valuation report, it finds that the amortization period is an easily understandable measure for legislators, members and employees alike by which to measure progress. PERS Board members have gone on record as stating that the desired period should not extend beyond 30 years, and each year they are expecting a one-year reduction in the amortization period, in the absence of benefit improvements and changes in assumptions. If we experience actuarial gains, we can expect the amortization period to decline further. And while as pointed out in the report, the 1995 valuation has the UAAL as a percent of covered payroll dropping below 80% over the next 8 years, we do not necessarily agree that a fixed objective of this nature, regardless of what happens between now and then with respect to assumptions, improvements, etc. is desirable or prudent.**

**9) On page 13 of the report, we note that a conclusion was drawn that the benefit allowance for PERS members appears to be adequate and competitive with the other systems. We would agree with that conclusion and note that a similar conclusion was reached in a recent study commissioned by the Board on benefit adequacy. The report goes on to state that "We believe the system provision allowing unreduced benefits with 25 years of service, and no age requirement is overly generous. We believe the benefit weakens the system in ways described below and is contrary to trends in the work place and longevity." With respect to these comments, we would point out several things:**

*** The Legislature of the State of Mississippi created the Retirement System and has responsibility for modifying the benefit structure. We would note that at the time of passage of this legislation, a number of issues were discussed with the Legislature, including that of the loss of experienced work force from state government. And while the Board of Trustees went on record opposing the "25 and out" provision at the time of its passage, the enhancement was passed. Moreover, an actuarial study of the cost impact of such provision was done at the time, and it was determined that an increase in the employee contribution rate of 3/4 of *1%* would be adequate to**

**fund the improvement. Consequently, the employee contribution rate was increased by 3/4 of 1 % to finance this improvement. Moreover, based on subsequent experience of the System, it has been determined that the increased employee rate associated with the "25 and out" provision has actually more than funded that specific improvement, thus improving the funding status of the System.**

**Thus, the continuation, modification or elimination of the "25 and out" provision is a matter of policy and legislative prerogative. However, we would note that now that it has been a part of the law for some five years, it will be very difficult from a public relations, and perhaps legal, standpoint to take such provision from the members.**

*** We cannot disagree with the comments regarding the increases in longevity and changes in demographics. We are aware that qualification for full Social Security benefits is being moved to later ages.**

*** Likewise, PERS is aware of concern over the effect of the "25 and out" provision on certain personnel needs, particularly class room teachers. PERS expressed this concern as a part of its position when the provision was enacted into law.**

**10) Beginning at page 15, the reviewer discusses economic assumptions. While acknowledging that the current 8% rate of return assumed by PERS is within the acceptable range, he concludes that a long-term rate of 7 1/2% may be more appropriate. PERS position is that the 8% is in the reasonable range and that PERS is closely monitoring that rate and its relative components through the Experience Studies performed every 2 years and will adjust this figure as experience dictates.**

**Also, in this section the reviewer discusses the development of the rate of return and the fact that the sample portfolio used in the last experience investigation report consists of an asset mix of 60% common stock, 10% corporate bonds and 30% long term government bonds. He goes on to state that "By statute, equities may not constitute more than 50% of the book value of the total investments of PERS, " concluding that the hypothetical portfolio used in the experience study seems to have overstated the potential investment in equities. We would point out that while the above limitation is true for domestic equities, PERS is also authorized to invest in an additional 20% in international stocks and bonds. Thus, the model portfolio was based on the aggregate investment picture.**

**11) On page 18 of the report, it was noted that during the period from June 30, 1990 through June 30, 1994 the System experienced cumulative net losses that averaged 1.5% of the actuarial accrued liability. We would point out that if the period utilized were 1991 through 1995, the System would show a .10% gain. In addition, the reviewer indicates that the sources of gains and losses should be broken down in the valuation rather than being combined. While this could be done, we note that PERS does receive this kind of information in the Experience Study performed every two years.**

**12) Finally, beginning at page 20, the reviewer discusses actuarial procedures. The reviewer concludes from his sampling that there was a "consistent discrepancy between the results of the valuation and the actual experience of the 24 members" in the sample studies. He noted that 14 of the 24 retiring members had actual credited service greater than that used for purposes of valuation, primarily due to additional credit given at retirement for unused leave. A recommendation is made that PERS round service to the next whole year instead of to the nearest whole year to take into account unused leave. It is stated that this would be the equivalent of adding one quarter year of credited service to the projected service of each member for unused leave. PERS disagrees with this conclusion and approach for the following reasons:**

*** It is recognized that inherent in a system such as PERS, there will be sources of minor gains and losses which individually do not warrant loading or other recognition.**

*** We would estimate that using the reviewer's approach would be the equivalent of adding 1/2 year of service to each member's credit.**

*** By taking an approach of adding such credit, it would make active employees eligible for benefits on average 1/2 year earlier than they actually will be. This would distort all the liabilities of the System as measured by the actuarial valuation.**

**If PERS were to recognize unused leave, we would conduct a study of actual experience for the System as a whole, rather than a sample and then reflect properly the additional liability on the basis of such actual experience. Please note that in the table reflecting adjustments for unused leave and for the 1994**

**liability for special records, PERS was unable to verify the UAAL number for 6-30-94 and its attendant percentages.**

**The report noted an inaccuracy in date of birth of one of the 24 randomly selected retiree accounts and one incorrect salary, stating that it was assumed such errors were not commonplace. We agree with the reviewer's assumption and note that without a detailed analysis of the data available to the PERS analyst who processed the account, any difference noted cannot be determined an error but merely a discrepancy in the data comparison.**

**Again, PERS staff agrees with the overall conclusion of the Review. We appreciate the opportunity to provide the Committee and the PEER staff with the above comments. Should you have any questions, please feel free to contact me.**

**Sincerely,**

Frank Ready

**Frank Ready**
**Executive Director**

**FR/DOM:bmb**

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