ARIZONA STATE RETIREMENT SYSTEM

REPORT ON THE

ACTUARIAL VALUATION

AS OF JUNE 30, 2002

January 8, 2003

Retirement Board
Arizona State Retirement System
3300 North Central Avenue
14th Floor
Phoenix, Arizona 85012

Dear Retirement Board Members:

Actuarial Valuation of the Plan as of June 30, 2002

We certify that the information contained in the attached 2002 actuarial valuation report is accurate and fairly presents the actuarial position of the Arizona State Retirement Plan (the Plan) as of June 30, 2002.

We have made all calculations for this report in conformity with generally accepted actuarial principles and practices, and with the Actuarial Standards of Practice issued by the Actuarial Standards Board. In our opinion, the report's results comply with the requirements of the Arizona Constitution and statutes and, where applicable, the Internal Revenue Code, the Employee Retirement Income Security Act of 1974 (ERISA), and the Statements of the Governmental Accounting Standards Board. The undersigned actuaries are independent. They are both Enrolled Actuaries and Fellows of the Society of Actuaries. Eva Yum is a Fellow of the Canadian Institute of Actuaries and Charlie Chittenden is a member of the American Academy of Actuaries. Both are experienced in performing valuations for large public retirement systems.

Actuarial Valuations

The primary purpose of the valuation report is to determine the required member and employer contribution rates, to describe the current financial condition of the Plan, and to analyze changes in the Plan's condition. In addition, the report provides information that ASRS requires in connection with Governmental Accounting Standards Board Statement Number 25 (GASB No. 25), and it summarizes census data.

Valuations are performed annually, as of June 30, the last day of both the Plan year and ASRS's fiscal year.

Funding Objectives

The actuarial valuation calculates the contribution rates payable by members and participating employers. These rates, when applied to payroll, yield contribution amounts sufficient to provide for the normal cost and to amortize the Unfunded Actuarial Accrued Liability (UAAL) over the period specified in the statutes. The rates calculated in even numbered years are in effect for the next two Plan years. For example, the rate calculated in this valuation report (5.20% for each member and each employer) will apply in the fiscal years beginning July 1, 2003, and July 1, 2004.

Funding Progress

The actual contribution rate in fiscal 2002 and 2003 is 2.00% for each member and each employer, as the 2000 valuation report calculated. The 2001 valuation report determined a hypothetical rate of 3.86%. This 2002 valuation calculates a rate of 5.20%, to become effective July 1, 2003. These rates do not include contributions to the LTD program. Actual contributions have matched the calculated contributions in recent years and we assume that members and employers will continue to contribute the actuarially determined amounts. Contributing these amounts ensures the realization of funding objectives.

Section 38-737 specifies that the UAAL is to be amortized over a rolling 30-year period. As long as the Plan has a surplus (i.e., a negative UAAL), the amortization period is transitioning into a 30-year period. The period for this valuation is 17 years. When the surplus disappears, or when the transition period ends in 2014, the amortization period will be 30 years.

Benefit Provisions

There have been no benefit enhancements since those of the 2001 legislative session, and the previous valuation report reflected all of those improvements. Table 18 gives details of benefit provisions.

Assumptions and Methods

The Board adopted on November 15, 1996, the actuarial assumptions that the actuary recommended, to be effective June 30, 1996. On November 15, 2002, the Board adopted a change in the method of valuing actuarial assets – namely, the Board removed the requirement that actuarial assets be within 20% of market value and prospectively changed the period for recognizing investment gains or losses from five to ten years. Table 19 of this report provides details of the assumptions and methods. The assumptions are internally consistent and are reasonably based on the actual experience of the Plan. These assumptions are in full compliance with GASB No. 25.

Data

ASRS staff supplied census data for retired, active, and inactive participants as of June 30, 2002. We have not audited these data, but have examined them for reasonableness and consistency with the prior year's data. ASRS staff also supplied asset information.

Trend Data and Supporting Schedules

ASRS prepared all trend data schedules in the financial section of ASRS's Comprehensive Annual Financial Report (CAFR). ASRS also prepared all supporting schedules in the actuarial section of the CAFR.

We look forward to discussing this report with you at your convenience.

Sincerely,

Charles E. Chittenden, FSA, MAAA, EA
Principal and Consulting Actuary

Eva S. Yum, FSA, EA
Associate Principal

Executive Summary

Attached is a table summarizing the key results of the June 30, 2002, actuarial valuation of the Arizona State Retirement Plan (the Plan).

The valuation of the Plan reflects a loss on the investment return on the actuarial value of assets of $314 million. This loss includes both the actual investment return on actuarial assets and a change in the method of valuing actuarial assets that the Board adopted on November 15, 2002. There were no changes in Plan provisions since the last actuarial valuation.

The investment loss and other gains and losses have caused the Plan's contribution rate to increase from a calculated rate of 3.86% in the 2001 valuation report to a rate of 5.20% in this report. This rate will apply to fiscal years 2004 and 2005. A more detailed explanation of the effects of these changes can be found in later sections of the report.

The asset losses have caused the surplus to decrease from $2.587 billion to $1.036 billion.

Since the actuarial investment return of 6.36% is below 8% for fiscal year 2002, there are no additional "Excess Investment Earnings" to be set aside for Permanent Benefit Increase (PBI). The current excess investment earnings reserve will allow the granting of a PBI for the next three years.

The number of active members has increased from 191,252 to 198,870, a 4.0% increase. Valuation payroll has increased 9.9% from $6.357 billion to $6.989 billion.

The yield rate on plan assets for the 2002 fiscal year (when measured by the actuarial asset valuation method) is 6.36% on the pension assets (401(a)) and 9.10% on the health supplement assets (401(h)), compared to last year's returns of 10.98% and 13.54%, respectively, and the actuarially assumed rate of return of 8%.

Although the contribution rate has increased, it remains lower than the Plan's normal cost. If the Plan had no surplus, the contribution rate would be the normal cost rate, i.e., 5.95%, instead of 5.20%. Because of deferred recognition of losses already incurred, we anticipate that the contribution rate will continue to increase beyond the normal cost rate in future years.

Overall, ASRS continues to be in a well-funded position, as measured by actuarial assets. The ratio of actuarial value of assets to actuarial liabilities is 104.6% for the combined 401(a) and 401(h) components of the plan. The comparable figure from last year's valuation is 112.8%.

The key results of this valuation as of June 30, 2002, may be summarized as follows:

	2001	2002
	(1)	(2)
• Assets (401(a) and 401(h) Combined)		
Book value	$19.894 billion	$19.508 billion
Market value	$21.873 billion	$18.595 billion
Actuarial Value	$22.855 billion	$23.623 billion
• Members		
Actives	191,252	198,870
Inactives	96,193	109,942
Receiving benefits	58,920	60,346
Disabled (LTD)	3,904	4,485
• Covered payroll	$6.357 billion	$6.989 billion
• Total normal cost rate	11.75%	11.90%
• Surplus	$2,586.6 million	$1,036.1 million
• Actuarial assets as % of actuarial accrued liability	112.8%	104.6%
• Calculated contribution rate	3.86%	5.20%
• Statutory contribution rate	2.00%	5.20%
• Estimated yield on actuarial assets (401(a) only)	10.98%	6.36%
• Employee and employer contributions	$367.2 million	$321.8 million
• Benefit and refunded payments	$920.4 million	$1,029.1 million
• PBI		
Additional liability for July 1st PBI	$269.6 million	$292.0 million
Percentage increase	4.0%	4.0%
Per year of service factor	$29.79	$31.40
PBI reserve	$1,362.7 million	$1,070.7 million

	2001	2002
	(1)	(2)
• Actuarial gains (losses)		
Assets	$687 million	$(1,623) million
Liability experience	(140) million	(971) million
Excess earnings reserved for future PBI COLAs	(218) million	0
Legislative changes	(1,307) million	0
Method change	0	1,309 million
Total	$(978) million	$(1,285) million
• GASB 25 disclosure (401(a) pension plan only)		
Actuarial Accrued Liability (AAL)	$19.012 billion	$21.285 billion
Unfunded AAL (Surplus)	$(2.876) billion	$(1.357) billion
Actuarial Value of Assets (AVA) as % of AAL	115.18%	106.40%
Unfunded AAL (Surplus) as % of payroll	(45.2%)	(19.4%)
• Net external cash flow	$(563.0) million	$(722.7) million

• Changes in contribution rate:

Item	Contribution Rate	Change in Rate
(1)	(2)	(2)
1. 2001 valuation	3.86%	-
2. 2001/2002 liability experience	4.91%	1.05%
3. Actual assets	6.16%	1.25%
4. PBI	6.16%	0.00%
5. Statutory increase in funding period	6.11%	(0.05%)
6. Effect of 11/15/2002 Board action	5.20%	(0.91%)

Split of Total Contribution Rate:

Item	401(a) Account	401(h) Account	Total
(1)	(2)	(3)	(4)
1. Employee Contribution Rates	5.20%	0.00%	5.20%
2. Employer Contribution Rates	4.10%	1.10%	5.20%
3. Total Contribution Rates	9.30%	1.10%	10.40%

Introduction

The actuarial valuation of the Arizona State Retirement Plan (the Plan) is prepared each year to determine the matching employee and employer contribution rate that is required to fund the Plan in accordance with the actuarial funding policy specified in Section 38-737 of the Arizona Revised Statues.

The actuarial valuation of the Plan as of June 30, 2002, determines the contribution rate for fiscal years 2004 and 2005. Based on the results of the 2002 Plan valuation, the matching contribution rate for the fiscal year beginning July 1, 2003, will increase from the current rate of 2.00% to 5.20% of compensation.

The actuarial assumptions used in this valuation are those adopted by the Retirement Board on November 15, 1996, and first used for the 1996 valuation. The Retirement Board adopted the actuarial asset method used on November 15, 2002. At that meeting the Board voted to extend the averaging period for actuarial assets to ten years and to eliminate the requirement that actuarial assets be within 20% of the market value of assets. The 1989 legislature changed the actuarial liability valuation method to the Projected Unit Credit (PUC) method from the prior entry-age-normal method. Section M contains full descriptions of these actuarial methods and assumptions, as well as a summary of the Plan's provisions.

There have been no changes in Plan benefits since the 2001 legislative changes. Section A contains an executive summary of the key valuation results and is intended to provide in one convenient place those valuation items most often needed.

Sections C and D cover the basic results of the valuation. Sections E through G provide analysis and additional discussion. Section H contains the disclosure items required by the Governmental Accounting Standards Board Statement No. 25.

Section I contains a disclosure letter regarding the data used in performing the actuarial valuation.

Section J discusses some of the historical comparisons and statistical summaries for the Plan, and Section K summarizes the valuation results. Sections L through N provide the tables supporting this report.

The 1995 Legislature passed legislation to separate the Health Premium supplement liabilities and assets into a 401(h) account. This separation is effective at the benefit's inception -- June 30, 1989. To reflect this separation, several of the asset tables have been separated into 401(a) pension assets and 401(h) health supplement assets.

Actuarial Balance Sheet and Determination of the

Permanent Benefit Increase

The results of the actuarial valuation of the Plan as of June 30, 2001, and June 30, 2002, are summarized in the actuarial balance sheet (Table 1 in Section M). The results for 2002 are based on the benefit provisions of the Plan as of June 30, 2002, as summarized in Table 18, and on the actuarial assumptions and methods shown in Table 19.

Section 1 of the actuarial balance sheet (Table 1) shows that the actuarial value of present assets as of June 30, 2002, amounts to $23.623 billion (Item 11). This value includes an adjustment of $4.115 billion to the book value of assets as a result of the actuarial asset valuation method. When the present actuarial assets of $23.623 billion are compared to the actuarial liabilities, the asset side of the actuarial balance sheet exceeds the amount of actuarial liabilities by $1.036 billion. This amount is shown in Item 12 and represents the negative unfunded actuarial accrued liability, i.e., the surplus.

The actuarial liability for those Plan members who are receiving benefits is reflected in Item 14 and Item 15, while the actuarial liability for System members who are receiving benefits is shown in Item 16. Item 18 shows the amount of the actuarial liability for all present active members of the Plan based on all past service. Item 19 is the present value of benefits due inactive members of the Plan.

Item 22 is the reserve set aside by SB 1058 to fund the PBIs.

The unfunded actuarial accrued liability (UAAL) becomes the balancing item that makes the actuarial assets and the actuarial liabilities equal.

Since the UAAL is negative, i.e., the Plan has a surplus, the required contribution rate is less than the normal cost rate for the Plan.

The determination of the PBI for 2002 is shown in Items 24 through 33. As shown in Item 30, the statues used $292.0 million in excess earnings to pay for the 2002 PBI. The per-year-of-service factor for the 2002 PBI is $31.40 as shown in Item 32. The determination of the "Excess Investment Earnings" held in reserve for future PBIs is shown in Items 34 thorough 36. As shown in Item 36c, $1.071 billion in assets are being held for future PBIs.

Funding Status of the Plan

Section L of this report contains the actuarial certification, which provides the results of the actuarial valuation. Items I through VII contain the 2002 valuation results, which are supported by the information contained in Table 2, Table 3, and Tables 4a and 4b. This 2002 valuation determined the required contribution rates for the 2004 and 2005 fiscal years (Item VIII). Table 2 summarizes the various cost items for the 2001 actuarial valuation versus the 2002 valuation. Table 3 breaks down the normal cost into its components, while Tables 4a and 4b develop the actuarial value of assets.

Table 3 indicates that the normal cost as of June 30, 2002, is 11.90% of pay, compared to 11.75% in the 2001 valuation. This normal cost is developed based on the prescribed PUC actuarial valuation method. It includes both employer and member components. The normal cost for the health insurance premium supplement is 0.72% of pay. The normal cost for the deferred retirement benefit for disabled employees is 0.33%. The normal cost for the retirement benefits (as shown in Item 1) is 9.73%, while the normal cost for the death benefits is 0.29% of pay. The remaining 0.83% of pay is the cost of termination benefits under the Plan (including the enhanced refund option).

Tables 4a and 4b develop the actuarial value of assets under the asset valuation method, as modified by the November 15, 2002, Board action. Table 4a shows the development of the actuarial value of the 401(a) pension assets, and Table 4b shows the development of the actuarial value of the 401(h) health supplement assets. The market value of the Plan assets as shown in Item 3 of Tables 4a and 4b are $17.822 billion and $.773 billion, respectively. The total amounts of excess (or shortfall) investment income deferred for future recognition, as shown in Item 2e of Tables 4a and 4b are $4.820 billion and -$0.208 billion, respectively. The resulting actuarial values of 401(a) and 401(h) assets shown in Item 6 of Tables 4a and 4b are $22.642 billion and $0.981 billion, respectively. The actuarial value of combined Plan assets is $23.623 billion.

Table 2 compares a number of the key actuarial items for the 2002 valuation with the corresponding items for the 2001 valuation. The normal cost rate has increased from 11.75% to 11.90%, as noted above. The actuarial accrued liability has increased from $20.3 billion to $22.6 billion, as shown in Item 5h. Item 6 indicates that actuarial assets have increased by about $0.7 billion during the year, from $22.9 billion to $23.6 billion.

The employer and member contribution rates are determined as one-half of the percent of pay needed to pay the normal cost of the Plan and to amortize the Unfunded Actuarial Accrued Liability (UAAL). Since the Plan has a surplus, the percent of pay needed to amortize the UAAL is negative. For the June 30, 2002, valuation, the normal cost of the Plan is 11.90% and the amortization of the UAAL is –1.50%. So the calculated employer and member rates are equal to:

$$\tfrac{1}{2} \times (11.90\% - 1.50\%) = 5.20\%.$$

If the surplus of the Plan were eliminated, the employer and member rates would be:

$$\tfrac{1}{2} \times \{11.90\% - 0.00\%\} = 5.95\%.$$

This difference of 0.75% (i.e., 5.95% - 5.20%) is due totally to the surplus of the Plan. Thus, the current surplus of the Plan is equivalent to a 0.75% of pay reduction in the employer and member contribution rates determined by the 2002 valuation.

The Plan's assets are split between the retirement program (401(a)) and the health premium supplement program (401(h)) as follows:

Item	401(a) Account	401(h) Account	Total
(1)	(2)	(3)	(4)
1. Book Value of Assets	$18,573,636,920	$933,937,016	$19,507,573,936
2. Market Value of Assets	$17,821,982,950	$772,873,387	$18,594,856,337
3. Actuarial Value of Assets	$22,641,693,322	$981,322,647	$23,623,015,969

The member and employer contribution rates determined by the 2002 valuation are each 5.20% of compensation. Because of the separation of the health premium supplement into the 401(h) account, we must split the contribution rates into 401(a) and 401(h) portions. We have assumed that all employee contributions will be contributed to the 401(a) account. This assumption is made to avoid any possible qualification problems due to refunds of employee contributions. The hypothetical contribution rates may be allocated as shown below:

Item	401(a) Account	401(h) Account	Total
(1)	(2)	(3)	(4)
1. Employee Contribution Rates	5.20%	0.00%	5.20%
2. Employer Contribution Rates	4.10%	1.10%	5.20%
3. Total Contribution Rates	9.30%	1.10%	10.40%

Actuarial Gains and Losses

Section C notes that the unfunded actuarial accrued liability (UAAL) is a negative $1.036 billion in 2002, i.e., the Plan has a surplus. As seen in Table 2, this compares to negative $2.587 billion in 2001. As shown in Table 2, Item 4 is the normal cost rate of the Plan. The normal cost rate is 11.90% for 2002 and compares to 11.75% for 2001. The contribution rate has increased from a calculated rate of 3.86% of pay as determined by the 2001 valuation to 5.20% of pay as determined by the 2002 valuation. The purpose of this section is to determine the source of the actuarial gains and losses during the year that have caused the UAAL to increase.

Tables 5a and 5b in Section M develop the expected value of actuarial assets for this valuation, based on the investment return assumption of 8%. It compares the expected value with the actual value of actuarial assets as of the end of the year to determine the asset gain for the year.

As shown in Item 8 of Tables 5a and 5b, the expected value of the combined 401(a) and 401(h) actuarial assets as of June 30, 2002, is $23.937 billion. As developed in Tables 4a and 4b, the actual value of the combined 401(a) and 401(h) actuarial assets as of the valuation date is $23.623 billion (as repeated in Item 9 of Tables 5a and 5b). Thus the asset loss for the year is the difference between the actual value and the expected value, or $314.2 million (as shown in Item 10 of Tables 5a and 5b), down from last year's gain of $687.0 million. As shown in Item 8 of Table 6, this is a combination of an asset loss of $1.623 billion and a gain of $1.309 billion due to the change in asset valuation methods.

This asset gain for the year is a direct reflection of the yield estimated for the year based on the value of actuarial assets. As shown in Item 7, Column 4 of Tables 11a and 11b, the yields on the actuarial value of 401(a) and 401(h) assets were 6.36% and 9.10%, respectively. The rate of return on the market value of the 401(a) assets was –11.29% for fiscal year 2002, but the rate of return on the actuarial value of the 401(a) assets was 6.36%. This difference is due to the smoothing effect of the asset valuation method on the actuarial value of assets. The impact of the negative return for fiscal 2002 will be spread over ten years beginning on June 30, 2002.

Table 6 develops the total actuarial gain for the year and separates it into asset and liability components. Tables 2 and 9 derive the items in Table 6 that are used to develop the expected UAAL as of June 30, 2002. Item 7 of Table 6 shows the total actuarial loss for the year to be $1.285 billion. Since the asset loss for the year is $314.2 million, the liability loss is $971.1 million.

The $971.1 million liability experience loss compares to a liability experience loss for 2001 of $140.5 million. The liability experience loss of $971.1 million amounts to 4.30% of the actuarial accrued liability of $22.587 billion.

Change in Assets During the Year

This section provides an analysis of the change in the accounting assets during the year, a reconciliation of actuarial assets with total assets, an estimate of the yield on assets for the Plan, and a description of the determination of the actuarial value of assets under the asset valuation method that was adopted on November 15, 2002, by Board action.

Tables 9a and 9b trace the change in book value for Plan valuation purposes from the beginning of the year to the end of the year. Items 2 of Tables 9a and 9b are the contributions received during the year.

Item 3 is the net investment income, including net realized capital gains for the year and net of management fees. Item 4 is the benefit payments for the year, while Item 5 shows the refunds of contributions during the year. Item 6 represents miscellaneous employer adjustments. Item 7 is administrative expenses other than investment manager fees netted out in Item 3. Item 8 is any other miscellaneous adjustments. Item 9 includes certain other transfers and payments during the year.

The net decrease in book value of the combined Plan assets during the year as shown in Item 11 of Tables 9a and 9b is $0.386 billion. In 2001, there was a net increase of $1.084 billion.

Tables 11a and 11b use the increases and decreases in Tables 9a and 9b to produce an estimated yield on assets. Column 2 shows an estimated yield on a book value basis. Column 3 provides the corresponding information on a market value basis, while Column 4 provides the estimated yield on the actuarial value of assets.

To determine the estimated yield for the year under each of the three asset values, the traditional insurance company measurement of yield has been used. This equation is:

$$2I/(A + B - I).$$

In this equation, I is net investment income for the asset valuation method, A is the beginning of the year asset value, and B is the end of the year asset value. This equation essentially assumes that income, revenue, and expenditures are evenly distributed throughout the year. For both the market value and the actuarial value of assets (Columns 3 and 4) it is necessary to increase the net investment income for the year by the unrealized capital gain or loss for the year. The unrealized gain or loss for the year is equal to the change in the market over book at the beginning of the year versus the end of the year. As may be seen from Item 1 of Table 11, there has been a substantial unrealized loss for the year under the market value basis.

In Item 7 the estimated yields based on the insurance company yield formula are shown. The most pertinent figure for actuarial purposes is the yield shown under Column 4, the yield for the actuarial value. The Plan has an estimated yield of 6.36% on the 401(a) assets and 9.10% on the 401(h) assets for the year, compared to the actuarial assumed rate of 8%. As previously shown in Tables 5a and 5b, the asset experience loss for the year is $314.2 million.

Both the estimated actuarial yield and the resultant actuarial asset gain are lower than they were in the 2001 valuation. The 6.36% actuarial yield rate on the 401(a) assets compares to 10.98% on the 401(a) assets last year, while $314.2 million asset experience loss compares to a $687.0 million gain last year.

Tables 4a and 4b and Tables 10a and 10b show the development of the actuarial value of assets under the actuarial asset valuation method.

Tables 4a and 4b develop the actuarial value of assets under the actuarial asset valuation method adopted by the Board on November 15, 2002. This method starts with the market value of assets and is modified by the difference between expected investment return and actual investment return. Effective June 30, 2002, only 10% of this difference is recognized in the valuation immediately following the year in which it occurs. The remaining 90% is deferred until future valuations, with an additional 10% recognized in each subsequent valuation, until 100% of the difference is recognized in the tenth year.

The combined 401(a) and 401(h) deferral amount for the year (shown in Item 2e of Tables 4a and 4b) is -$5.028 billion. That is, just over $5 billion of investment losses will be recognized in future valuations. Tables 10a and 10b show the development of the Excess (Shortfall) of investment income for the past four years.

Impact of Changes

Previous sections of this report have discussed the actuarial gains and losses for the year and the estimated yield for the year. This section will examine the causes of the increase in the contribution rate.

Table 7 analyzes the impact of various factors on the contribution rate. The starting point in Item 1 is the contribution rate determined by the June 30, 2001, actuarial valuation, namely 3.86% of pay for employers and members.

If there had been no changes to the Plan by the 2002 Legislature and if experience had been exactly as anticipated by the actuarial assumptions, Item 2 shows that the total contribution rate would have increased to 4.07% due to the statutory decrease in the funding period.

When the actual liability experience for the year is factored in, the contribution rate increases by 0.84% of pay (Item 3). This item includes any changes in the normal cost percentage between 2001 and 2002.

Item 4 analyzes the effect of the actual asset performance of the Plan. The contribution rate increases by 1.25% of pay as a result of the unfavorable investment performance (on actuarial assets). The increase in the required contribution rate from this source results from actual return on actuarial assets being less than our assumed 8% rate of return.

Since there is no additional reserve for future PBIs, there is no increase in contribution rate from this source (Item 5). Based on the current asset valuation method, the unfunded actuarial accrued liabilities would become positive and be amortized over 30 years according to Section 38-737 and contribution rate would decrease by 0.05%.

The newly adopted asset valuation method in combination with the phase-in of the increase in the funding period (currently 17 years) resulted in a decrease in the contribution rate of 0.91%, making the final rate 5.20%.

GASB No. 25 Disclosure

The Governmental Accounting Standards Board (GASB) has issued Statement No. 25 that provides the manner in which the actuarial condition of a public sector retirement system is to be disclosed. This disclosure format is required for plan years beginning after June 15, 1996.

The required schedule of funding progress is shown in Table 17a. Table 17b shows the schedule of annual required contributions required by GASB No. 25. Table 17c provides notes to the required supplemental information.

Under GASB 25, only the 401(a) portion of the Plan is to be disclosed. Therefore, the values in the tables reflect only the pension portion of the Plan. They exclude the assets and actuarial accrued liabilities associated with the health supplement.

January 8, 2003

Retirement Board
Arizona State Retirement System
3300 N. Central Avenue
14th Floor
Phoenix, Arizona 85012

Dear Retirement Board Members:

Actuarial Valuation as of June 30, 2002

In preparing the above referenced actuarial valuation, the actuary has relied on census data and asset information provided by the staff of the Arizona State Retirement System. While not verifying the data at their source, the actuary has performed tests for consistency and reasonableness.

Sincerely,

Charles E. Chittenden, FSA, EA, MAAA
Principal and Consulting Actuary

Historical Comparisons and Statistical Summaries

Section N contains tables showing statistical data for this valuation, compared to the corresponding data for previous valuations. In addition, Tables 12 through 16 of Section M contain actuarial trend information.

Table 12 relates the size of the unfunded actuarial accrued liability (UAAL) to three different measurements. In Columns 3 and 4 the UAAL is related to the covered payroll of the Plan. Columns 5 and 6 relate the UAAL to the actuarial value of present assets, while Columns 7 and 8 relate the UAAL to the total actuarial liabilities of the Plan. Twenty-four years of historical information are shown in the table. The UAAL has been generally decreasing over the last twenty-two years, and the three ratios have also been decreasing over the same period of time. The 2001 benefit enhancements and the 2001 and 2002 losses in investment return caused all four numbers to increase in 2001 and 2002. Since the Plan has had a surplus since 1987, all ratios are negative for 1987 through 2002.

Table 13 provides a twenty-three year history of the growth in active membership, covered payroll, and average salary. Table 14 illustrates the growth in the number of retired participants over the last twenty years. Table 15 shows a history of contribution rates for both members and employers. In addition, it shows the contribution rate calculated by this valuation.

Table 16 provides a history of net external cash flow. Net external cash flow is defined as total contributions during the year, less benefit payments, refunds, and administration expenses. The dramatic increase in benefit payments due to the 2001 benefit enhancements and the decline in the contribution rate to the current 2% rate have resulted in a negative net external cash flow.

Summary and Closing Comments

The primary result of the actuarial valuation of the Arizona State Retirement Plan as of June 30, 2002, is that the contribution rate for the 2004 and 2005 Plan year will be 5.20% of pay for both members and employers. The 2001 valuation determined that the hypothetical contribution rate needed to pay the normal cost of the Plan and fund the UAAL over the next 16 years would be 3.86% of pay.

There have been actuarial losses due to investment performance and liability increases due to demographic changes. The net result is that the Plan's surplus has narrowed. As a result of past gains, however, the Plan continues to have a surplus, based on actuarial assets, as of June 30, 2002.

The statutory lengthening of the amortization period is designed to reduce the surplus of the Plan. Over time, the contribution rates for both members and employers will trend towards 1/2 the normal cost rate. The current normal cost rate is 11.90%, so 1/2 of this rate would be 5.95%. In the absence of gains, losses, or benefit changes, the contribution rate will increase from 5.20% toward 5.95% in the future. As a result of investment losses currently deferred, moreover, the contribution rate will tend to rise above the normal cost rate in future valuations.

Actuarial Certification

ARIZONA STATE RETIREMENT PLAN
Actuarial Certification Statement

This is to certify that Buck Consultants has prepared an actuarial valuation of the Arizona State Retirement Plan as of June 30, 2002.

Actuarial calculations have been made with respect to a total of 373,643 members -- 198,870 active employees, 109,942 inactive members, and 60,346 retired members and beneficiaries, and 4,485 members on long term disability. In addition, there are 828 System retirees receiving ad hoc benefits from Plan assets.

The actuarial calculations establish a total benefit cost of 10.40% of the annual compensation of employees. The total normal cost rate is 11.90% of compensation, and the required amortization payment determined in accordance with Section 38-737 is –1.50% of compensation.

The actuarial cost factors as of June 30, 2002 are as follows:

I. Actuarial accrued liabilities				
A. Liabilities due to member's benefits				
1. Active members				
a. Retirement benefits	$9,634,818,900			
b. Health insurance premium supplement	846,152,200			
c. Disability deferred retirement benefits	172,300,500			
d. Pre-retirement death benefits	243,976,100			
e. Withdrawal benefits	347,788,600			
f. Total active members		$11,245,036,300		
2. Inactive members		744,520,062		
3. Retired members and beneficiaries		8,969,341,077		
4. Disabled members (deferred retirement)		252,993,500		
5. Benefit increases for other-than-plan participants		12,328,000		
6. Total present value of benefits			$21,224,218,939	
B. Other miscellaneous liabilities and reserves			0	
C. Reserve for future PBIs			1,362,701,812	
D. Total actuarial accrued liability				$22,586,920,751
II. Actuarial value of assets				23,623,015,969
III. Unfunded actuarial accrued liability (Item I -- Item II)				(1,036,095,218)
IV. Amortization of unfunded actuarial accrued liability (per Section 38-737)			(104,840,085)	
V. Normal cost for the year			831,499,553	
VI. Total contribution for the year (Item IV + Item V)				726,659,468
VII. Total covered payroll (projected to 2002/2003 plan year)				6,989,339,000
VIII. Total contribution for fiscal years 2004 and 2005 as a percentage of covered payroll		401(a) Account	401(h) Account	Total
A. Employee Portion		5.20%	0.00%	5.20%
B. Employer Portion		4.10%	1.10%	5.20%
C. Total		9.30%	1.10%	10.40%

The Board adopted a new asset valuation method on November 15, 2002, to be effective for valuations on and after June 30, 2002.

On November 15, 1996, the Board adopted assumptions to be effective for valuations on and after June 30, 1996. These assumptions are as follows:

1. Investment yield - 8% per annum.

2. Salary increases

Years of Service	Merit Component	Total Salary Increase
1	5.00%	9.50%
2	4.00	8.50
3	2.50	7.00
4	1.80	6.30
5	1.40	5.90
6	1.25	5.75
7	1.00	5.50
8	0.80	5.30
9	0.75	5.25
10	0.50	5.00
11 to 19	0.25	4.75
20 or more	0.00	4.50

3. Rates of disability

Age	Males	Females
22	0.08%	0.10%
32	0.11	0.16
42	0.20	0.31
52	0.66	0.73
62	1.67	1.25

4. Rates of withdrawal - Sample ages and years of service

	Years of Service				
	Male Members				
Age	1	2	5	8	10+
22	33.24%	25.31%	12.68%	6.65%	11.04%
32	18.87	14.03	8.76	4.85	4.67
42	16.93	9.82	6.24	3.83	2.01
52	16.18	8.54	4.43	3.16	1.38
62	19.05	10.18	3.73	2.53	1.10

	Years of Service				
	Female Members				
Age	1	2	5	8	10+
22	26.86%	23.58%	18.08%	12.31%	18.04%
32	18.51	15.39	9.69	7.30	6.47
42	16.44	11.05	6.20	4.14	2.08
52	14.31	9.09	5.05	2.68	1.52
62	14.57	9.71	4.65	2.41	0.83

5. Rates of retirement - Sample ages and years of service

	Years of Service				
Age	10-14	20	25	30	35+
50	5.00%	5.00%	5.00%	10.00%	12.50%
55	5.00	6.00	16.25	18.75	12.50
60	9.00	26.25	25.00	30.00	30.00
62	34.00	42.00	44.00	50.00	50.00
65	55.00	55.00	60.00	60.00	60.00
66 and above	55.00	60.00	60.00	60.00	60.00

6. Mortality rates - 1983 Group Annuity Mortality Table (with margins, set back one year for males and with no setback for females).

7. Mortality rates after disability - Post disablement mortality rates are based on experience of other large public sector system, grading into post-retirement mortality rates at age 83.

8. Valuation assets - Market value less ten year phase-in of Excess (Shortfall) Investment income.

9. Funding method - Projected unit-credit.

The actuarial calculations have been performed by qualified actuaries in accordance with accepted actuarial procedures, based on the current provisions of the Plan and on the actuarial assumptions adopted by the Board.

ASRS prepared all trend data schedules in the financial section and the supporting schedules in the actuarial section of its Comprehensive Annual Financial Report.

Charles E. Chittenden, FSA, EA, MAAA
Principal and Consulting Actuary

Actuarial Tables

Actuarial Balance Sheet Showing Present and Prospective Assets and Liabilities After Actuarial Adjustment

ACTUARIAL ASSETS

		June 30, 2001 (1)	June 30, 2002 (2)
I.	Present Assets At Actuarial Value:		
	1. Reserve for retired members and beneficiaries	$ 7,674,814,500	$ 8,969,341,077
	2. Reserve for disabled members	210,715,400	252,993,500
	3. Reserve for other-than-plan retirees	12,464,700	12,328,000
	4. Reserve for PBI COLAs		
	(a) Reserve for July 1st COLA	243,211,400	292,013,060
	(b) Reserve for future COLAs	1,448,356,912	1,070,688,752
	5. Employee contributions		
	(a) Plan members	2,876,445,119	3,046,008,125
	(b) System members	N/A	N/A
	6. Employer contributions		
	(a) Plan	2,771,071,043	2,905,441,989
	(b) System	N/A	N/A
	7. Other miscellaneous		
	(a) ASRS building and land	0	0
	(b) Other	0	0
	8. Additional assets	4,656,889,765	2,958,759,433
	9. Total present assets	$ 19,893,968,839	$ 19,507,573,936
	10. Adjustment to book value due to actuarial asset valuation method	2,961,174,700	4,115,442,033
	11. Total actuarial value of present assets	$ 22,855,143,539	$ 23,623,015,969
II.	Prospective Assets:		
	12. Unfunded actuarial accrued liability	(2,586,629,095)	(1,036,095,218)
	13. TOTAL ACTUARIAL ASSETS	$ 20,268,514,444	$ 22,586,920,751

ACTUARIAL LIABILITIES

		June 30, 2001 (1)	June 30, 2002 (2)
III.	Present Value Of Benefits Presently Being Paid:		
	14. (a) Benefits for retired members and beneficiaries	$ 7,300,326,500	$ 8,546,468,277
	(b) Health insurance premium supplement	374,488,000	422,872,800
	15. (a) Benefits for disabled members	187,897,200	228,103,900
	(b) Health insurance premium supplement	22,818,200	24,889,600
	16. (a) Benefits for other-than-plan participants	5,205,800	4,493,800
	(b) Health insurance premium supplement	7,258,900	7,834,200
	17. Total present value of benefits presently being paid	$ 7,897,994,600	$ 9,234,662,577
IV.	Present Value Of Benefits Payable In The Future To Present Members:		
	18. Active Members		
	(a) Service retirement benefits	$ 8,424,685,300	$ 9,634,818,900
	(b) Health insurance premium supplement	822,162,500	846,152,200
	(c) Disability retirement benefits	140,782,300	172,300,500
	(d) Pre-retirement death benefits	241,221,027	243,976,100
	(e) Withdrawal benefits	351,261,840	347,788,600
	(f) Total active members	$ 9,980,112,967	$ 11,245,036,300
	19. Inactive Members	698,838,565	744,520,062
	20. Total	$ 18,576,946,132	$ 21,224,218,939
V.	Other Liabilities and Reserves:		
	21. Reserve for other miscellaneous liabilities and reserves	$ 0	$ 0
	22. Reserves for PBI COLAs	$ 1,691,568,312	$ 1,362,701,812
	23. TOTAL ACTUARIAL LIABILITIES	$ 20,268,514,444	$ 22,586,920,751

Determination of Permanent Benefit Increase COLA

VI.	Determination of July 1, 2002 PBI COLA:	
	24. Actuarial Present Value (APV) for all Retirees and Beneficiaries as of June 30, 2001	7,300,326,500
	25. Rate of Return on Actuarial Value of Assets for Fiscal Year Ending June 30, 2001	10.98%
	26. Excess Earnings Available for COLA	
	a. Carry Over From Prior Year	1,145,152,082
	b. Current Year (Item 24 x [Item 25 - 8%])	217,549,730
	c. Total Excess Earnings Available for COLA (Item 26.a + Item 26.b.)	1,362,701,812
	27. One Percent of APV of all Retirees and Beneficiaries as of June 30, 2001	73,003,265
	28. Preliminary COLA % (Item 26.c / Item 27 x 0.01)	18.7%
	29. Actual COLA % (Item 28, but not greater than 4% and equal to 0% if less than 1%)	4.0%
	30. Target Cost of 2002 COLA (Item 27 x Item 29)	292,013,060
	31. APV of $1 Per Year of Service for Eligible Group	9,300,500
	32. Per Year of Service Factor for 2002 COLA	31.40
	33. Excess Investment Earnings to be Carried Forward to Next Year	1,070,688,752
VII.	Determination of Reserves for Future PBI COLAs:	
	34. Actuarial Present Value (APV) for all Retirees and Beneficiaries as of June 30, 2002	8,546,468,277
	35. Rate of Return on Actuarial Value of Assets for Fiscal Year Ending June 30, 2002	6.36%
	36. Excess Earnings Reserves for Future COLAs	
	a. Carry Over From Prior Year (Item 33)	1,070,688,752
	b. Current Year (Item 34 x [Item 35 - 8%])	0
	c. Total Excess Earnings Reserves for Future COLAs	1,070,688,752

Summary of Cost Items

	Valuation as of June 30, 2001		Valuation as of June 30, 2002	
	Cost Item	Cost as % of Pay	Cost Item	Cost as % of Pay
	(1)	(2)	(3)	(4)
1. Participants				
a. Active members	191,252		198,870	
b. Inactive members	96,193		109,942	
c. Retired members and beneficiaries	58,920		60,346	
d. Disabled retirees	3,904		4,485	
e. Total	350,269		373,643	
f. Other-than-plan retirees receiving benefit increases from the Plan	912		828	
2. Covered Payroll	$ 6,356,698,800		$ 6,989,339,000	
3. Averages for active members				
a. Average age	43.8		44.3	
b. Average years of service	8.2		8.4	
c. Average pay	$ 33,237		35,145	
4. Normal cost rate	11.75%		11.90%	
5. Actuarial accrued liability				
a. Retired members and beneficiaries	$ 7,674,814,500		$ 8,969,341,077	
b. Disabled members	210,715,400		252,993,500	
c. Benefits for other-than-plan retirees	12,464,700		12,328,000	
d. Active members	9,980,112,967		11,245,036,300	
e. Inactive members	698,838,565		744,520,062	
f. Other miscellaneous	0		0	
g. Reserve for PBI COLAs	1,691,568,312		1,362,701,812	
h. Total	$ 20,268,514,444	318.9%	$ 22,586,920,751	323.2%
6. Present actuarial assets	$ 22,855,143,539	359.5%	$ 23,623,015,969	338.0%
7. Unfunded actuarial accrued liability	$ (2,586,629,095)	(40.7%)	$ (1,036,095,218)	(14.8%)

Summary of Cost Items

	Valuation as of June 30, 2001		Valuation as of June 30, 2002	
	Cost Item	Cost as % of Pay	Cost Item	Cost as % of Pay
	(1)	(2)	(3)	(4)
8. Section 38-737 funding period	16 years		17 years	
9. Section 38-737 contribution rate				
A. 401(a) Account				
a. Employee	3.86%		5.20%	
b. Employer	2.46%		4.10%	
c. Total	6.32%		9.30%	
B. 401(h) Account				
a. Employee	0.00%		0.00%	
b. Employer	1.40%		1.10%	
c. Total	1.40%		1.10%	
C. Total of Combined Accounts				
a. Employee	3.86%		5.20%	
b. Employer	3.86%		5.20%	
c. Total	7.72%		10.40%	
10. Estimated yield on 401(a) actuarial assets	10.98%		6.36%	
11. Relative size of unfunded actuarial accrued liability				
a. As percentage of actuarial assets	(11.3%)		(4.4%)	
b. As percentage of covered payroll	(40.7%)		(14.8%)	
c. As percentage of total actuarial accrued liability	(12.8%)		(4.6%)	

Analysis of Normal Cost by Component

Benefit Component	Normal Cost as % of Pay 2001	Normal Cost as % of Pay 2002
(1)	(2)	(3)
1. Retirement benefits	9.62%	9.73%
2. Health insurance premium supplement	0.72%	0.72%
3. Disability benefits (Deferred Retirement)	0.30%	0.33%
4. Death benefits	0.32%	0.29%
5. Termination benefits		
a. Refunds	0.48%	0.19%
b. Vested deferred benefits	0.31%	0.64%
c. Total	0.79%	0.83%
6. Total	11.75%	11.90%

Development of Actuarial Value of Assets (401(a) Only)

Item	Valuation as of June 30, 2001	Valuation as of June 30, 2002
(1)	(2)	(3)
1. Excess (shortfall) of investment income for current year and previous three years (see Table 10a):		
a. Current year	$ (2,581,468,783)	$ (3,994,318,422)
b. Current year - 1	207,131,363	(2,581,468,783)
c. Current year - 2	1,206,024,662	207,131,363
d. Current year - 3	1,956,237,399	1,206,024,662
2. Deferral of excess (shortfall) of investment income for:		
a. Current year [1]	$ (2,065,175,026)	$ (3,594,886,580)
b. Current year - 1 (60% deferral)	124,278,818	(1,548,881,270)
c. Current year - 2 (40% deferral)	482,409,865	82,852,545
d. Current year - 3 (20% deferral)	391,247,480	241,204,932
e. Total deferred for year	$ (1,067,238,863)	$ (4,819,710,372)
3. Market value of plan assets, end of year	$ 20,820,944,803	$ 17,821,982,950
4. Preliminary actuarial value of plan assets, end of year (Item 3 - Item 2.e.)	$ 21,888,183,666	$ 22,641,693,322
5. Actuarial value of assets corridor		
a. 80% of market value of assets, end of year	$ 16,656,755,842	N/A
b. 120% of market value of assets, end of year	$ 24,985,133,764	N/A
6. Final actuarial value of plan assets, end of year (Item 4, but not less than Item 5.a., or greater than Item 5.b.)	$ 21,888,183,666	$ 22,641,693,322

[1] 80% deferral for 6/30/2001, 90% deferral for 6/30/2002.

Development of Actuarial Value of Assets (401(h) Only)

Item	Valuation as of June 30, 2001		Valuation as of June 30, 2002	
(1)	(2)		(3)	
1. Excess (shortfall) of investment income for current year and previous three years (see Table 10b):				
a. Current year	$	61,315,688	$	(288,175,769)
b. Current year - 1		14,299,080		61,315,688
c. Current year - 2		41,999,439		14,299,080
d. Current year - 3		52,899,852		41,999,439
2. Deferral of excess (shortfall) of investment income for:				
a. Current year [1]	$	49,052,550	$	(259,358,192)
b. Current year - 1 (60% deferral)		8,579,448		36,789,413
c. Current year - 2 (40% deferral)		16,799,776		5,719,632
d. Current year - 3 (20% deferral)		10,579,970		8,399,888
e. Total deferred for year	$	85,011,744	$	(208,449,260)
3. Market value of plan assets, end of year	$	1,051,971,617	$	772,873,387
4. Preliminary actuarial value of plan assets, end of year (Item 3 - Item 2.e.)	$	966,959,873	$	981,322,647
5. Actuarial value of assets corridor				
a. 80% of market value of assets, end of year	$	841,577,294		N/A
b. 120% of market value of assets, end of year	$	1,262,365,940		N/A
6. Final actuarial value of plan assets, end of year (Item 4, but not less than Item 5.a., or greater than Item 5.b.)	$	966,959,873	$	981,322,647

[1] 80% deferral for 6/30/2001, 90% deferral for 6/30/2002.

Actual Versus Expected Actuarial Assets (401(a) Only)

Item	Valuation as of June 30, 2001	Valuation as of June 30, 2002
(1)	(2)	(3)
1. Actuarial assets, beginning of year	$ 20,291,903,212	$ 21,888,183,666
2. Total contributions during year	310,882,741	317,734,923
3. Benefits paid during year	(788,045,300)	(910,299,052)
4. Refunds paid during year	(91,824,591)	(42,765,105)
5. Expenses (other than investment) for the year	0	0
6. Other changes and net transfers	(68,074,200)	(7,149,384)
7. Assumed net investment income at 8%		
a. Beginning of year assets	1,623,352,257	1,751,054,693
b. Contributions	12,435,310	12,709,397
c. Benefits	(34,148,630)	(39,446,292)
d. Refunds	(3,672,984)	(1,710,604)
e. Expenses	N/A	0
f. Other	(2,722,968)	(285,975)
g. Total	$ 1,595,242,985	$ 1,722,321,219
8. Expected actuarial assets, end of year (Sum of Items 1 through 7)	$ 21,250,084,847	$ 22,968,026,267
9. Actual actuarial assets, end of year	$ 21,888,183,666	$ 22,641,693,322
10. Asset gain/(loss) for year (Item 9 - Item 8)	$ 638,098,819	$ (326,332,945)

Actual Versus Expected Actuarial Assets (401(h) Only)

Item	Valuation as of June 30, 2001	Valuation as of June 30, 2002
(1)	(2)	(3)
1. Actuarial assets, beginning of year	$ 834,974,279	$ 966,959,873
2. Total contributions during year	56,308,301	4,040,650
3. Benefits paid during year	(40,500,337)	(75,989,584)
4. Refunds paid during year	0	0
5. Expenses (other than investment) for the year	0	0
6. Other changes and net transfers	0	0
7. Assumed net investment income at 8%		
a. Beginning of year assets	66,797,942	77,356,790
b. Contributions	2,252,332	161,626
c. Benefits	(1,755,015)	(3,292,882)
d. Refunds	0	0
e. Expenses	0	0
f. Other	0	0
g. Total	$ 67,295,259	$ 74,225,534
8. Expected actuarial assets, end of year (Sum of Items 1 through 7)	$ 918,077,502	$ 969,236,473
9. Actual actuarial assets, end of year	$ 966,959,873	$ 981,322,647
10. Asset gain/(loss) for year (Item 9 - Item 8)	$ 48,882,371	$ 12,086,174

Actuarial Gain or Loss for the Year

Item	Valuation as of June 30, 2001	Valuation as of June 30, 2002
(1)	(2)	(3)
A. Calculation of Total Actuarial Gain or Loss		
1. Unfunded actuarial accrued liability (UAAL), previous year	$ (3,578,354,360)	$ (2,586,629,095)
2. Normal cost for the year	$ 631,666,459	$ 746,912,109
3. Contributions for the year	$ (367,191,042)	$ (321,775,573)
4. Interest at 8%		
a. On UAAL	(286,268,349)	(206,930,328)
b. On normal cost	50,533,317	59,752,969
c. On contributions	(14,687,642)	(12,871,023)
d. Total	$ (250,422,674)	$ (160,048,382)
5. Expected UAAL (Sum of Items 1 - 4)	$ (3,564,301,617)	$ (2,321,540,941)
6. Actual UAAL	$ (2,586,629,095)	$ (1,036,095,218)
7. Gain (loss) for the year (Item 5 - Item 6)	$ (977,672,522)	$ (1,285,445,723)
B. Source of Gains and Losses		
8. Asset gain (loss) for the year (Tables 5a and 5b, Item 10)		
a. Experience asset gain/(loss)	$ 686,981,190	$ (1,623,435,136)
b. Asset valuation method change	$ 0	$ 1,309,188,365
c. Total asset gain/(loss) for the year	$ 686,981,190	$ (314,246,771)
9. Asset gain (loss) as a percentage of actuarial assets	3.0%	-1.3%
10. PBI Cola		
a. Excess Earnings Reserve for Fiscal Year 2001	$ (217,549,730)	N/A
b. Excess Earnings Reserve for Fiscal Year 2002	N/A	$ 0
11. Total actuarial accrued liability gain (loss) for the year (Item 7 - Item 8c - Item 10)	$ (1,447,103,982)	$ (971,198,952)
12. Analysis of actuarial accrued liability gain (loss)		
a. Legislative changes	$ (1,306,633,655)	$ 0
b. Experience liability gain (loss) for the year	$ (140,470,327)	$ (971,198,952)
c. Total actuarial accrued liability gain (loss)	$ (1,447,103,982)	$ (971,198,952)
13. Experience liability gain (loss) as percentage of total actuarial liability (Item 12b as % of Item 5h of Table 2)	(0.69%)	(4.30%)

Analysis of Change in Contribution Rate

Basis	Unfunded Actuarial Accrued Liability ($ Millions)	Statutory Employer/Employee Contribution Rate	Statutory Funding Period	Attributable Change in Contribution Rate	Rolling 30-Year Employer/ Employee Rate[1]
(1)	(2)	(3)	(4)	(5)	(6)
1. Valuation as of June 30, 2001	(2,586.6)	3.86%	16	-	4.35%
2. Valuation as of June 30, 2002, using expected assets and liabilities	(2,321.5)	4.07%	15	0.21%	4.51%
3. Valuation as of June 30, 2002, using expected assets but actual liabilities	(1,350.3)	4.91%	15	0.84%	5.16%
4. Valuation as of June 30, 2002, using actual assets and liabilities	273.1	6.16%	15	1.25%	6.11%
5. Valuation as of June 30, 2002, including impact of PBI COLAs	273.1	6.16%	15	-	6.11%
6. Valuation as of June 30, 2002, including legislative increase in funding period	273.1	6.11%	30	(0.05%)	6.11%
7. Valuation as of June 30, 2002, including asset valuation method change	(1,036.1)	5.20%	17	(0.91%)	5.34%

[1] Contribution rate if 30-year rolling funding period was being used now instead of being phased-in.

Reconciliation of Actuarial Value of Assets
With Total Assets as Reported
(401(a) & 401(h) Combined)

	June 30, 2001 (1)	June 30, 2002 (2)
1. Total book value of assets as reported	$ 22,271,422,403	$ 22,210,321,982
2. Liabilities of the Investment Fund		
a. Payable for securities on loan	1,528,313,442	1,673,523,832
b. Payable for securities purchased	280,019,334	455,269,746
c. Forward contracts payable	16,388,576	39,697,415
d. Payable to OASDI fund	0	0
e. Miscellaneous liabilities and payables	372,071	(457,922)
f. Total liabilities of Investment Fund	1,825,093,423	2,168,033,071
3. Refund and benefit checks payable, netted out of Item 1	0	0
4. Book value of assets available for benefits (Item 1 - Item 2f + Item 3)	20,446,328,980	20,042,288,911
5. Book value of assets for System members	552,360,141	534,714,975
6. Net book value of Plan assets (Item 4 - Item 5)	19,893,968,839	19,507,573,936
7. Addition to book value for actuarial assets	2,961,174,700	4,115,442,033
8. Actuarial value of assets for actuarial valuation	$ 22,855,143,539	$ 23,623,015,969

Change in Assets During the Year (401(a) Only)

	Year Ending June 30, 2001 (1)	Year Ending June 30, 2002 (2)
1. Book value, beginning of year	$ 18,044,733,899	$ 18,905,027,382
2. Contributions and receipts during the year		
a. Employee contributions	132,814,291	134,688,319
b. Employer contributions	132,814,291	130,647,669
c. Member reimbursements of employee contributions	37,378,864	48,247,702
d. Member reimbursements of employer contributions	249,153	1,117,785
e. Other miscellaneous receipts	7,626,142	3,033,448
f. Total	310,882,741	317,734,923
3. Investment income for the year (net of investment expenses)	1,507,819,089	325,570,564
4. Benefit payments		
a. Retirement and disability benefits	(774,642,921)	(898,148,032)
b. Death benefits	(13,402,379)	(12,151,020)
c. Total	(788,045,300)	(910,299,052)
5. Refunds of contributions	(91,824,591)	(42,765,105)
6. Employer adjustments	(56,302,135)	0
7. Administrative expenses	(9,843,046)	(15,375,486)
8. Miscellaneous	(621,210)	111,628
9. Other		
a. Transfers from Plan	(4,548,877)	0
b. Reimbursements and lump sums	0	0
c. Transfers to PSPRS	(7,223,188)	(7,149,384)
d. Increase System retired reserves	0	0
e. Employer contributions released	0	0
f. Supplemental credits	N/A	N/A
g. Transfers from System	0	0
h. Total	(11,772,065)	(7,149,384)
10. Change in audited assets, beginning of year	0	781,450
11. Total change in book value	860,293,483	(331,390,462)
12. Book value, end of year	$ 18,905,027,382	$ 18,573,636,920

Change in Assets During the Year (401(h) Only)

	Year Ending June 30, 2001 (1)	Year Ending June 30, 2002 (2)
1. Book value, beginning of year	$ 765,214,567	$ 988,941,457
2. Contributions and receipts during the year		
a. Employee contributions	0	0
b. Employer contributions	56,308,301	4,040,650
c. Member reimbursements of employee contributions	0	0
d. Member reimbursements of employer contributions	0	0
e. Other miscellaneous receipts	0	0
f. Total	56,308,301	4,040,650
3. Investment income for the year (net of investment expenses)	207,918,926	16,944,493
4. Benefit payments	(40,500,337)	(75,989,584)
5. Refunds of contributions	0	0
6. Employer adjustments	0	0
7. Administrative expenses	0	0
8. Miscellaneous	0	0
9. Other	0	0
10. Change in audited assets, beginning of year	0	0
11. Total change in book value	223,726,890	(55,004,441)
12. Book value, end of year	$ 988,941,457	$ 933,937,016

Calculation of Excess Investment Income for Actuarial Value of Assets (401(a) Only)

Item	Plan Year Ending June 30, 2002	2001	2000	1999
(1)	(2)	(3)	(4)	(5)
1. Calculation of unrealized gain/(loss) for year, based on market value				
a. Market value over book value (end of year)	$ (751,653,970)	$ 1,915,917,421	$ 4,240,641,488	$ 4,133,055,767
b. Market value over book value (beginning of year)	1,915,917,421)	4,240,641,488	4,133,055,767	3,245,288,652
c. Unrealized gain/(loss) during the year	(2,667,571,391)	(2,324,724,067)	107,585,721	887,767,115
2. Net investment income for year (based on book value)	325,570,564	1,507,819,089	1,765,664,249	1,806,498,727
3. Expenses and fees for year	15,375,486	9,843,046	10,775,218	9,932,871
4. Actual net investment income based on market value of assets (Item 1.c. + Item 2 - Item 3)	(2,357,376,313)	(826,748,024)	1,862,474,752	2,684,332,971
5. Market value of assets, beginning of year	20,820,944,803	22,285,375,387	21,028,622,703	18,710,866,239
6. Contributions during year	317,734,923	310,882,741	231,098,681	281,825,544
7. Benefits paid during year	(910,299,052)	(788,045,300)	(685,960,467)	(617,919,300)
8. Refunds paid during year	(42,765,105)	(91,824,591)	(64,976,507)	(26,089,213)
9. Expenses for year	0	0	(10,775,218)	(9,932,871)
10. LTD management fees for year	0	0	0	0
11. Other changes and net transfers	(7,149,384)	(68,074,200)	(85,883,775)	(40,415,622)
12. Expected net investment income at 8%				
a. Market value of assets, beginning of year	1,665,675,584	1,782,830,031	1,682,289,816	1,496,869,299
b. Contributions	12,709,397	12,435,310	9,243,947	11,273,022
c. Benefits	(39,446,292)	(34,148,630)	(29,724,954)	(26,776,503)
d. Refunds	(1,710,604)	(3,672,984)	(2,599,060)	(1,043,569)
e. Expenses	0	0	(431,009)	(397,315)
f. LTD management fees	0	0	0	0
g. Other	(285,975)	(2,722,968)	(3,435,351)	(1,616,625)
h. Total	1,636,942,109	1,754,720,759	1,655,343,389	1,478,308,309
13. Excess investment income for year (Item 4 - Item 12.h.)	$ (3,994,318,422)	$ (2,581,468,783)	$ 207,131,363	$ 1,206,024,662

Calculation of Excess Investment Income for Actuarial Value of Assets (401(h) Only)

Item	Plan Year Ending June 30, 2002	2001	2000	1999
(1)	(2)	(3)	(4)	(5)
1. Calculation of unrealized gain/(loss) for year, based on market value				
a. Market value over book value (end of year)	$ (161,063,629)	$ 63,030,160	$ 136,961,959	$ 130,647,511
b. Market value over book value (beginning of year)	63,030,160	136,961,959	130,647,511	97,492,547
c. Unrealized gain/(loss) during the year	(224,093,789)	(73,931,799)	6,314,448	33,154,964
2. Net investment income for year (based on book value)	16,944,493	207,918,926	73,080,742	64,303,662
3. Expenses and fees for year	0	0	0	0
4. Actual net investment income based on market value of assets (Item 1.c. + Item 2 - Item 3)	(209,149,296)	133,987,127	79,395,190	94,458,626
5. Market value of assets, beginning of year	1,051,971,617	902,176,526	807,759,019	679,090,567
6. Contributions during year	4,040,650	56,308,301	52,673,815	66,144,982
7. Benefits paid during year	(75,989,584)	(40,500,337)	(37,651,498)	(34,935,156)
8. Refunds paid during year	0	0	0	0
9. Expenses for year	0	0	0	0
10. LTD management fees for year	0	0	0	0
11. Other changes and net transfers	0	0	0	0
12. Expected net investment income at 8%				
a. Market value of assets, beginning of year	84,157,729	72,174,122	64,620,722	54,327,245
b. Contributions	161,626	2,252,332	2,106,953	2,645,799
c. Benefits	(3,292,882)	(1,755,015)	(1,631,565)	(1,513,857)
d. Refunds	0	0	0	0
e. Expenses	0	0	0	0
f. LTD management fees	0	0	0	0
g. Other	0	0	0	0
h. Total	81,026,473	72,671,439	65,096,110	55,459,187
13. Excess investment income for year (Item 4 - Item 12.h.)	$ (288,175,769)	$ 61,315,688	$ 14,299,080	$ 41,999,439

Estimate of Yields for the Year (401(a) Only)

Item	Basis of Assets Book Value	Market Value	Actuarial Value
(1)	(2)	(3)	(4)
1. Calculation of unrealized gain (loss) for the year			
a. Market/Actuarial over Book, end of year	$ 0	$ (751,653,970)	$ 4,068,056,402
b. Market/Actuarial over Book, beginning of year	0	1,915,917,421	2,982,374,834
c. Unrealized gain (loss) during the year (Item a. - Item b.)	0	$ (2,667,571,391)	$ 1,085,681,568
2. Net investment income for the year (including net realized gains and net of investment expenses, based on book income)	$ 325,570,564	$ 325,570,564	$ 325,570,564
3. Administrative expenses for the year	$ 15,375,486	$ 15,375,486	$ 15,375,486
4. Net investment income for the asset valuation method (Item 1c + Item 2 - Item 3 = I)	$ 310,195,078	$ (2,357,376,313)	$ 1,395,876,646
5. Beginning of year asset value			
a. For actuarial purposes	$ 18,905,808,832	$ 20,820,944,803	$ 21,888,183,666
b. Additional investment fund assets netted against investment fund liabilities	285,259,511	285,259,511	285,259,511
c. Total assets (A)	19,191,068,343	21,106,204,314	22,173,443,177
6. End of year asset value			
a. For actuarial purposes	$ 18,573,636,920	$ 17,821,982,950	$ 22,641,693,322
b. Additional investment fund assets netted against investment fund liabilities	470,307,381	470,307,381	470,307,381
c. Total assets (B)	19,043,944,301	18,292,290,331	23,112,000,703
7. Estimated yield based on 2I/(A + B - I)	1.64%	(11.29%)	6.36%

Estimate of Yields for the Year (401(h) Only)

Item	Basis of Assets: Book Value	Basis of Assets: Market Value	Basis of Assets: Actuarial Value
(1)	(2)	(3)	(4)
1. Calculation of unrealized gain (loss) for the year			
a. Market/Actuarial over Book, end of year	$ 0	$ (161,063,629)	$ 47,385,631
b. Market/Actuarial over Book, beginning of year	0	63,030,160	(21,981,584)
c. Unrealized gain (loss) during the year (Item a - Item b)	0	(224,093,789)	$ 69,367,215
2. Net investment income for the year (including net realized gains and net of investment expenses, based on book income)	$ 16,944,493	$ 16,944,493	$ 16,944,493
3. Administrative expenses for the year	$ 0	$ 0	$ 0
4. Net investment income for the asset valuation method (Item 1c + Item 2 - Item 3 = I)	$ 16,944,493	$ (207,149,296)	$ 86,311,708
5. Beginning of year asset value			
a. For actuarial purposes	$ 988,941,457	$ 1,051,971,617	$ 966,959,873
b. Additional investment fund assets netted against investment fund liabilities	11,520,470	11,520,470	11,520,470
c. Total assets (A)	1,000,461,927	1,063,492,087	978,480,343
6. End of year asset value			
a. For actuarial purposes	$ 933,937,016	$ 772,873,387	$ 981,322,547
b. Additional investment fund assets netted against investment fund liabilities	24,201,858	24,201,858	24,201,858
c. Total assets (B)	958,138,874	797,075,245	1,005,524,505
7. Estimated yield based on 2I/(A + B - I)	1.75%	(20.04)%	9.10%

Relative Size of Unfunded Actuarial Accrued Liability

		Relative to Actuarial Covered Payroll		Relative to Actuarial Value of Present Assets		Relative to Total Actuarial Liabilities	
Year Ending June 30,	Unfunded Actuarial Accrued Liability in Millions	Covered Payroll in Millions	Percent of Covered Payroll	Present Assets in Millions	Percent of Present Assets	Actuarial Liabilities in Millions	Percent of Actuarial Liabilities
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
1979	$ 437	$ 1,252	34.9%	$ 1,356	32.2%	$ 3,004	14.5%
1980	436	1,373	31.8%	1,631	26.7%	3,400	12.8%
1981	364	1,567	23.2%	1,982	18.4%	3,946	9.2%
1982	472	1,734	27.2%	2,255	20.9%	4,547	10.4%
1983	301	1,841	16.3%	2,777	10.8%	5,009	6.0%
1984	248	1,906	13.0%	3,174	7.8%	5,351	4.6%
1985	301	2,120	14.2%	3,654	8.2%	5,874	5.1%
1986	95	2,361	4.0%	4,538	2.1%	6,718	1.4%
1987	(129)	2,478	(5.2%)	5,531	(2.3%)	7,636	(1.7%)
1988	(292)	2,818	(10.3%)	6,000	(4.9%)	8,251	(3.5%)
1989	(510)	2,994	(17.0%)	6,686	(7.6%)	6,176	(8.3%)
1990	(552)	3,212	(17.2%)	7,297	(7.6%)	6,745	(8.2%)
1991	(654)	3,453	(18.9%)	7,822	(8.4%)	7,168	(9.1%)
1992	(632)	3,616	(17.5%)	8,842	(7.1%)	8,210	(7.7%)
1993	(849)	3,748	(22.7%)	9,770	(8.7%)	8,921	(9.5%)
1994	(872)	4,126	(21.1%)	10,540	(8.3%)	9,668	(9.0%)
1995	(1,217)	4,432	(27.5%)	11,521	(10.6%)	10,304	(11.8%)
1996	(1,468)	4,632	(31.7%)	12,579	(11.7%)	11,111	(13.2%)
1997	(1,784)	4,836	(36.9%)	14,169	(12.6%)	12,385	(14.4%)
1998	(2,530)	5,164	(49.0%)	16,168	(15.6%)	13,638	(18.6%)
1999	(2,639)	5,488	(48.1%)	18,761	(14.1%)	16,122	(16.4%)
2000	(3,578)	5,894	(60.7%)	21,127	(16.9%)	17,549	(20.4%)
2001	(2,587)	6,357	(40.7%)	22,855	(11.3%)	20,269	(12.8%)
2002	(1,036)	6,989	(14.8%)	23,623	(4.4%)	22,587	(4.6%)

Growth of Covered Payroll and Active Participants

Year Ending June 30,	Active Members: Number	Active Members: Percent Increase	Covered Payroll: Amount in $ Millions	Covered Payroll: Percent Increase	Average Salary: Amount	Average Salary: Percent Increase
(1)	(2)	(3)	(4)	(5)	(6)	(7)
1980	101,666	1.6%	$ 1,373	9.7%	$ 13,503	7.9%
1981	103,222	1.5%	1,567	14.1%	15,189	12.5%
1982	103,841	0.6%	1,734	10.7%	16,701	10.0%
1983	103,174	(0.6%)	1,841	6.2%	17,846	6.9%
1984	103,889	0.7%	1,906	3.5%	18,345	2.8%
1985	107,695	3.7%	2,120	11.2%	19,684	7.3%
1986	114,456	6.3%	2,361	11.4%	20,632	4.8%
1987	117,426	2.6%	2,478	5.0%	21,100	2.3%
1988	119,073	1.4%	2,818	13.7%	23,664	12.2%
1989	124,436	4.5%	2,994	6.2%	24,057	1.7%
1990	129,701	4.2%	3,212	7.3%	24,762	2.9%
1991	134,751	3.9%	3,453	7.5%	25,625	3.5%
1992	139,633	3.6%	3,616	4.7%	25,896	1.1%
1993	144,477	3.5%	3,748	3.7%	25,943	0.2%
1994	154,901	7.2%	4,126 [1]	3.2% [2]	26,635	2.7%
1995	155,444	0.4%	4,432	7.4%	28,513	7.1%
1996	159,572	2.7%	4,632	4.5%	29,029	1.8%
1997	164,390	3.0%	4,836	4.4%	29,420	1.3%
1998	170,864	3.9%	5,164	6.8%	30,224	2.7%
1999	176,368	3.2%	5,488	6.3%	31,116	3.0%
2000	183,924	4.3%	5,894	7.4%	32,045	3.0%
2001	191,252	4.0%	6,357	7.9%	33,237	3.7%
2002	198,870	4.0%	6,989	9.9%	35,145	5.7%

[1] Covered payroll amount has been changed to show anticipated payroll for the fiscal year following the valuation date.
[2] Compared to previous year's amount described in [1]

Growth of Retired Participants

	New Retirees		New Disabled Members on LTD Program		All Retirees		All Disabled Members on LTD Program	
Year Ending June 30,	Number	Average Monthly Benefit	Number	Average Monthly Benefit	Number	Average Monthly Benefit	Number	Average Monthly Benefit
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
1983	1,841	$ 385	--	--	18,842	$ 299	--	---
1984	4,743	684	--	--	23,166	410	--	---
1985	802	304	--	--	23,686	447	--	--
1986	1,952	541	--	--	25,213	469	--	--
1987	1,677	707	--	--	26,577	505	--	--
1988	1,938	792	--	--	28,575	535	--	--
1989	3,405	1,105	--	--	31,396	603	--	--
1990	2,117	859	346	$ 986	33,385	659	346	$ 986
1991	2,209	825	215	941	34,907	687	699	957
1992	2,303	861	517	958	36,490	703	1,104	973
1993	3,954	1,173	519	865	39,684	812	1,455	919
1994	2,280	934	503	860	41,044	852	1,780	892
1995	3,223	1,008	617	951	43,378	878	2,130	878
1996	3,845	1,121	704	928	45,975	920	2,507	929
1997	3,578	1,097	599	1,036	49,743	945	2,746	954
1998	3,353	1,062	669	1,150	51,917	982	3,063	983
1999	4,380	1,326	819	1,141	55,104	1,024	3,680	1,023
2000	4,822	1,490	547	1,425	58,038	1,125	3,595	1,070
2001	4,224	1,465	632	1,455	58,920	1,211	3,904	1,151
2002	3,954	1,677	626	1,281	60,346	1,371	4,485	1,077

History of Contribution Rates

	Calculated Rates		Actual Rates		Total Rate	
Fiscal Year Beginning July 1	Employee	Employer	Employee	Employer	Calculated	Actual
(1)	(2)	(3)	(4)	(5)	(6)	(7)
1978	7.00	5.77	7.00	7.00	12.77	14.00
1979	7.00	6.34	7.00	7.00	13.34	14.00
1980	7.00	6.28	7.00	7.00	13.28	14.00
1981	7.00	6.29	7.00	7.00	13.29	14.00
1982	7.00	5.79	7.00	7.00	12.79	14.00
1983	7.00	6.04	7.00	7.00	13.04	14.00
1984	6.27	6.27	6.27	6.27	12.54	12.54
1985	5.67	5.67	5.67	5.67	11.34	11.34
1986	5.53	5.53	5.53	5.53	11.06	11.06
1987	5.16	5.16	4.00	4.00	10.32	8.00
1988	5.09	5.09	5.09	5.09	10.18	10.18
1989	4.69	4.69	2.00	2.00	9.38	4.00
1990	3.82	3.82	3.82	3.82	7.64	7.64
1991	3.60	3.60	3.60	3.60	7.20	7.20
1992	3.59	3.59	3.59	3.59	7.18	7.18
1993	4.09	4.09	3.14	3.14	8.18	6.28
1994	3.75	3.75	3.75	3.75	7.50	7.50
1995	3.95	3.95	3.36	3.36	7.90	6.72
1996	3.20	3.20	3.20	3.20	6.40	6.40
1997	3.05	3.05	3.05	3.05	6.10	6.10
1998	2.85	2.85	2.85	2.85	5.70	5.70
1999	2.17	2.17	2.17	2.17	4.34	4.34
2000	2.	2.73[1]	2.17	2.17	5.46[1]	4.34
2001	1.92	1.92	2.00	2.00	3.84	4.00
2002	3.86[1]	3.86[1]	2.00	2.00	7.72[1]	4.00
2003	5.20	5.20	5.20	5.20	10.40	10.40

[1] Hypothetical rate. The actual contribution rate was set by the prior year valuation.

History of Cash Flow

Year Ending June 30,	Contributions for the Year	Expenditures During the Year: Benefit Payments	Refunds of Contributions	Administrative	Total	External Cash Flow for the Year	End of Year Market Value of Assets	External Cash Flow as Percentage of Market
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
1988	$ 226,391,986	$(184,014,825)	$ (32,440,739)	$ (1,858,980)	$(218,314,544)	$ 8,077,442	$ 6,354,326,735	0.1%
1989	309,456,756	(211,706,362)	(32,763,953)	(2,796,196)	(247,266,511)	62,190,245	7,314,715,626	0.9%
1990	129,780,928	(291,865,604)	(31,871,455)	(3,016,679)	(326,753,738)	(196,972,810)	7,784,051,423	(2.5%)
1991	267,194,502	(313,739,121)	(27,329,212)	(4,889,991)	(345,958,324)	(78,763,822)	8,298,777,637	(0.9%)
1992	265,305,634	(351,219,516)	(24,689,694)	(6,282,138)	(382,191,348)	(116,885,714)	9,375,565,917	(1.2%)
1993	278,158,497	(414,519,290)	(21,419,534)	(5,774,866)	(441,713,690)	(163,555,193)	10,712,781,278	(1.5%)
1994	256,841,228	(445,763,795)	(22,516,743)	(5,222,224)	(473,502,762)	(216,661,534)	10,680,073,807	(2.0%)
1995	326,663,838	(484,729,970)	(24,364,930)	(5,826,425)	(514,921,325)	(188,257,487)	12,356,078,492	(1.5%)
	299,724,778	(510,236,051)	(26,307,534)	(5,345,583)	(541,889,168)	(242,164,390)	13,917,637,400	(1.7%)
1997[2]	309,394,448	(550,078,719)	(30,838,244)	(6,740,459)	(587,657,422)	(278,262,974)	16,397,938,329	(1.7%)
1998[2]	321,349,998	(598,804,992)	(29,749,907)	(8,386,901)	(636,941,800)	(315,591,802)	19,389,956,806	(1.6%)
1999[2]	347,970,526	(652,854,456)	(26,089,213)	(9,932,871)	(688,876,540)	(340,906,014)	21,836,381,722	(1.6%)
2000[2]	283,772,496	(723,611,965)	(64,976,507)	(10,775,218)	(799,363,690)	(515,591,194)	23,187,551,913	(2.2%)
2001[2]	367,191,042	(828,545,637)	(91,824,591)	(9,843,046)	(930,213,274)	(563,022,232)	21,872,916,420	(2.6%)
2002[2]	321,775,573	(986,288,636)	(42,765,105)	(15,375,486)	(1,044,429,227)	(722,653,654)	18,594,856,337	(3.9%)

[1] Including LTD management fees prior to 1996.
[2] 401(a) assets and 401(b) assets combined

Schedule of Funding Process
(as required by GASB #25)

Valuation Date	Actuarial Value of Assets (AVA)	Actuarial Accrued Liability (AAL)	Unfunded Actuarial Accrued Liability (UAAL) (2) - (3)	Funded Ratio	Annual Covered Payroll	UAAL as % of Payroll (4) / (6)
(1)	(2)	(3)	(4)	(5)	(6)	(7)
06-30-1993	$ 9,770	$ 8,921	$ (849)	109.5%	$ 3,748	(22.7%)
06-30-1994	10,549	9,668	(872)	109.0%	4,126	(21.1%)
06-30-1995	11,521	10,304	(1,217)	111.8%	4,432	(27.5%)
06-30-1996	12,579	11,111	(1,468)	113.2%	4,632	(31.7%)
06-30-1997	13,692	11,694	(1,998)	117.1%	4,836	(41.3%)
06-30-1998	15,577	12,910	(2,667)	120.7%	5,164	(51.7%)
06-30-1999	18,043	15,476	(2,567)	116.6%	5,488	(46.8%)
06-30-2000	20,292	16,854	(3,438)	120.4%	5,894	(58.3%)
06-30-2001	21,888	19,012	(2,876)	115.1%	6,357	(45.2%)
06-30-2002	22,642	21,285	(1,357)	106.4%	6,989	(19.4%)

Note: Dollar amounts in millions.
Values shown for valuation dates on or after June 30, 1996 are for the 401(a) plans only.

Schedule of Employer Contributions
(as required by GASB #25)

Fiscal Year	Annual Required Contribution	Percentage Contributed
(1)	(2)	(3)
1993	$ 135,644,868	100.0%
1994	162,452,872	76.8%
1995	158,559,931	100.0%
1996	78,608,439	100.0%
1997	89,756,995	100.0%
1998	78,004,461	100.0%
1999	85,964,481	100.0%
2000	195,810,628	100.0%
2001	209,320,281	100.0%
2002	265,335,988	100.0%

* As a percentage of payroll

Note: Contribution amounts shown for fiscal year 1996 and after are the contribution amounts for the 401(a) pension plan only.

Notes to Required Supplementary Information

The information presented in the required supplementary schedules was determined as part of the actuarial valuations at the dates indicated. Additional information as of the latest actuarial valuation follows:

Valuation Date	June 30, 2002
Actuarial cost method	Projected Unit Credit
Amortization method	Level dollar, 17 years grading to 30
Payroll growth rate for amortization	N/A
Asset valuation method	10-year smoothed market
Actuarial assumptions:	
Investment rate of return*	8.00%
Projected salary increases	4.50% to 9.50%
*Includes inflation at	4.25%
Cost-of-living adjustments	Permanent Benefit Increase COLA reserve of $ 1,363 million as of June 30, 2002

Summary of the Benefit Provisions of the Retirement Plan as of June 30, 2002

The Arizona State Retirement Plan makes provision for the retirement, disability, and death and survivor benefits to all employees of the State, instrumentalities of the State and certain political subdivisions. The major provisions of the Plan may be summarized as follows:

A. RETIREMENT BENEFITS

1. Normal Retirement Date (the earliest of the following):

   (a) an employee's sixty-fifth birthday,

   (b) an employee's sixty-second birthday and completion of at least ten years of credited service, or

   (c) the first day immediately following the day that the sum of the employee's age and his years of total credited service equals eighty.

2. Monthly Life Annuity

   The product of a benefit multiplier (as determined below) and the participant's best 36-month average compensation (in last 120 months) multiplied by his or her years of total credited service.

Years of Credited Service	Benefit Multiplier
Less than 20	2.10%
20.0 to 24.99	2.15%
25.0 to 29.99	2.20%
30 or more	2.30%

   Note: Members hired after the effective date of the adoption of the graded multiplier have a maximum benefit equal to 80% of their 36-month final average earnings.

3. Normal Retirement Benefits

   The sum of the monthly life annuity and any prior service benefits to which the employee was entitled under the System.

4. Early Retirement

   Age 50 with 5 or more years of credited service.

5. Early Retirement Benefits

If not eligible for normal retirement and at least age 50 with 5 years of total credited service, normal retirement benefit earned to the date of retirement, reduced according to the following table:

AGE AT DATE OF RETIREMENT

Years of Service	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65
5-10	35%	40%	45%	50%	55%	60%	65%	70%	75%	80%	85%	88%	91%	94%	97%	100%
10-19	44%	49%	54%	59%	64%	69%	74%	79%	84%	89%	94%	97%	100%	100%	100%	100%
20+	50%	55%	60%	65%	70%	75%	80%	85%	90%	95%	100%	100%	100%	100%	100%	100%

Provided, however, that if the employee meets the Rule of 77 (but not the Rule of 80), the reduction will be 3% for each unit below 80.

6. Normal Form of Benefit

Straight life annuity payable monthly with benefits commencing on the day following the date of termination of employment.

7. Optional Forms:

(a) joint and contingent annuity (with Pop-up) with either 100%, 66-2/3% or 50% of the reduced retirement income payable for the life of the contingent annuitant upon the death of the retiring participant,

(b) period certain and life annuity with either five or ten years of payments guaranteed, or

(c) a social security leveling option combined with any of the other forms of payment.

8. Minimum Benefit

The minimum monthly benefit payable to a retired member who is at least age 75 and who has 20 or more years of service is $600.

B. DISABILITY BENEFITS (for disability after June 30, 1988)

1. Long Term Disability

Monthly benefit equal to two-thirds of monthly compensation, reduced by any social security disability or workers' compensation benefits, payable commencing six months after date of disability until the earlier of:

(a) date of cessation of total disability, or

(b) normal retirement date.

This benefit is paid by a separate LTD plan.

2. Disability Payments if Participant Remains Disabled Through Normal Retirement Date

   Monthly benefit participant would have received if service had continued to normal retirement date assuming the participant's salary remained at the level it was at his or her date of disability, also provided that the amount of total credited service is limited to 30 years unless he or she had more than 30 years at date of disability.

3. The minimum monthly benefit payable to a disabled participant is $50.00.

C. DISABILITY BENEFITS (for disability before July 1, 1988)

1. Eligibility

   Age 50 with 5 years of service.

2. Benefit Amount

   A life annuity that can be provided by the employee's contribution account. Disability payments after normal or early retirement eligibility are reduced by the actuarial value of the disability payments made up to the date of normal or early retirement eligibility.

D. PRE-RETIREMENT DEATH BENEFITS

1. Eligibility

   Applicable if death occurs prior to retirement.

2. Benefit

   Any one of the following, at the option of the beneficiary:

   (a) a lump sum equal to the sum of (i) and (ii):

   (i) two times participant's contributions to the plan, with interest, and

   (ii) the amount of the participant's employee and employer accounts, along with supplemental credits, if any, transferred from the System to the Plan, with interest

   (b) if (a) is greater than $5,000, the beneficiary may elect to receive a monthly income for five or ten years certain and life thereafter which is actuarially equivalent to the amount in (a).

3. Death of an Active Participant After 15 Years of Credited Service or After Eligibility for Early Retirement

   Beneficiary receives a benefit in the form of a survivor annuity equal to the benefit that would have been payable to the beneficiary if the participant had retired on the date of his or her death and elected to receive an annuity payable in the form of joint and 100% survivor with the beneficiary named as the joint pensioner.

E. VESTING OF BENEFITS

1. Vesting

   A participant is fully vested in his or her accrued benefit.

2. Benefits Upon Vesting

   A fully vested participant is entitled to either:

   (a) the enhanced refund option, or

   (b) the retirement benefit payable at normal retirement earned to the date of participant's termination.

   The enhanced refund option allows employees who terminate prior to eligibility for retirement to receive a refund of their employee contributions with interest. In addition, if an employee has at least five years of service, he or she is also entitled to a share of the employer contributions with interest. The share is 25% for employees with five years of service and increases 15% for each additional year of service up to a maximum of 100% for ten or more years of service.

F. RETIREE HEALTH INSURANCE PREMIUM SUPPLEMENT

1. Eligibility

   Retirement or disability after 5 years of credited service and covered by an employer-sponsored group insurance program for which the retired or disabled member must pay part of the cost. Employees who elect the enhanced refund option are not eligible for this benefit.

2. Benefit

   The benefit is payable only with respect to allowable health insurance premiums for which the participant is responsible. The maximum benefits for participants with 10 or more years of service are:

   (a) with respect to premiums paid for retirees with member only coverage:

   - $150 per month if the retiree is under age 65
   - $100 per month if the retiree is 65 or over

(b) with respect to premiums paid for retirees with family coverage:

- $260 per month if the member's dependents are under age 65
- $170 per month if the member dependent is 65 or over
- $215 per month if the member is over age 65 and the dependent is under age 65
- $215 per month if the member is under age 65 and the dependent is over age 65

For employees with five to nine years of service the benefits are the same dollar amounts as above multiplied by a vesting fraction equal to 10% for each completed year of service (i.e., 50% to 90%).

See section U for a discussion of the temporary benefit payable to retirees in "Rural" coverage areas.

G. AUTOMATIC COST OF LIVING ADJUSTMENT BASED ON EXCESS INVESTMENT EARNINGS

Permanent Benefit Increase (PBI)

Retirees at least age 55 who have been retired one year and LTD members are eligible for a COLA up to a maximum of a 4% increase. The COLA is paid from a reserve of "Excess Investment Earnings." If there are no "Excess Investment Earnings" in reserve then no COLA is paid.

Permanent Benefit Increase Enhancement

Provides retired members with at least ten years of service who have been retired five or more years an additional benefit. For each complete 5-year period the member has been retired an incremental benefit is paid if monies to pay the benefit are available. This benefit is funded by an interest credit of 8.0% of the reserve for future PBIs.

H. EMPLOYEE AND EMPLOYER CONTRIBUTIONS

The contribution rate for the biennium beginning on July 1st of the odd numbered year is based on the results of the most recent actuarial valuation as of the last day of the even numbered plan year preceding the biennium. Participants' contribution rate is equal to the required employer contribution rate. For the biennium July 1, 1999 to June 30, 2001, the required contribution rate is 2.17%. For the biennium July 1, 2001 to June 30, 2003, the required contribution rate is 2.00%. For the biennium July 1, 2003 to June 30, 2005, the required contribution rate is 5.20%.

I. LEGISLATED PLAN CHANGES ENACTED BY THE 1989 LEGISLATURE OF THE STATE OF ARIZONA

1. PUC Funding Method

   Beginning with the June 30, 1989 actuarial valuation, the total employee and employer contributions payable beginning July 1, 1990 shall be determined using the Projected Unit-Credit (PUC) funding method.

2. $12,000 Minimum Average Compensation for Current Retirees

   Recalculation of the retirement benefit for all plan members retired before June 30, 1989 who had 10 years of credited service using a minimum average compensation of one thousand dollars per month.

3. 2.0% Ad Hoc COLAs

   - Effective July 1, 1989, all members retired on or before June 30, 1988 shall receive a 2.0% permanent benefit increase to their December 31, 1988 base benefit.

   - Effective July 1, 1990, all members retired on ore before June 30, 1989 shall receive a 2.0% permanent benefit increase to their June 30, 1990 base benefit.

4. Early Retirement Window

   During the period of May 15, 1989 through November 14, 1989 a member who is eligible for either Normal Retirement or Early Retirement with age plus credited service at least equal to 80, may retire and receive a benefit calculated using a 2.2% multiplier instead of the 2.0% multiplier in effect at that time.

5. 3.0% Tax Equity Allowance

   Retroactive to the later of January 1, 1989 or the date payments commence, each member retiring on or before September 14, 1989 shall receive a tax equity benefit allowance consisting of a permanent increase of 3.0% in his or her January 1, 1989 base benefit.

J. LEGISLATED PLAN CHANGES ENACTED BY THE 1990 LEGISLATURE OF THE STATE OF ARIZONA

1. Rule of 82

   Effective May 1, 1990, the number of points (sum of member's age and years of service) required to be eligible for normal retirement shall be reduced from 85 to 82. Also, the early retirement reduction factor for employees with 77 or more points but less than 82 points shall be 3% for each point or fraction thereof less than 82.

2. 3.0% Tax Equity Allowance

   Each member who retires between September 15, 1989 and September 14, 1990 shall receive a tax equity benefit allowance consisting of a permanent increase of 3.0% in his or her base benefit, retroactive to the date of retirement.

3. Graded Vesting for Health Insurance Premium Supplement

   The Health Insurance Premium Supplement is extended to those qualifying members with between five and nine years of service. The member will be eligible to receive 10% of the benefit for each completed year of service (i.e., 50% to 90%).

K. LEGISLATED PLAN CHANGES ENACTED BY THE 1991 LEGISLATURE OF THE STATE OF ARIZONA

1. 3.0% Tax Equity Allowance

   Each member who retires between September 15, 1990 and September 14, 1991 shall receive a tax equity benefit allowance consisting of a permanent increase of 3.0% in his or her base benefit, retroactive to the date of retirement.

2. Recalculation of Retiree Benefits Using 2.0% Benefit Multiplier

   Each retired member with at least 10 years of service who retired prior to June 30, 1985 shall have his or her benefit recomputed. The recomputed benefit shall be equal to 2% times final average earnings times credited service plus an additional $2 for each year of service. The retired member will receive the larger of the recalculated benefit or his/her current benefit. This increase is effective October 1, 1991.

3. 2.3% Ad Hoc Increase

   Effective July 1, 1991 all members retired on or before June 30, 1990 shall receive a 2.3% permanent benefit increase in their June 30, 1991 base benefit.

4. Rule of 80

   Effective July 1, 1992, the number of points (sum of member's age and years of service) required to be eligible for normal retirement shall be reduced from 82 to 80. (For continuation purposes this legislation is not reflected until the 1993/94 fiscal year).

5. Pop-up Option

   A pop-up option is added for retiring members who first participate in the Plan on or after December 31, 1991.

L. LEGISLATED PLAN CHANGES ENACTED BY THE 1992 LEGISLATURE OF THE STATE OF ARIZONA

1. 3.0% Tax Equity Allowance

   Each member who retires between September 15, 1991 and September 14, 1992 shall receive a tax equity benefit allowance consisting of a permanent increase of 3.0% in his or her base benefit, retroactive to the date of retirement.

2. Minimum Retiree Benefit

   Each retiree of the Arizona State Retirement Plan who is at least age 75 on December 31, 1992 and who had at least ten years of service upon retirement from the plan ten years of service upon retirement from the plan shall be eligible for a minimum benefit. If the eligible retiree had at least ten years of service but less than fifteen years, his minimum benefit is $350 a month. If the eligible retiree had at least fifteen years of service but less than twenty, his minimum benefit is $500. If the eligible retiree had at least twenty years of service his minimum benefit is $600. The minimum benefit shall be compared to the retiree's current benefit (including all ad hoc increases).

3. 5% Ad Hoc Increase

   Effective November 1, 1992 all members retired on or before October 31, 1992 shall receive a 5% permanent benefit increase in their October 31, 1992 benefit.

4. Forfeited Service Repurchase

   Any present active member who has previously forfeited service has until December 31, 1994 to repurchase the forfeited service by paying the Plan the employee and employer contributions (accumulated with interest) which would have been contributed during the member's period of forfeited service.

5. Repurchase of Service Due to Reduction in Force

   Any present active member who was terminated prior to December 31, 1992 as a result of a required reduction in force may purchase the credited service for the following period of unemployment if the member had five or more years of service at the time of termination and resumed employment with a participating employer within two years of termination. The cost of the repurchase is the total of the employee and employer contribution (accumulated with interest) which would have been contributed during the member's period of unemployment.

6. Change in Section 38-781.05 Funding Method

   Section 38-781.05 of the plan was amended so that the funding period for the Plan would continue to be the period between valuation and June 30, 2002 as long as the Plan has a negative Unfunded Actuarial Accrued Liability. If the Plan were to have a positive UAAL, then the old funding mechanism would apply.

M. LEGISLATED PLAN CHANGES ENACTED BY THE 1993 LEGISLATURE OF THE STATE OF ARIZONA

1. No benefit changes were passed by the 1993 Legislature. However, the Legislature passed legislation to reduce the required contribution rate of 4.09% down to 3.14%.

N. LEGISLATED PLAN CHANGES ENACTED BY THE 1994 LEGISLATURE OF THE STATE OF ARIZONA

1. Minimum LTD Benefit

   Each member on long term disability will receive a minimum monthly benefit of $50.

2. Minimum Retiree Benefit

   Each retiree of the Arizona State Retirement Plan who is at least age 75 and who had 20 or more years of service at retirement will receive a minimum monthly benefit of $600.

3. Pop-up Benefit

   Members who retired prior to January 1, 1992 and who elected a Joint and Survivor option shall receive a "Pop-up" in their retirement income if their beneficiary pre-deceases them.

4. Excess Investment Earnings COLA

   Retirees at least age 55 who have been retired at least one year and members on long-term disability are eligible to receive a cost-of-living adjustment equal to one-half the increase in CPI for the prior calendar year. The COLA will be paid from a reserve of Excess Investment Earnings. If there are no Excess Investment Earnings in reserve, no COLA will be granted.

5. Change in Section 38-737 Funding Period

   Section 38-737 was amended to change the funding period of the Plan to a rolling 30-year period. The change is to be phased-in over the next nineteen years. If the Plan ceases to have a surplus, the funding period would immediately go to 30-years.

O. LEGISLATED PLAN CHANGES ENACTED BY THE 1995 LEGISLATURE OF THE STATE OF ARIZONA

1. Change in Maximum Increase Provided by Excess Investment Earnings COLA

   The maximum COLA payable from Excess Investment Earnings was increased from 50% to 100% of the increase in the CPI.

2. Removal of LTD Benefit from the Plan

   The Legislature established a new LTD program and removed the LTD benefit from the Plan. Liabilities for current LTD recipients will be transferred to the new LTD program effective October 1, 1995.

3. Creation of Separate Account for the Health Premium Supplement

   The Health Premium Supplement benefit is to be separated into a 401(h) account. The assets and liabilities associated with the Health Premium Supplement will be accounted for separately.

P. LEGISLATED PLAN CHANGES ENACTED BY THE 1996 LEGISLATURE OF THE STATE OF ARIZONA

1. No material changes.

Q. LEGISLATED PLAN CHANGES ENACTED BY THE 1997 LEGISLATURE OF THE STATE OF ARIZONA

1. Creation of family Health Supplement. Allows unused portion of the Health Supplement of a member or dependent to be used to pay the other recipient's health insurance premium.

2. The calculation methodology for the Excess Investment Earnings COLA was modified.

3. The contribution rate will be determined on a biennial cycle beginning with the 2000 fiscal year.

R. LEGISLATED PLAN CHANGES ENACTED BY THE 1998 LEGISLATURE OF THE STATE OF ARIZONA

1. No material changes.

S. LEGISLATED PLAN CHANGES ENACTED BY THE 1999 LEGISLATURE OF THE STATE OF ARIZONA

1. Enhanced Refund Option

   Employees who terminate prior to eligibility for retirement may elect to receive a refund of their employee contributions with interest. If the employee has at least five years of service, the employee is also entitled to a share of the employer contributions with interest. The share is 50% with five years of service and increases 10% for each additional year of service to a maximum of 100% for ten or more years of service.

2. Benefit Multiplier Increased to 2.1%

   The benefit multiplier increased from 2.0% to 2.1% effective July 1, 2000.

3. 5% Ad Hoc Increase

   A 5% retiree ad hoc increase for retirees and beneficiaries effective July 1, 2000.

4. Increase in Maximum Service While on LTD

   Increase in the maximum amount of service that may be accrued while on LTD from 25 to 30.

5. Changes in Permanent Benefit Increase COLA

   a. The maximum aggregate COLA was increased from 3% to 4%.

   b. The threshold for determining "Excess Earnings" was lowered from 9% to 8%.

   c. The limitation of the COLA to the increase in the CPI was removed.

T. LEGISLATED PLAN CHANGES ENACTED BY THE 2000 LEGISLATURE OF THE STATE OF ARIZONA

1. The age restriction on the Permanent Benefit Increase was eliminated.

U. LEGISLATED PLAN CHANGES ENACTED BY THE 2001 LEGISLATURE OF THE STATE OF ARIZONA

1. Health Insurance Premium Benefit Increase

   Increases the health insurance premium benefit for eligible members as follows:

   - Benefit for Medicare eligible member with member only coverage increased from $65 to $100
   - Benefit for non-Medicare eligible member with member only coverage increased from $95 to $150
   - Benefit for family coverage where member and dependent are non-Medicare eligible increased from $175 to $260
   - Benefit for family coverage where member and dependent are Medicare eligible increased from $115 to $170
   - Benefit for family coverage where member is Medicare eligible and dependent is non-Medicare eligible increased from $145 to $215
   - Benefit for family coverage where member is non-Medicare eligible and dependent is Medicare eligible increased from $145 to $215

2. Graded Multiplier

   Provides a graded multiplier in the retirement benefit formula, increasing with years of service according to the following:

   - 0.00 to 19.99 Years of Service 2.10%
   - 20.00 to 24.99 Years of Service 2.15%
   - 25.00 to 29.99 Years of Service 2.20%
   - 30.00 or More Years of Service 2.30%

3. Employer Option Service Purchase Incentive

   Permits an employer to offer a member who is eligible to retire under the Rule of 80 a contract to work and additional three years of employment. No contributions are made to ASRS during the contract. If the employee completes the contract, then they receive an additional three years of service with the option to purchase three more years of service.

4. Permanent Benefit Increase Enhancement

   Provides that interest at a rate of 8% be credited on the funds held in reserve for the permanent benefit increase (PBI). This interest will then be used to fund an additional increase for retirees who have at least 10 years of service and who have been retired at least five years. The increase is incremental for each five years of retirement.

5. Temporary Rural Health Insurance Premium Benefit

   In addition to the premium benefit paid to ASRS retired and disabled members, the Legislature granted a temporary benefit for retired and disabled members who live in areas of the state not served by a managed care program (HMO) and who have 10 years of credited service in the following amounts:

   - Benefit for Medicare eligible member with member only coverage of $170 per month
   - Benefit for non-Medicare eligible member with member only coverage of $300 per month
   - Benefit for Medicare eligible members with Medicare eligible dependent with family coverage of $350 per month
   - Benefit for non-Medicare eligible members with non-Medicare eligible dependent with family coverage of $600 per month
   - Benefit for Medicare eligible members with non-Medicare eligible dependent with family coverage of $470 per month
   - Benefit for non-Medicare eligible members with Medicare eligible dependent with family coverage of $470 per month

6. Partial Lump Sum Option

   Allows a retiring member to receive a portion of his benefit in a lump sum payment. The lump sum is limited to a maximum of 36 monthly payments. The member's monthly annuity is actuarially reduced to reflect the lump sum payment.

7. Maximum Benefit

   Members who are hired after the date the graded multiplier became law have a maximum benefit equal to 80% of the member's 36-month final average earnings.

V. LEGISLATED PLAN CHANGES ENACTED BY THE 2002 LEGISLATURE OF THE STATE OF ARIZONA

1. No material changes.

Statement of Actuarial Methods and Assumptions Used in Determining Cost (Adopted by Board Action on November 15, 1996) (Effective as of June 30, 1996)

A. Actuarial Assumptions

1. Investment Yield Rate — 8% per annum, compounded annually.

2. Mortality

a. Pre-retirement — 1983 Group Annuity Mortality Table (with margins, set back one year for males and with no setback for females. Rates at representative ages are shown below.)

	Rates of Mortality (Active)	
Age	Male Participants	Female Participants
20	.000365	.000189
25	.000444	.000253
30	.000572	.000342
35	.000785	.000476
40	.001128	.000665
45	.001932	.001010
50	.003513	.001647
55	.005660	.002541
60	.008384	.004241
65	.013868	.007064
70	.024817	.012385

b. Post-retirement — Health rates are based on the 1983 Group Annuity Mortality Table with margins, set back one year for males, and with no setback for females. Disabled rates are based on the experience of other large public sector retirement systems through age 82; thereafter Non-Disabled Mortality is assumed. Rates at representative ages are shown below.

	Rates of Mortality			
	Non-Disabled	Disabled	Non-Disabled	Disabled
Age	Male Participants		Female Participants	
20	.000365	.069879	.000189	.053877
25	.000444	.077774	.000253	.054887
30	.000572	.102203	.000342	.076604
35	.000785	.127088	.000476	.107853
40	.001128	.117613	.000665	.113967
45	.001932	.081841	.001010	.075172
50	.003513	.069484	.001647	.051392
55	.005660	.062712	.002541	.045671
60	.008384	.062217	.004241	.036058
65	.013868	.061722	.007064	.027868
70	.024817	.067459	.012385	.024778

3. Disability Rates

Group long-tern disability rates based on the Society of Actuaries 1987 Disability Incidence Study (with a 6-month elimination period). Sample rates are shown below.

	Rates of Decrement due to Disability	
Age	Male Participants	Female Participants
20	.000766	.000978
25	.000851	.001072
30	.000973	.001352
35	.001218	.002004
40	.001689	.002707
45	.002798	.003867
50	.005128	.006081
55	.009644	.009362
60	.014990	.012126

4. Withdrawal Rates
(for causes other than death, disability, or retirement)

Select and ultimate withdrawal rates are used. Rates at representative ages are shown below.

Rates of Decrement due to Withdrawal

	Years of Service										
Age	0	1	2	3	4	5	6	7	8	9	10+
					Male Employees						
20	.3731	.3642	.2895	.2545	.1508	.1364	.091	.084	.071	.076	.1277
30	.2267	.2055	.1612	.1547	.0917	.0943	.071	.068	.051	.051	.0565
40	.1931	.1698	.1011	.1015	.0601	.0665	.055	.054	.040	.038	.0227
50	.1892	.1692	.0904	.0820	.0458	.0502	.046	.035	.034	.031	.0155
60	.2219	.1824	.0963	.0848	.0445	.0371	.033	.033	.026	.024	.0108
70	.2604	.2282	.1320	.1229	.0616	.0549	.036	.031	.022	.020	.0180
					Female Employees						
20	.3116	.3053	.2640	.2596	.2101	.2077	.1680	.1405	.1380	.1285	.2148
30	.2015	.1937	.1652	.1456	.1094	.1089	.0930	.0813	.0811	.0760	.0821
40	.1720	.1693	.1174	.0930	.0666	.0661	.0563	.0482	.0461	.0417	.0239
50	.1698	.1457	.0927	.0722	.0528	.0522	.0426	.0335	.0287	.0227	.0167
60	.1805	.1432	.0939	.0731	.0508	.0466	.0357	.0275	.0237	.0190	.0088
70	.1916	.1666	.1199	.0955	.0622	.0508	.0363	.0293	.0311	.0358	.0144

5. Salary Scales

A select and ultimate salary scale made up of a merit component and general salary increase component as follows:

Years of Service	Merit Component	Total Salary Increase*
(1)	(2)	(3)
1	5.00%	9.50%
2	4.00%	8.50%
3	2.50%	7.00%
4	1.80%	6.30%
5	1.40%	5.90%
6	1.25%	5.75%
7	1.00%	5.50%
8	0.80%	5.30%
9	0.75%	5.25%
10	0.50%	5.00%
11 to 19	0.25%	4.75%
20 or more	0.00%	4.50%

* Total salary increase rate = inflation (or growth) rate (4.25%)
+ productivity increase rate (0.25%)
+ merit component

6. Retirement Age:

   Select and ultimate retirement rates are used. Rates at representative ages and years of service are shown below:

Rates of Decrement Due to Retirement

	Years of Service								
Age	0-4	5-9	10-14	15-19	20-23	24	25	30	35+
50	0.000	0.050	0.050	0.050	0.050	0.050	0.050	0.100	0.125
55	0.000	0.050	0.050	0.050	0.060	0.075	0.163	0.188	0.125
60	0.000	0.050	0.090	0.110	0.263	0.238	0.250	0.300	0.300
62	0.000	0.050	0.340	0.340	0.420	0.420	0.440	0.500	0.500
65	0.025	0.050	0.550	0.550	0.550	0.550	0.600	0.600	0.600
66+	0.025	0.100	0.550	0.550	0.600	0.600	0.600	0.600	0.600

7. Future Retirees Eligible for the Health Insurance Premium Supplement

   It is assumed that 75% of future retirees will be eligible to receive the post-retirement health insurance premium supplement and that 60% of those retirees will be eligible for the dependent premium supplement.

8. Proportion of Vested Termination Members Who Will Not Withdraw Their Contributions

   It is assumed that members who terminate with 5 or more years of service (but prior to eligibility for retirement) will choose to receive the enhanced refund option if the value of the enhanced refund option is greater than the present value of the deferred benefit, otherwise the employees are assumed to elect to receive the deferred benefit. If the employee is assumed to elect the enhanced refund option, then it is also assumed that the employee forfeits the supplement.

   Employees who terminate with less than five years of service are assumed to withdraw their employee contributions with interest.

   Employees who terminate eligible for early retirement are assumed to commence payments.

B. Actuarial Value of Assets

The actuarial value of assets is equal to the market value of assets less a ten-year phase-in (five-year phase-in prior to June 30, 2002) of the Excess (Shortfall) between expected investment return and actual income.

C. Actuarial Funding Method

Costs are determined under the projected unit-credit method. The unfunded actuarial accrued liability is funded on a level dollar basis over the period of time described in Section 38-737. For the June 30, 2002 actuarial valuation, the period is 17 years.

D. Data for Valuation

In preparing the June 30, 2002 actuarial valuation, the actuary has relied on data and assets provided by the staff of the Arizona State Retirement System. While not verifying the data at their source, the actuary has performed tests for consistency and reasonableness.

Statistical Tables

Distribution of Active Employees by Employee Group and By Average Age, Average Years of Service, and Average Annual Salary

ACTIVE PLAN MEMBERS

Employee Group	Number of Active Plan Members		Average Age		Average Years of Service		Average Annual Salary	
	As of June 30, 2002	As of June 30, 2001	As of June 30, 2002	As of June 30, 2001	As of June 30, 2002	As of June 30, 2001	As of June 30, 2002	As of June 30, 2001
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
State Employees:								
Men	16,915	16,319	46.2	45.6	9.3	9.3	$ 39,060	$ 37,800
Women	27,871	27,942	44.0	43.1	8.0	7.5	30,521	29,234
Total	44,786	44,261	44.8	44.0	8.5	8.2	$ 33,746	$ 32,392
Teachers:								
Men	16,117	14,626	44.6	44.2	10.9	11.2	$ 43,107	$ 40,604
Women	47,621	44,527	43.7	43.3	10.2	10.1	38,014	35,330
Total	63,738	59,153	44.0	43.5	10.4	10.4	$ 39,302	$ 36,634
Political Subdivision Employees:								
Men	33,663	30,631	45.2	44.7	7.6	7.9	$ 35,112	$ 34,752
Women	56,683	57,207	43.8	42.8	6.4	6.2	24,525	23,027
Total	90,346	87,838	44.3	43.4	6.8	6.8	$ 28,470	$ 27,116
All Active Plan Members:								
Men	66,695	61,576	45.3	44.8	8.8	9.1	$ 38,045	$ 36,950
Women	132,175	129,676	43.8	43.0	8.1	7.8	30,649	28,589
Total	198,870	191,252	44.3	43.6	8.4	8.2	$ 33,130	$ 31,281

Employees in Active Service as of June 30, 2002
by Age and by Years of Service

MEN

Age	Total	0 - 4	5 – 9	10 – 14	15 – 19	20 –24	25 – 29	30 – 34	35 and over
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Total	66,695	29,030	13,703	9,398	6,693	4,150	2,581	922	218
Under 20	111	111	0	0	0	0	0	0	0
20-24	1,742	1,719	23	0	0	0	0	0	0
25-29	4,338	3,781	552	5	0	0	0	0	0
30-34	6,104	3,706	2,045	342	11	0	0	0	0
35-39	6,747	2,977	2,043	1,373	332	22	0	0	0
40-44	8,536	3,094	2,008	1,733	1,293	396	12	0	0
45-49	14,304	6,974	2,351	1,735	1,579	1,250	406	9	0
50-54	10,875	2,761	1,927	1,785	1,632	1,300	1,241	227	2
55-59	8,093	2,123	1,491	1,367	1,156	786	639	477	54
60-64	4,042	1,089	856	751	538	307	233	162	106
65 and over	1,803	695	407	307	152	89	50	47	56

Employees in Active Service as of June 30, 2002
by Age and by Years of Service

WOMEN

Age	Total	0 - 4	5 – 9	10 – 14	15 – 19	20 –24	25 – 29	30 – 34	35 and over
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Total	132,175	59,817	28,719	19,074	12,688	7,113	3,684	940	140
Under 20	291	291	0	0	0	0	0	0	0
20-24	4,368	4,312	56	0	0	0	0	0	0
25-29	10,844	9,400	1,430	14	0	0	0	0	0
30-34	13,316	7,852	4,617	830	17	0	0	0	0
35-39	14,231	6,983	3,975	2,530	721	22	0	0	0
40-44	25,842	14,511	5,164	3,169	2,314	661	23	0	0
45-49	20,782	6,433	5,172	3,931	2,625	1,943	658	20	0
50-54	20,492	4,885	4,130	4,169	3,237	2,023	1,711	336	1
55-59	13,862	3,152	2,504	2,780	2,479	1,658	829	401	59
60-64	6,086	1,365	1,209	1,251	1,039	668	365	130	59
65 and over	2,061	633	462	400	256	138	98	53	21

Employees in Active Service as of June 30, 2002
by Age and by Years of Service

ALL EMPLOYEES

Age	Total	0 - 4	5 – 9	10 – 14	15 – 19	20 –24	25 – 29	30 – 34	35 and over
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Total	198,870	88,847	42,422	28,472	19,381	11,263	6,265	1,862	358
Under 20	402	402	0	0	0	0	0	0	0
20-24	6,110	6,031	79	0	0	0	0	0	0
25-29	15,182	13,181	1,982	19	0	0	0	0	0
30-34	19,420	11,558	6,662	1,172	28	0	0	0	0
35-39	20,978	9,960	6,018	3,903	1,053	44	0	0	0
40-44	34,378	17,605	7,172	4,902	3,607	1,057	35	0	0
45-49	35,086	13,407	7,523	5,666	4,204	3,193	1,064	29	0
50-54	31,367	7,646	6,057	5,954	4,869	3,323	2,952	563	3
55-59	21,955	5,275	3,995	4,147	3,635	2,444	1,468	878	113
60-64	10,128	2,454	2,065	2,002	1,577	975	598	292	165
65 and over	3,864	1,328	869	707	408	227	148	100	77

Employee in Active Service as of June 30, 2002
by Annual Salary and by Sex

Annual Salary			Number of Employees	Percent of All Employees	Men	Women
(1)			(2)	(3)	(4)	(5)
Total			198,870	100.0%	66,695	132,175
Less than		$6,000	3,628	1.8	802	2,826
$6,000	-	7,999	4,272	2.2	823	3,449
8,000	-	9,999	5,849	2.9	999	4,850
10,000	-	11,999	6,622	3.3	1,179	5,443
12,000	-	13,999	6,306	3.2	1,229	5,077
14,000	-	15,999	6,123	3.1	1,339	4,784
16,000	-	17,999	6,808	3.4	1,764	5,044
18,000	-	19,999	7,752	3.9	2,253	5,499
20,000	-	21,999	8,368	4.2	2,483	5,885
22,000	-	24,999	13,658	6.9	4,189	9,469
25,000	-	29,999	23,561	11.8	7,721	15,840
30,000	-	34,999	26,464	13.3	8,576	17,888
35,000	-	39,999	21,308	10.7	7,671	13,637
40,000	-	44,999	16,057	8.1	6,189	9,868
45,000	-	49,999	11,941	6.0	4,852	7,089
50,000 and over			30,153	15.2	14,626	15,527

Employee in Active Service as of June 30, 2002
by Age and by Average Annual Salary

MEN

Age	Number of Employees	Average Annual Salary
(1)	(2)	(3)
Total	66,695	$ 38,045
Under 20	111	12,422
20 – 24	1,742	19,848
25 – 29	4,338	28,936
30 – 34	6,104	34,410
35 – 39	6,747	37,202
40 – 44	8,536	39,586
45 – 49	14,304	35,727
50 – 54	10,875	44,424
55 – 59	8,093	44,330
60 – 64	4,042	40,725
65 and over	1,803	32,981

Employee in Active Service as of June 30, 2002
by Age and by Average Annual Salary

WOMEN

Age	Number of Employees	Average Annual Salary
(1)	(2)	(3)
Total	132,175	$ 30,649
Under 20	291	10,737
20 – 24	4,368	19,201
25 – 29	10,844	26,959
30 – 34	13,316	28,872
35 – 39	14,231	29,183
40 – 44	25,842	26,700
45 – 49	20,782	33,171
50 – 54	20,492	36,532
55 – 59	13,862	35,559
60 – 64	6,086	32,524
65 and over	2,061	25,795

Employee in Active Service as of June 30, 2002
by Age and by Average Annual Salary

ALL EMPLOYEES

Age	Number of Employees	Average Annual Salary
(1)	(2)	(3)
Total	198,870	$ 33,130
Under 20	402	11,202
20 – 24	6,110	19,385
25 – 29	15,182	27,524
30 – 34	19,420	30,613
35 – 39	20,978	31,762
40 – 44	34,378	29,900
45 – 49	35,086	34,213
50 – 54	31,367	39,268
55 – 59	21,955	38,793
60 – 64	10,128	35,797
65 and over	3,864	29,148

Retirement Benefits Awarded Under Plan During Year Ended June 30, 2002

BY AGE, AVERAGE MONTHLY AMOUNT, AND SEX

Age on June 30, 2002	Number of Retirees	Average Monthly Amount	Men	Women
(1)	(2)	(3)	(4)	(5)
Total	3,954	$ 1,677	1,555	2,399
Under 55	616	2,326	242	374
56 – 59	1,108	2,095	431	677
60 – 64	1,392	1,446	530	862
65 – 69	633	1,084	258	375
70 – 74	152	824	68	84
75 – 79	44	948	23	21
80 – 84	8	1,149	3	5
85 – 89	1	190	0	1
90 – 94	0	0	0	0
95 and over	0	0	0	0

Retirement Benefits in Force on June 30, 2002

BY AGE, AVERAGE MONTHLY AMOUNT, AND SEX

Age on June 30, 2002	Number of Retirees	Average Monthly Amount	Men	Women
(1)	(2)	(3)	(4)	(5)
Total	60,346	$ 1,371	23,839	36,507
Under 55	1,841	1,865	687	1,154
56 – 59	5,631	2,039	2,250	3,381
60 – 64	9,442	1,686	3,564	5,878
65 – 69	12,455	1,380	5,047	7,408
70 – 74	11,556	1,255	4,880	6,676
75 – 79	8,892	1,139	3,649	5,243
80 – 84	6,175	1,017	2,318	3,857
85 – 89	2,986	895	1,036	1,950
90 – 94	1,088	843	327	761
95 and over	280	861	81	199

Retirement Benefits in Force on June 30, 2002

BY YEARS OF SERVICE, AVERAGE MONTHLY AMOUNT, AND SEX

Years of Service	Number of Retirees	Average Monthly Amount	Men	Women
(1)	(2)	(3)	(4)	(5)
Total	60,346	$ 1,371	23,839	36,507
Less than 5	1,397	142	687	710
5 – 9	9,357	317	3,726	5,631
10 – 14	12,188	664	4,319	7,869
15 – 19	10,145	1,042	3,289	6,856
20 – 24	10,443	1,578	3,326	7,117
25 – 29	10,023	2,368	4,691	5,332
30 – 34	5,399	2,990	3,044	2,355
35 – 39	1,193	3,286	677	516
40 - 44	182	3,195	75	107
45 and over	19	3,958	5	14

Retirement Benefits in Force on June 30, 2002

BY MONTHLY AMOUNT AND SEX

Monthly Amount	Number of Retirees	Percent of All Retirees	Men	Women
(1)	(2)	(3)	(4)	(5)
Total	60,346	100.0%	23,839	36,507
Under $100	753	1.2	312	441
$100 – 199	2,463	4.1	862	1,601
$200 – 299	3,724	6.2	1,315	2,409
$300 – 399	3,542	5.9	1,212	2,330
$400 – 499	3,193	5.3	1,050	2,143
$500 – 599	3,240	5.4	1,048	2,192
$600 – 699	3,780	6.3	1,189	2,591
$700 – 799	3,135	5.2	1,032	2,103
$800 – 899	3,049	5.0	1,040	2,009
$900 – 999	2,758	4.6	882	1,876
$1,000 – 1,099	2,660	4.4	899	1,761
$1,100 – 1,199	2,279	3.8	777	1,502
$1,200 – 1,299	1,994	3.3	753	1,241
$1,300 – 1,399	1,807	3.0	686	1,121
$1,400 – 1,499	1,600	2.6	639	961
$1,500 and over	20,369	33.7	10,143	10,226

Retirement Benefits in Force on June 30, 2002

BY EMPLOYEE GROUP, AGE AND SEX

	State			Teachers			Political Subdivision		
Age	Total	Men	Women	Total	Men	Women	Total	Men	Women
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Total	15,707	7,203	8,504	18,342	6,433	11,909	26,297	10,203	16,094
Under 55	400	150	250	784	285	499	657	252	405
55 – 60	1,151	538	613	2,552	953	1,599	1,928	759	1,169
61 – 64	2,141	986	1,155	3,249	1,143	2,106	4,052	1,435	2,617
65 – 69	3.225	1,558	1,667	3,529	1,228	2,301	5,701	2,261	3,440
70 – 74	3,100	1,491	1,609	3,194	1,205	1,989	5,262	2,184	3,078
75 – 79	2,577	1,150	1,427	2,244	876	1,368	4,071	1,623	2,448
80 – 84	1,894	821	1,073	1,513	474	1,039	2,768	1,023	1,745
85 – 89	909	383	526	781	191	590	1,296	462	834
90 – 94	260	108	152	373	62	311	455	157	298
95 and over	50	18	32	123	16	107	107	47	60

Retirement Benefits in Force on June 30, 2002

BY EMPLOYEE GROUP, YEARS OF SERVICE AND SEX

	State			Teachers			Political Subdivision		
Age	Total	Men	Women	Total	Men	Women	Total	Men	Women
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Total	15,707	7,203	8,504	18,342	6,433	11,909	26,297	10,203	16,094
Less than 5	436	229	207	168	64	104	793	394	399
5 – 9	3,051	1,239	1,812	1,090	320	770	5,216	2,167	3,049
10 – 14	3,728	1,403	2,325	1,944	478	1,466	6,516	2,438	4,078
15 – 19	2,785	1,127	1,658	2,368	564	1,804	4,992	1,598	3,394
20 – 24	2,251	1,018	1,233	3,755	937	2,818	4,437	1,371	3,066
25 – 29	1,958	1,191	767	5,242	2,214	3,028	2,823	1,286	1,537
30 – 34	1,143	766	377	3,044	1,529	1,515	1,212	749	463
35 – 39	301	200	101	625	294	331	267	183	84
40 - 44	49	28	21	97	32	65	36	15	21
45 and over	5	2	3	9	1	8	5	2	3

Retirement Benefits in Force on June 30, 2002

BY EMPLOYEE GROUP, MONTHLY AMOUNT AND SEX

	State			Teachers			Political Subdivision		
Monthly Amount	Total	Men	Women	Total	Men	Women	Total	Men	Women
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Total	15,707	7,203	8,504	18,342	6,433	11,909	26,297	10,203	16,094
Under $100	165	78	87	69	21	48	519	213	306
$100 – 199	594	231	363	191	62	129	1,678	569	1,109
200 – 299	1,166	420	746	370	96	274	2,188	799	1,389
300 – 399	1,146	403	743	402	107	295	1,994	702	1,292
400 – 499	1,023	362	661	385	99	286	1,785	589	1,196
500 – 599	969	340	629	394	106	288	1,877	602	1,275
600 – 699	1,145	374	771	510	129	381	2,125	686	1,439
700 – 799	958	348	610	531	147	384	1,646	537	1,109
800 – 899	888	342	546	590	148	442	1,571	550	1,021
900 – 999	764	290	474	654	150	504	1,340	442	898
1,000 – 1,099	738	305	433	580	146	434	1,342	448	894
1,100 – 1,199	551	255	296	596	162	434	847	336	511
1,200 – 1,299	614	266	348	626	139	487	1,039	372	667
1,300 – 1,399	498	241	257	565	154	411	744	291	453
1,400 – 1,499	421	215	206	537	141	396	642	283	359
1,500 and over	4,067	2,733	1,334	11,342	4,626	6,716	4,960	2,784	2,176