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REVIEW OF THE ADEQUACY OF THE CONTRIBUTION RATES TO OP&F, SERS AND STRS (addendum)

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I. Introduction

Pursuant to the request of the Ohio Retirement Study Council, “ORSC”, Milliman USA issued a report dated November 5, 2003, “the Report”, which reviewed the adequacy of the contribution rates to:

- the Ohio Police & Fire Pension Fund, “OP&F”;
- the School Employees’ Retirement System of Ohio, “SERS”; and,
- the State Teachers’ Retirement System of Ohio, “STRS”.

That review was in response to the significant decline in the retirement systems’ assets from the spring of 2000 to the spring of 2003 due to the general market decline. Those adverse investment results eroded each system’s actuarial status. In light of the significant rebound in the financial markets between mid-March and June 30, 2003, we estimated the effect of that market recovery on the actuarial status of each of the systems as of June 30, 2003 in that Report.

The purpose of this addendum is to respond to requests by the ORSC for some additional figures relating to:

1. the rates of return necessary over the next 5 and 10 years to mitigate the need for contribution increases or benefit reductions, and,
2. equivalent member and employer contribution rate increases.

In preparing the requested figures for this addendum, we have updated the original analysis to reflect:

- investment results through December 31, 2003, and,
- the July 1, 2003 actuarial valuation reports of SERS and STRS, which were released shortly after the Report was presented to the ORSC.

Before presenting the figures requested by ORSC, we have provided updates with respect to each of the three retirement systems highlighting the more significant changes since the Report.

<u>Scope</u>

The Report and the analysis that follows addresses primarily the pension benefits and Medicare Part B reimbursements mandated by the Legislature in Ohio statutes. It addresses discretionary healthcare benefits only to the extent that a portion of the maximum statutory rates is currently allocated to provide such benefits. To the extent that the portion of contributions allocated to such discretionary benefits is redirected to restore the actuarial status of each system's mandated pension benefits and Medicare Part B premium reimbursements, the discretionary benefits will need to be reduced or eliminated.

Assumptions and Data

In general, the Report was based on the results of the most recent Actuarial Valuation prepared for each of the three systems available at that time - January 1, 2003 in the case of OP&F and July 1, 2002 in the case of SERS and STRS. Each of the systems and their consulting actuary provided us with the detailed participant data and actuarial assumptions that were used to prepare those valuations so we could base our calculations on consistent information. Except where we indicate that some change was made, we used those assumptions and data without modification throughout this review.

The July 1, 2003 Actuarial Valuations of SERS and STRS were released subsequent to the Report. In preparing the figures shown in this addendum, we have reflected:

1. the reduction by SERS in the portion of employer contributions allocated to discretionary healthcare benefits indicated in the 2003 actuarial valuation, and,
2. the revised actuarial assumptions adopted by STRS for the July 1, 2003 Actuarial Valuation.

In addition, each of the systems provided us with the Capital Market Assumptions they used for updating their investment policy. We used those Capital Market Assumptions to develop the Capital Market Assumptions used for both the Report and this addendum.

We also estimated the effect of the market recovery on the actuarial status of each of the systems as of December 31, 2003 based on the returns reported by the systems through that date.

Reliance on Data

In performing this analysis, we relied on the data and other information provided by the systems and their consulting actuaries. We have not audited or verified this data and other information. If the underlying data or information is inaccurate or incomplete, the results of our analysis may likewise be inaccurate or incomplete.

We performed a limited review of the data used directly in our analysis for reasonableness and consistency and have not found material defects in the data. If there are material defects in the data, it is possible that they would be uncovered by a detailed, systematic review and comparison of the data to search for data values that are questionable or for relationships that are materially inconsistent. Such a review was beyond the scope of our assignment.

Variability of Results

Differences between our projections and actual amounts depend on the extent to which future experience conforms to the assumptions made for this analysis. It is certain that actual experience will not conform exactly to the assumptions used in this analysis. Actual amounts will differ from projected amounts to the extent that actual experience deviates from expected experience.

II. Update regarding OP&F

In our report of November 5, 2003, we estimated that OP&F would need to allocate more of the maximum statutory contribution rates to mandated benefits, such as pensions and Medicare Part B premium reimbursements, and less to discretionary healthcare benefits in order to satisfy the 30-year funding period required by law by July 2004.

Changes in Healthcare Benefits effective 2004

As a result of the reduced resources to fund these benefits as well as the rapid rate of increase in healthcare costs, OP&F has decreased the discretionary healthcare benefits it provides to retirees effective 2004. For example, the portion of healthcare coverage for which retired members pay was increased for 2004 as summarized below.

Portion of total healthcare costs paid by retired members

Years of Service plus Age	Level	During 2003	During 2004	
			Retired before 2004	Retiring in 2004
73 to 77	I	12%	25%	62.50%*
78 to 82	II	12%	25%	43.75%*
83 or higher	III	12%	25%	25.00%

* Five years following retirement, members move to the next Level. For example, a member retiring in 2004 would pay 62.5% of the cost during the first five years of retirement, 43.75% during the next five years of retirement, and 25% thereafter.

The portion of healthcare coverage for which retired members pay is also scheduled to increase further for retirees who retire after 2004. For example, members (a) who retire in 2009 or later and (b) whose years of service plus age are less than 78 will have to pay 100% of the cost of their healthcare benefits during the first five years of retirement, 62.5% during the next five years of retirement and 25% thereafter.

The portion of the cost of healthcare coverage for spouses for which retired members pay was also increased. For example, current retirees and future retirees whose years of service plus age sum to 83 or higher will pay 50% of the cost of covering a spouse. In 2003, retirees paid 12% of the cost of spouse coverage.

In addition, OP&F modified the healthcare benefits offered to retired members by raising deductibles, increasing copayments, etc. Members are now given a choice among three Options within each plan offered. Option I, the default option, has the lowest premiums and the highest out-of-pocket expenses, and Option III (which was the only option last year) has the highest premiums and the lowest out-of-pocket expenses. Regardless of the Option selected by a member, OP&F's contribution is calculated as a percentage of the Option I premium. Members who select Option II or Option III coverage are responsible for paying the full incremental amount in addition to the contribution required for Option I.

Effect of Favorable Investment Returns through December 2003

The rebound in the equity markets continued through the last six months of 2003. As a result, OP&F assets have recovered additional portions of the market investment losses incurred prior to 2003 that were not recognized in developing the actuarial value of assets used to prepare the January 2003 actuarial valuation. The magnitude of those unrecognized market investment losses as of January 2003 and the subsequent investment gains through December 2003 are summarized below.

Comparison of Excess Returns during 2003 and
Deferred Losses as of January 1, 2003
($ amounts in billions)

Market Value of Plan Assets as of January 1, 2003	$7.2
Investment losses deferred for future recognition	1.5
Actuarial Value of Plan Assets as of January 1, 2003	8.7
Actual rate of return on OP&F assets during 2003 *	23%
Estimated actual return on MV of Plan Assets	$1.6
Required actuarial rate of return for year	8.25%
Estimated required return on AV of Plan Assets	$0.7
Excess returns	0.9
Deferred investment losses less Excess returns	0.6

* preliminary rate of return as announced on OP&F website

Projected Funded Status in 10 Years if No Changes Made in Contributions or Benefits

In our November 5, 2003 report we presented information regarding the possible range of expected UALs and funding periods in 2014 based on investment returns through June 30, 2003. (Please see Section V of that report for a full description of our projection methodology.) We have updated these projections to reflect the favorable investment returns through December 31, 2003.

Based upon our updated results, we estimate that OP&F's UAL decreased from $1.8 billion as of June 30, 2003 to $1.7 billion as of December 31, 2003 and that the funding period remains infinite.

It is important to understand that the figures presented below are only illustrative of the range of results that are possible, and are dependent on the assumptions utilized.

Projected Funded Status in 2014
assuming no changes in Contributions or Benefits
($ amounts in billions)

	Estimated as of June 30, 2003	**Estimated as of December 31, 2003**
UAL/(Surplus):	**$**	**$**
5th percentile	(5.2)	(7.4)
10th percentile	(1.8)	(3.9)
15th percentile	0.2	(2.0)
20th percentile	1.2	(0.6)
25th percentile	2.3	0.5
50th percentile	6.0	4.7
75th percentile	9.4	8.3
95th percentile	13.1	12.1
Funding Period:	**in years**	**in years**
5th percentile	0	0
10th percentile	0	0
15th percentile	8	0
20th percentile	Infinite	0
25th percentile	Infinite	23
50th percentile	Infinite	Infinite
75th percentile	Infinite	Infinite
95th percentile	Infinite	Infinite

For example, based on updated investment returns, the projection model estimates there is a 25% chance that if experience is favorable, the UAL will decrease from $1.7 to $0.5 billion or less by January 1, 2014 and that the funding period at that time will be 23 years or less. This result is shown on the lines labeled as the ***25th*** percentile.

As another example, the projection model estimates there is a 25% chance that if experience is unfavorable, and the UAL will increase from $1.7 to $8.3 billion or more by

January 1, 2014 and that the funding period at that time will be infinite. This result is shown on the lines labeled as the ***75th*** percentile.

Based on updated investment returns through December 31, 2003, if neither contributions nor benefits are modified, the model estimates there is a 26% probability that OP&F will be in compliance with the 30-year limit on the funding period 10 years from now, in 2014. The corresponding figure from our November 5, 2003 report was 17%.

III. Update regarding SERS

In our report of November 5, 2003, we estimated that SERS would need to allocate more of the maximum statutory contribution rates to mandated benefits, such as pensions and Medicare Part B premium reimbursements, and less to discretionary healthcare benefits in order to satisfy the 30-year funding period required by law by July 2004.

July 1, 2003 Actuarial Valuation Report

Since that report, the actuarial valuation report as of July 1, 2003 was provided to the SERS Board. The estimates as of July 2004 presented in our report are compared with the actual valuation results as of July 2003 below in order to provide ORSC with an interim reading on those 2004 projections.

Portion of Maximum Statutory Contribution Rates available for discretionary healthcare benefits after fully funding mandated Pensions and Medicare Part B reimbursements

	Milliman estimates as of July 1, 2004	Valuation results as of July 1, 2003
Maximum Statutory Contribution Rates:		
Member	10.00%	10.00%
Employer	14.00%*	14.00%*
Total	24.00%	24.00%
Actuarial cost of mandated benefits based on 30-year funding:		
actuarial assets	19.20%	19.09%
market assets	23.00%	22.77%**
Portion of maximum statutory contribution rates available to fund discretionary healthcare benefits:		
actuarial assets	4.80%	4.91%
market assets	1.00%	1.23%**

* SERS can assess an employer healthcare surcharge of up to an additional 1.5% to total system payroll in addition to the figures shown above to fund healthcare benefits.

** Milliman calculated this figure.

The allocation to discretionary healthcare benefits was 5.83% as of the July 1, 2002 actuarial valuation. This allocation was reduced to 4.91% as of July 1, 2003 in order to satisfy the 30-year funding period limitation. In our November 5 report, we estimated that the contributions to discretionary healthcare benefits would need to be decreased to 4.80% by July 1, 2004 in order to comply with the 30-year funding period limitation if the market rebounded and decreased to 1.00% if it did not.

Reducing the contribution rate allocated to discretionary healthcare benefits from 5.83% to 4.91% has reduced the future funding resources for these discretionary benefits by 13%. (The total contribution allocated to these benefits includes both the 4.91% portion of the regular employer contribution rate and the 1.50% of payroll employer healthcare surcharge.)

Changes in Healthcare Benefits effective 2004

As a result of the reduced resources to fund these benefits as well as the rapid rate of increase in healthcare costs, SERS has decreased the discretionary healthcare benefits it provides to retirees effective 2004. For example, members retiring on or after August 1, 1988 had the portion of the healthcare benefits for which they pay increase as summarized below.

Portion of total healthcare costs paid by members who retired after August 1, 1988

Years of Service	2003	2004
less than 10	not eligible	not eligible
10, but less than 15	75%	100%
15, but less than 20	50%	50%
20, but less than 25	25%	25%
25 or more	0%	15%

Members who retired prior to August 1, 1988 contribute the same portion of the cost as members with 25 or more years of service in the above table. In the aggregate, these changes in the portion of the total cost of healthcare benefits paid by retirees reduced the benefits paid by SERS by 15%.

In addition, SERS modified the healthcare benefits offered to retired members by raising deductibles, increasing copayments, etc.

The above changes in healthcare benefits provided by SERS are consistent with the need to increase the contributions allocated to mandated pension and Medicare Part B reimbursements. Those increases reduced the contributions available to provide discretionary healthcare benefits. Hence the portion of the cost paid by SERS to provide those discretionary benefits must be reduced.

Effect of Favorable Investment Returns through December 2003

The rebound in the equity markets continued through the last six months of 2003. As a result, SERS assets have recovered additional portions of the market investment losses incurred prior to July 2003 that were not recognized in developing the actuarial value of assets used to prepare the July 2003 actuarial valuation. The magnitude of those unrecognized market investment losses as of July 2003 and the subsequent investment gains through December 2003 are summarized below. (SERS does not calculate its actuarial value of assets or funding period as of January 1 since it is the middle of its fiscal year.)

Comparison of Excess Returns in 2nd half of 2003 and Deferred Losses as of July 1, 2003

($ amounts in billions)

Market Value of Plan Assets as of July 1, 2003	$7.2
Investment losses deferred for future recognition	1.6
Actuarial Value of Plan Assets as of July 1, 2003	8.8
Actual rate of return on SERS assets July through December 2003 *	12.72%
Estimated actual return on MV of Plan Assets	$0.9
Required actuarial rate of return for ½ year	4.04%
Estimated required return on AV of Plan Assets	$0.4
Excess returns	0.5
Deferred investment losses less Excess returns	1.1

* this figure was estimated by Milliman

Projected Funded Status in 10 Years if No Changes Made in Contributions or Benefits

In our November 5, 2003 report we presented information regarding the possible range of expected UALs and funding periods in 2014 based on investment returns through June 30, 2003. (Please see Section V of that report for a full description of our projection methodology.) We have updated these projections to reflect the favorable investment returns through December 31, 2003. We have also shown revised results reflecting the increase in the employer contributions allocated to mandatory benefits indicated in the June 30, 2003 SERS actuarial valuation but only reflecting investment returns only through June 30 to isolate the effect on these projections of the change in the allocation of employer contributions.

It is important to understand that the figures presented below are only illustrative of the range of results that are possible, and are dependent on the assumptions utilized.

Projected Funded Status in 2014
assuming no changes in Contributions or Benefits
($ amounts in billions)

	Estimates using June 30, 2003 investment returns		Estimates using December 31, 2003 investment returns
Allocation to discretionary healthcare:	5.83%	4.91%	4.91%
UAL/(Surplus):	$	$	$
5th percentile	(3.8)	(4.6)	(6.5)
10th percentile	(0.9)	(1.6)	(3.7)
15th percentile	0.8	0.1	(1.8)
20th percentile	2.1	1.5	(0.1)
25th percentile	2.9	2.4	1.1
50th percentile	6.6	6.1	4.8
75th percentile	9.9	9.6	8.2
95th percentile	13.3	13.1	11.8
Funding Period:	in years	in years	in years
5th percentile	0	0	0
10th percentile	0	0	0
15th percentile	9	1	0
20th percentile	37	15	4
25th percentile	Infinite	33	14
50th percentile	Infinite	Infinite	Infinite
75th percentile	Infinite	Infinite	Infinite
95th percentile	Infinite	Infinite	Infinite

For example, based on new contribution rates and updated investment returns, the projection model estimates there is a 25% chance that if experience is favorable, the UAL will decrease from $1.9 to $1.1 billion or less by June 30, 2014 and that the funding period at that time will be 14 years or less. This result is shown on the lines labeled as the ***25th*** percentile.

As another example, the projection model estimates there is a 25% chance that if experience is unfavorable, the UAL will increase from $1.9 to $8.2 billion or more by June 30, 2014 and that the funding period at that time will be infinite. This result is shown on the lines labeled as the ***75th*** percentile.

Based on updated investment returns through December 31, 2003, if neither contributions nor benefits are modified, the model estimates there is a 30% probability that SERS will be in compliance with the 30-year limit on the funding period 10 years from now, in 2014. The corresponding figure from our November 5, 2003 report was 19%.

IV. Update regarding STRS

In our report of November 5, 2003, we estimated that STRS would need to allocate more of the maximum statutory contribution rates to mandated benefits, such as pensions and Medicare Part B premium reimbursements, and less to discretionary healthcare benefits in order to satisfy the 30-year funding period required by law by July 2004.

July 1, 2003 Actuarial Valuation Report

Since that report, the actuarial valuation report as of July 1, 2003 was provided to the STRS Board. This actuarial valuation was performed using the new actuarial assumptions resulting from an experience study as well as a change in the method of computing the funding period.

Rather than eliminating the contribution to discretionary healthcare benefits in order to reduce the funding period as close to the 30-year limit as possible, the STRS Board has continued to allocate 1.00% of payroll to healthcare benefits. The allocation to discretionary healthcare benefits was also 1.00% as of the July 1, 2002 actuarial valuation. The figures shown below above indicate the extent to which the current maximum statutory contribution rates fall short of the rates required to satisfy the 30-year funding period limitation if the current allocation to discretionary healthcare benefits were eliminated.

The estimates as of July 2004 presented in our report are compared with the actual valuation results as of July 2003 below in order to provide ORSC with an interim reading on those 2004 projections. In addition to showing the results as presented in the July 1, 2003 actuarial valuation report, we have also indicated the results if the actuarial valuation had been prepared based on the same assumptions as used to prepare the prior actuarial valuation. This isolates the effect on actuarial costs of the revised assumptions.

Portion of Maximum Statutory Contribution Rates available for discretionary healthcare benefits after fully funding mandated Pensions and Medicare Part B reimbursements

	Milliman estimates as of July 1, 2004	Valuation results as of July 1, 2003	
		Prior Method and Assumptions	New Method and Assumptions
Maximum Statutory Contribution Rates:			
Total	24.00%	24.00%	24.00%
Actuarial cost of mandated benefits based on 30-year funding:			
actuarial assets	26.10%	25.86%*	24.49%*
market assets	28.70%	28.14%*	26.75%*
Shortfall in maximum statutory contribution rates:			
actuarial assets	2.10%	1.86%	0.49%
market assets	4.70%	4.14%	2.75%

* Milliman calculated this figure. Since the STRS actuarial valuation does not include the Medicare Part B reimbursements with the cost of mandated pension benefits, the cost of the mandated pension benefits was increased by 0.10% of payroll to reflect the estimated cost of the Medicare Part B reimbursements.

Changes in Healthcare Benefits effective 2004

As a result of the reduced resources to fund these benefits as well as the rapid rate of increase in healthcare costs, STRS has decreased the discretionary healthcare benefits it provides to retirees effective 2004. For example, retired members had the portion of the healthcare benefits for which they pay increase as summarized below.

Portion of total healthcare costs paid by retired members

Years of Service	2003		2004
	Medical Mutual w/o Medicare	Aetna with Medicare A & B	
less than 5	not eligible	not eligible	not eligible
5	64%	54%	100%
10	54%	46%	100%
15	44%	38%	62%
20	33%	29%	50%
25	23%	21%	37%
30 or more	13%	13%	25%

In addition, STRS modified the healthcare benefits offered to retired members by increasing the portion of healthcare costs for covered spouses and dependents paid by the retiree to 100%, as well as raising deductibles, increasing copayments, etc.

In the aggregate, these changes in the portion of the total cost of healthcare benefits paid by retirees may reduce the benefits provided by STRS on the order of 20% to 25%.

Effect of Favorable Investment Returns through December 2003

The rebound in the equity markets continued through the last six months of 2003. As a result, STRS assets have recovered additional portions of the market investment losses incurred prior to July 2003 that were not recognized in developing the actuarial value of assets used to prepare the July 2003 actuarial valuation. The magnitude of those unrecognized market investment losses as of July 2003 and the subsequent investment gains through December 2003 are summarized below. (STRS does not calculate its actuarial value of assets or funding period as of January 1 since it is the middle of its fiscal year.)

Comparison of Excess Returns in 2nd half of 2003 and Deferred Losses as of July 1, 2003

($ amounts in billions)

Market Value of Defined Benefit Plan Assets as of July 1, 2003	$44.8
Investment losses deferred for future recognition	4.0
Actuarial Value of Defined Benefit Plan Assets as of July 1, 2003	48.8
Actual rate of return on STRS assets July through December 2003 *	13.46%
Estimated actual return on MV of DB Plan Assets	$6.0
Required actuarial rate of return for ½ year	3.92%
Estimated required return on AV of DB Plan Assets	$2.0
Excess returns	4.0
Deferred investment losses less Excess returns	0.0

* Milliman calculated this figure

Projected Funded Status in 10 Years if No Changes Made in Contributions or Benefits

In our November 5, 2003 report we presented information regarding the possible range of expected UALs and funding periods in 2014 based on investment returns through June 30, 2003. (Please see Section V of that report for a full description of our projection methodology.) We have updated these projections to reflect the favorable investment returns through December 31, 2003. In addition, we have further updated these projections to reflect the new actuarial assumptions in use as of the July 1, 2003 actuarial valuation. The application of the new assumptions in the actuarial valuation lowered the UAL from $18.4 billion to $17.0 billion as of July 1, 2003.

It is important to understand that the figures presented below are only illustrative of the range of results that are possible, and are dependent on the assumptions utilized.

Projected Funded Status in 2014
assuming no changes in Contributions or Benefits
($ amounts in billions)

	Estimates using June 30, 2003 Investment Returns		**Estimates using December 31, 2003 Investment Returns**
Method and Assumptions:	**PRIOR**	**NEW**	**NEW**
UAL/(Surplus):	**$**	**$**	**$**
5th percentile	(33.7)	(39.9)	(53.4)
10th percentile	(15.8)	(21.4)	(34.6)
15th percentile	(4.9)	(9.3)	(20.8)
20th percentile	4.0	(0.9)	(12.1)
25th percentile	9.4	4.9	(4.7)
50th percentile	33.9	30.3	20.5
75th percentile	53.3	50.5	40.8
95th percentile	73.7	71.9	64.0
Funding Period:	**In years**	**in years**	**in years**
5th percentile	0	0	0
10th percentile	0	0	0
15th percentile	0	0	0
20th percentile	7	0	0
25th percentile	18	6	0
50th percentile	Infinite	Infinite	80
75th percentile	Infinite	Infinite	Infinite
95th percentile	Infinite	Infinite	Infinite

For example, based on new actuarial assumptions and updated investment returns, the projection model estimates there is a 25% chance that if experience is favorable, the UAL will decrease from $17.0 to a surplus of $4.7 billion or more by June 30, 2014 and that the funding period at that time will be 0 years. This result is shown on the lines labeled as the ***25th*** percentile.

As another example, the projection model estimates there is a 25% chance that if experience is unfavorable, the UAL will increase from $17.0 to $40.8 billion or more by

June 30, 2014 and that the funding period at that time will be infinite. This result is shown on the lines labeled as the ***75th*** percentile.

Based on updated investment returns through December 31, 2003, if neither contributions nor benefits are modified, the model estimates there is a 40% probability that STRS will be in compliance with the 30-year limit on the funding period 10 years from now, in 2014. The corresponding figure from our November 5, 2003 report was 28%.

V. Investment returns required to restore compliance with 30-year funding period

As of July 1, 2003, neither OP&F, SERS or STRS satisfied the 30-year funding period required by law (in the case of OP&F, this means being on track to satisfy that requirement at the end of 2006) based on the allocation of contributions shown in the actuarial valuations as of the end of FY 2002.

SERS reduced its allocation to discretionary healthcare benefits as of July 2003 in order to comply with the 30-year funding period. STRS did not reduce its allocation to discretionary healthcare benefits. (Even if it had eliminated the allocation, it could not have complied with the 30-year period.)

If no contribution increases or mandated benefit cutbacks were enacted, it is possible that excess future investment returns (that is, investment returns in excess of the actuarially assumed rate of return) would bring the systems in line with the 30-year funding period requirement at a future date. We indicated in the Report that there was a 17% probability that OP&F will comply with the 30-year limit by 2014 based on the Capital Market Assumptions used for the Report and that the comparable probabilities for SERS and STRS were 19% and 28%, respectively.

We were asked at the November 5th ORSC meeting: *What rate of investment returns over the next 5 and 10 years would be necessary for this to happen?* The table below shows the annual compounded rate of investment returns required from December 31, 2003 until 2009 and 2014 to satisfy the 30-year funding period requirement for each system by that date. These estimates assume all other actuarial experience during that time will match the actuarial assumptions used to prepare the FY 2003 actuarial valuations. The probability of this occurring is also shown, based on the same Capital Market Assumptions used to prepare the Report. These figures reflect the favorable investment returns through December 2003.

		Attain 30-year funding period in 2009		Attain 30-year funding period in 2014	
System	Valuation Investment Return Assumption	Required Annual Return	Probability of 30-year funding period	Required Annual Return	Probability of 30-year funding period
OP&F	8.25%	12.4%	16%	10.5%	26%
SERS	8.25%	11.4	24	9.6	30
STRS	8.00%	8.6	28	8.1	40

VI. Member and member/employer contribution increase requirements

The Report detailed the contribution increases required under several scenarios in the event that the employers funded all contribution increases. We were asked to prepare tables summarizing the equivalent member contribution rate increases necessary if:

- member contribution rates were increased in lieu of increases in employer contribution rates; and,
- both member and employer rates were increased in proportion to the current share of the total contribution paid by each group as shown in the table below:

System	Current Member Contribution Rate	Current Employer Contribution Rate
OP&F	10.0%	21.5%*
SERS	10.0	14.0
STRS	10.0	14.0

* The 21.5% of payroll contribution rate shown for OP&F is a weighted average of the 19.5% of payroll contributed by Police employers and the 24.0% of payroll contributed by Fire employers.

In the tables that follow, an increase in contributions based on the actuarial value of assets figures would be consistent with the belief that there will be sufficient "excess" returns over the next few years for the market value of assets to "catch-up" to the actuarial value of assets. An increase in contributions based on the market value of assets figures would be consistent with the belief that there would be no such "excess" returns.

The tables in the Report reflected investment returns through June 30, 2003. The tables that follow reflect investment returns through December 31, 2003.

Estimated Contribution Increase needed effective at the beginning of the next fiscal year to reduce Funding Period to 30 years as of the 2004 valuation

(Expansion and revision of the table on page 20 of the Report)

Actuarial Assets basis:

Increase	OP&F	SERS	STRS (A) *	STRS (B) **
Employer only	3.85%	1.10%	1.40%	1.40%
Both member and employer	3.95% (1.25% member, 2.70% employer)	1.20% (0.50% member, 0.70% employer)	1.60% (0.65% DB member, 0.95% all employers)	1.90% (0.80% DB member, 1.10% all employers)
Member only	4.25%	1.30%	1.95%	3.50%

Market Assets basis:

Increase	OP&F	SERS	STRS (A) *	STRS (B) **
Employer only	6.35%	2.00%	1.50%	1.50%
Both member and employer	6.55% (2.10% member, 4.45% employer)	2.15% (0.90% member, 1.25% employer)	1.70% (0.70% DB member, 1.00% all employers)	2.00% (0.85% DB member, 1.15% all employers)
Member only	7.00%	2.40%	2.10%	3.75%

* STRS (A) assumes no change in new member selection pattern.
** STRS (B) assumes no new members select the DB plan.

Estimated Contribution Increase needed effective fiscal beginning 2009 year to reduce Funding Period to 30 years as of that date

(Expansion and revision of the table on page 21 of the Report)

Actuarial Assets basis:

Increase	**OP&F**	**SERS**	**STRS (A) ***	**STRS (B) ****
Employer only	4.50%	1.20%	0.95%	0.95%
Both member and employer	4.60% (1.45% member, 3.15% employer)	1.30% (0.55% member, 0.75% employer)	1.10% (0.45% DB member, 0.65% all employers)	1.30% (0.55% DB member, 0.75% all employers)
Member only	4.95%	1.45%	1.35%	2.40%

Market Assets basis:

Increase	**OP&F**	**SERS**	**STRS (A) ***	**STRS (B) ****
Employer only	7.75%	2.40%	1.10%	1.10%
Both member and employer	8.00% (2.55% member, 5.45% employer)	2.55% (1.05% member, 1.50% employer)	1.25% (0.50% DB member, 0.75% all employers)	1.45% (0.60% DB member, 0.85% all employers)
Member only	8.55%	2.90%	1.55%	2.75%

* STRS (A) assumes no change in new member selection pattern.
** STRS (B) assumes no new members select the DB plan.

Estimated Contribution Increase needed effective at the beginning of the next fiscal year to reduce Funding Period to 40 years as of the 2004 valuation

(Expansion and revision of the table on page 23 of the Report)

Actuarial Assets basis:

Increase	OP&F	SERS	STRS (A) *	STRS (B) **
Employer only	3.10%	0.35%	0.10%	0.10%
Both member and employer	3.20% (1.00% member, 2.20% employer)	0.38% (0.16% member, 0.22% employer)	0.12% (0.05% DB member, 0.07% all employers)	0.14% (0.06% DB member, 0.08% all employers)
Member only	3.40%	0.40%	0.15%	0.25%

Market Assets basis:

Increase	OP&F	SERS	STRS (A) *	STRS (B) **
Employer only	5.30%	1.15%	0.15%	0.15%
Both member and employer	5.45% (1.75% member, 3.70% employer)	1.20% (0.50% member, 0.70% employer)	0.17% (0.07% DB member, 0.10% all employers)	0.20% (0.08% DB member, 0.12% all employers)
Member only	5.85%	1.40%	0.20%	0.40%

* STRS (A) assumes no change in new member selection pattern.
** STRS (B) assumes no new member select the DB plan.