

IOWA PUBLIC EMPLOYEES RETIREMENT SYSTEM

**10 Year Projection Study
July 1, 1993 - July 1, 2003**



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Iowa Public Employees Retirement System
600 E. Court Avenue
Des Moines, Iowa 50306

In re: 10 Year Projection Study

We are pleased to present this report which provides various 10 year actuarial projections for IPERS. Projection results are shown for 16 scenarios, starting with a valuation of the System on July 1, 1993 which reflects a 60% benefit formula effective July 1, 1994 and a \$38,000 wage base effective January 1, 1994. The focus of this study is to investigate what benefit improvements (in the areas of retiree dividends, the covered wage base, and the funding of those improvements), could be granted, given varying combinations of the actuarially assumed interest rate and actual yield rate on trust assets, and given that the total required contribution rate shall not, in general, exceed 9.45%.

We will be happy to answer any questions you might have regarding this report.

Respectfully submitted,

Patrice A. Beckham, F.S.A.
Consulting Actuary

PAB:de

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IOWA PUBLIC EMPLOYEE'S RETIREMENT SYSTEM

10 Year Projection Study

Purpose and General Comments

A. Purpose

This report was prepared to project the relationship of the System's benefits, liabilities, and assets over a 10 year period under the System under various scenarios of benefits, interest rate assumptions and actual rates of return, taking into account the general goal of keeping the required contribution rate at or below the total statutory rate of 9.45%.

B. General Comments

For any given set of benefit provisions, actuarial assumptions and actual yield rate on actuarial assets, there are no unusual circumstances leading to unexpected divergences during the 10 year period.

The assets reflected in this study are always the assets at the actuarial value (actuarial assets).

The yield rate on actuarial assets, compared to the actuarial assumption, is a net rate. In other words, the expenses of the fund are paid from fund earnings and the remaining earnings net out to the yield rate as specified.

By the same token, payouts relate to benefit payments only, since it is assumed that fund expenses are paid from fund earnings.

- The July 1, 1993 figures are based on a 60% benefit formula effective July 1, 1994 and a \$38,000 covered wage base effective January 1, 1994, since our calculations show that those levels can be provided at a 9.468% contribution rate (only .018% above the current total contribution rate of 9.45%).

For the July 1, 1994 projections, the "affordable" wage base was set at \$40,000, since that amount was reflected in the funding requirements established for prior years. With that one exception, on any given projected valuation date the only future benefit enhancements recognized are those which can be granted without exceeding the statutory contribution rate of 9.45%. In all years starting with July 1, 1994, the November dividends paid to retired participants were assumed to be permanent annual payments. In Scenarios 1, 2, 3, and 4, this change in the valuation procedure results in a temporary contribution rate in excess of 9.45%. That result was accepted for purposes of the projection study, since a return to the prior valuation procedure (a

rolling two year dividend commitment) would reduce the required rate to about 9.45% or below.

When the dividend increase for some future year is shown to be zero, it does not mean that there is no dividend at all. It means that the prior year's dividend level is maintained, so that only the increase is zero.

Wage base increases were granted in \$500 intervals. Therefore, in some years there is no wage base increase, but there is a dividend increase. That happens when a full \$500 wage base increase was not affordable but there are some monies available which are then used to provide a dividend increase.

In all situations, an increase in the wage base and/or dividend are assumed to be effective in the year following the year it is "affordable".

PROJECTION TECHNIQUES AND ACTUARIAL ASSUMPTIONS

In regular actuarial valuations of the Retirement System, a snapshot approach is used to determine liabilities and contribution requirements as of the valuation date. Benefits for all members, whether active, retired or terminated vested, are valued as a lump sum equivalent amount required to provide the expected benefits. For the actives, this includes benefits to be earned in the future. Actual contributions are assumed to be equal to the statutory total of 9.45% for any particular valuation.

The projection valuation technique used for the results presented in the report has the following elements:

1. The System's population was projected forward to each of the next 10 years, including the effect of new entrants entering the work force.
2. The benefits payable were determined for each of the projected populations.
3. The actuarial liabilities at each projection date were computed using the snapshot approach.
4. The actuarial value of assets was developed at each of the projection dates, including the effect of the net growth of the assets based on the actual investment yield and contributions and benefits paid during the intervening years.

To the extent actual investment yield exceeds that assumed, actuarial gains result. These investment gains were used to increase benefits, increase dividends paid to retirees, or pre-fund increases in the covered wage base to members of the System. The priorities established to use the available margin were as follows:

(1) Valuation of present retiree dividend as a permanent payment starting July 1, 1994;

(2) Increase in covered wage base, granted in increments of \$500 but not to exceed \$3,000 per year, and in no event shall the wage base exceed \$55,000;

projected to be included in 1999-

For informational purposes, three scenarios are included which allow the \$55,000 wage base to continue to increase by \$3,000 each year.

(3) Increase in the dividend currently paid to retirees (such increase shall be valued as a one-time permanent ad-hoc retiree benefit), and in any one year the increase shall not exceed an amount such that total benefits paid to an individual in that year are 2.5% greater than total benefits paid the previous year.

(4) Pre-fund projected increases in the covered wage base, not to exceed a wage base of \$55,000. Projected increases in the covered wage base were assumed to occur no more rapidly than 3,000 per year. To the extent wage base increases are pre-funded, projected benefits in subsequent years are determined using the appropriate higher (pre-funded) wage base for that year. As a result, the pre-funded increases can theoretically be provided in future years without an increase in the contribution rate or additional actuarial gains.

To the extent actuarial gains were more than sufficient to provide all such benefit enhancements, the remaining actuarial gains from investment return resulted in a reduction in the required contribution rate.

Actuarial Assumptions

Actuarial assumptions are used in two phases of this projection study. One phase involves the actuarial assumptions used in each snapshot valuation. The second involves the actuarial assumptions used in projecting the membership population and the assumed actual fund growth.

The actuarial assumptions used for the 7/1/93 valuation were the same as those used in the prior year. The actuarial assumptions used for the snapshot valuations each year in the projection (i.e., starting 7/1/94), were the actuarial assumptions recommended in the experience study performed in 1993 and adopted for use beginning 7/1/94. The revised actuarial assumptions were not adopted effective July 1, 1993 because the experience study and associated analysis and discussion had not yet been completed at the time the valuation process for 1993 began. All recommendations for revised assumptions as set out in the experience study were adopted beginning in 1994. Further study into the effect of changing the interest rate assumption was part of the intent of the projection study. Therefore, at this time, an interest rate assumption, for valuations beginning June 30, 1994, has not yet been

set. For reference, the 1994 and later assumptions are summarized in the Appendix of this report.

The other phase involves assumptions related to experience during the time between snapshot valuations. It was assumed that the demographic assumptions used in the snapshot valuation would be met. In other words, in the intervening years the actual deaths, terminations and disabilities among the membership would be at the rates used in the valuations, salary increases would be as predicted in the valuation assumptions, and the mortality among retirees and terminated vested employees would be as predicted for the valuations.

An additional assumption needed for this second phase of the projection study relates to size of the membership population. It was assumed that the active membership population would remain stable. Therefore, the projection makes allowance for sufficient new entrants into the System to replace those retiring, dying, terminating or becoming disabled. Those new entrants were entered at various ages corresponding to the average ages at employment of new entrants during the two years preceding June 30, 1993. The salaries of the new entrants were based on average salaries of new entrants during the preceding two years, but for each year after June 30, 1993 the salaries of new entrants were assumed to increase according to salary scale rate at the age of the new entrants.

Another second phase assumption relates to projected yield rate on fund assets compared to the actuarial interest rate assumption for snapshot valuations. In all cases, we assume the actual yield rate was a net growth rate based on the actuarial value of assets.

SCENARIO 3

JULY 1, 1993 ACTUARIAL ASSUMPTIONS SAME AS LAST REGULAR VALUATION; NEW ACTUARIAL ASSUMPTIONS STARTING JULY 1, 1994, WITH AN INTEREST RATE ASSUMPTION OF 6.5%; ASSUMPTIONS MET WITH AN ACTUAL YIELD RATE OF 8.5% ANNUALLY

As is the case for all scenarios: (1) the July 1, 1993 benefits are the basic IPERS benefits, but with a 60% benefit formula effective July 1, 1994 and a \$38,000 covered wage base effective January 1, 1994, (2) the July 1, 1993 actuarial assumptions are the same as those used in the last regular valuation, (3) the July 1, 1994 valuation assumes the covered wage base increases to \$40,000 effective January 1, 1995. In Scenario 3, new actuarial assumptions are used starting July 1, 1994, with an 6.5% interest rate assumption and the actual yield rate is 8.5% per year. Thus, given the framework of this scenario, the projections show what benefit improvements (within the priorities and limitations described on page 2) are likely to be "affordable" if the total contribution rate stays at 9.45%. Within this same framework, the projections show what is likely to happen to the system liabilities, contributions, payouts, and assets over the next 10 years if the valuation assumptions are met, the membership remains stable, and actual net trust earnings are 8.5% a year.

Given these circumstances, over the period from July 1, 1993 through July 1, 2003:

- a) The maximum \$55,000 wage base is achieved on July 1, 2000, with steady increases during all intervening years.
- b) There are dividend increases in all years except 1994, with maximum increases the last six years.
- c) The total required contribution rate, as a percentage of salary, is fairly stable at near the 9.45% level through July 1, 1998, and then the rate decreases in the years following that. This decrease is due in part to the fact that the benefit improvements in the last three years are modest (a \$500 wage base increase on July 1, 2001 and maximum retiree dividend increases in each of those years), resulting in liability increases which are offset by the excess of actual earnings over assumed earnings. Also, the leveling off of the wage base becomes a factor, since projected benefits start to increase proportionately less than the increase in the present value of future pay.
- d) Total liabilities will increase from \$8,249,255,760 to \$15,418,028,504, an increase of \$7,168,772,744, or 86.9%.
- e) Total annual contributions, at 9.45% of covered pay, will increase from \$300,143,546 to \$403,188,946, an increase of \$103,045,400, or 34.3%.
- f) Total annual payouts will increase from \$275,030,466 to \$568,215,113, an increase of \$293,184,647, or 106.6%.
- g) Total actuarial assets will increase from \$6,365,169,296 to \$13,736,183,106 an increase of \$7,371,013,810, or 115.8%.

Comparing d) to g), the difference between total projected liabilities and actuarial assets decreases from \$1,884,086,464 to \$1,681,845,398 in terms of dollar amounts. The ratio of actuarial assets to total projected liabilities increases from 77% to 89%. Thus, with the benefit improvements indicated, and with assumptions being met, except for actual fund growth being 8.5% compared to the 6.5% assumed growth, the System will experience a narrowing of the gap between liabilities and actuarial assets, both in terms of dollars and the ratio. In dollar terms, this gap actually peaks at about July 1, 2000 and then starts to decrease in the last three years of the projections when actual contributions exceed required contributions, benefit improvements have ended except for dividend increases, and excess earnings continue. The ratio starts to increase slightly on July 1, 1995, and then the ratio increase accelerates when the dollar gap starts to close.

**IOWA PUBLIC EMPLOYEES' RETIREMENT SYSTEM
10 YEAR PROJECTION STUDY
Performed as of July 1, 1993**

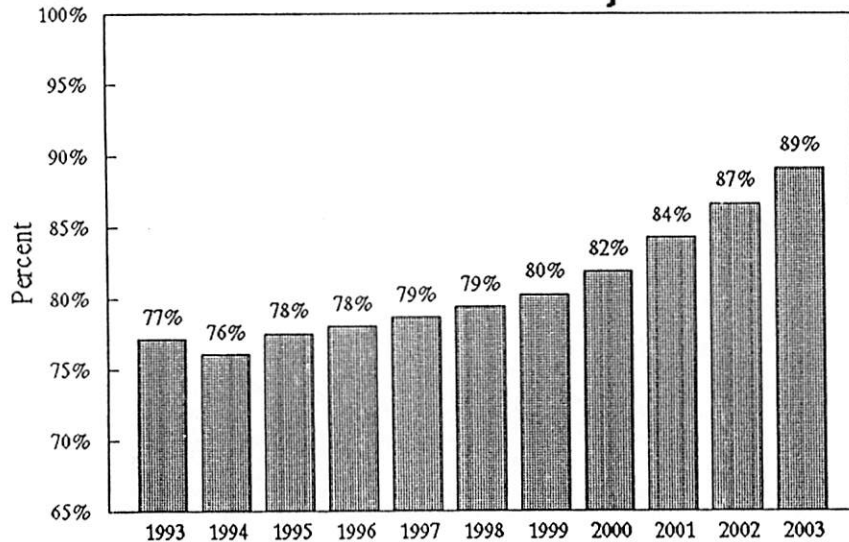
Scenario 3

Discount Rate on Liabilities : 6.50%
Yield Rate on Actuarial Assets : 8.50%

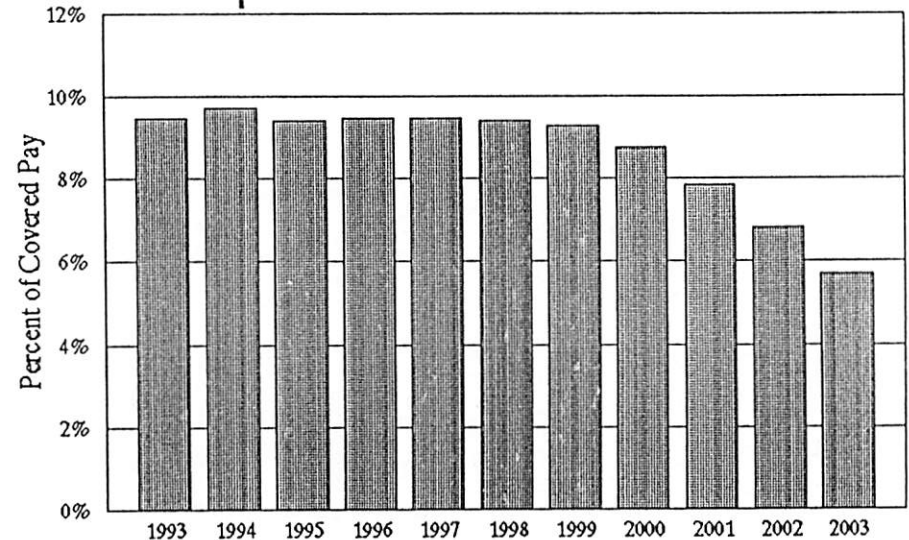
Fiscal Year Beginning July 1	Actuarial Assets	Total Projected Liabilities	Expected Contb. Amount	Expected Payouts	Affordable Wage Base	Affordable Ad Hoc Dividend Incr to Retirees as % of Prior Yr Tot Ann Ben	Prefunded Proj WBASE	Required Contribution Rate
1993	6,365,169,296	8,249,255,760	300,143,546	275,030,466	38,000	*	40,000	9.468%
1994	6,930,590,833	9,109,909,776	309,945,571	296,876,315	40,000	0.00%	40,000	9.709%
1995	7,530,535,146	9,710,069,496	317,240,414	318,971,301	41,500	2.50%	41,500	9.398%
1996	8,165,027,658	10,458,419,339	326,339,760	345,066,552	44,500	1.58%	44,500	9.450%
1997	8,834,614,712	11,225,747,905	337,750,638	372,348,548	47,500	1.67%	47,500	9.450%
1998	9,543,390,074	12,015,453,954	349,161,497	401,078,037	50,500	2.50%	50,500	9.396%
1999	10,293,102,947	12,824,132,775	360,760,398	431,601,397	53,500	2.50%	54,000	9.271%
2000	11,085,475,198	13,540,822,822	372,585,800	463,897,633	55,000	2.50%	55,000	8.756%
2001	11,922,437,421	14,159,432,237	383,475,238	497,463,997	55,000	2.50%	55,000	7.835%
2002	12,805,396,157	14,785,714,876	393,266,805	531,842,617	55,000	2.50%	55,000	6.814%
2003	13,736,183,106	15,418,028,504	403,188,946	568,215,113	55,000	2.50%	55,000	5.688%

* - Reflects increase already adopted

Ratio of Assets to Proj Liabilities



Required Contribution Rate



SCENARIO 3A

**JULY 1, 1993 ACTUARIAL ASSUMPTIONS SAME AS LAST REGULAR VALUATION;
NEW ACTUARIAL ASSUMPTIONS STARTING JULY 1, 1994, WITH AN INTEREST
RATE ASSUMPTION OF 6.5%; ASSUMPTIONS MET WITH AN
ACTUAL YIELD RATE OF 8.5% ANNUALLY; COVERED WAGE BASE
INCREASES CONTINUE BEYOND \$55,000**

This Scenario 3A is the same as Scenario 3 in all respects except that the increases in the covered wage base are allowed to continue, if affordable, beyond the \$55,000 level. As before, annual increases are in increments of \$500, but any single annual increase cannot exceed \$3,000.

The purpose of this scenario is to demonstrate what impact ongoing wage base increases have on the required contribution rate. By comparing the results of this Scenario 3A with Scenario 3, it can be seen that the ongoing wage base increases have resulted in a required contribution rate which is, at the end of the projection period, 2.354% of pay higher than it would be when the wage base is limited to \$55,000 (8.042% from Scenario 3A compared to 5.688% from Scenario 3).

**IOWA PUBLIC EMPLOYEES' RETIREMENT SYSTEM
10 YEAR PROJECTION STUDY
Performed as of July 1, 1993**

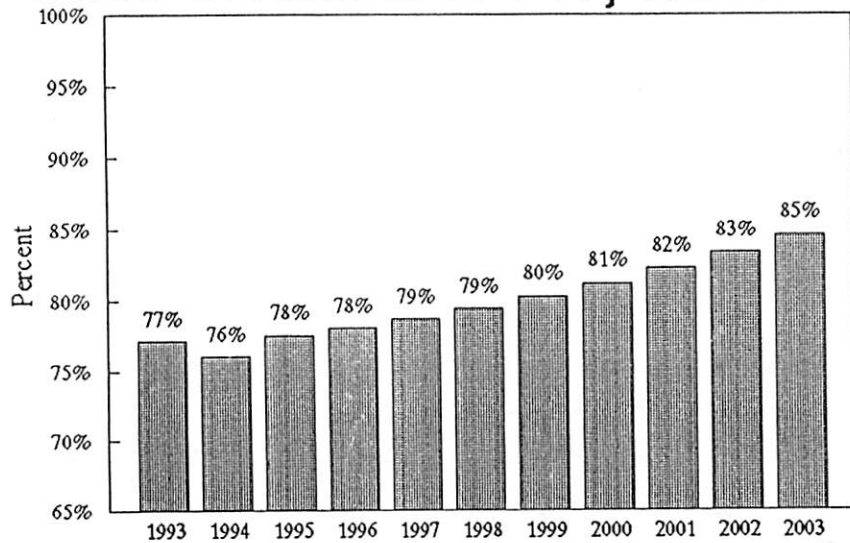
Scenario 3A

Discount Rate on Liabilities :	6.50%
Yield Rate on Actuarial Assets :	8.50%
Projected Wage Base Limit :	NONE

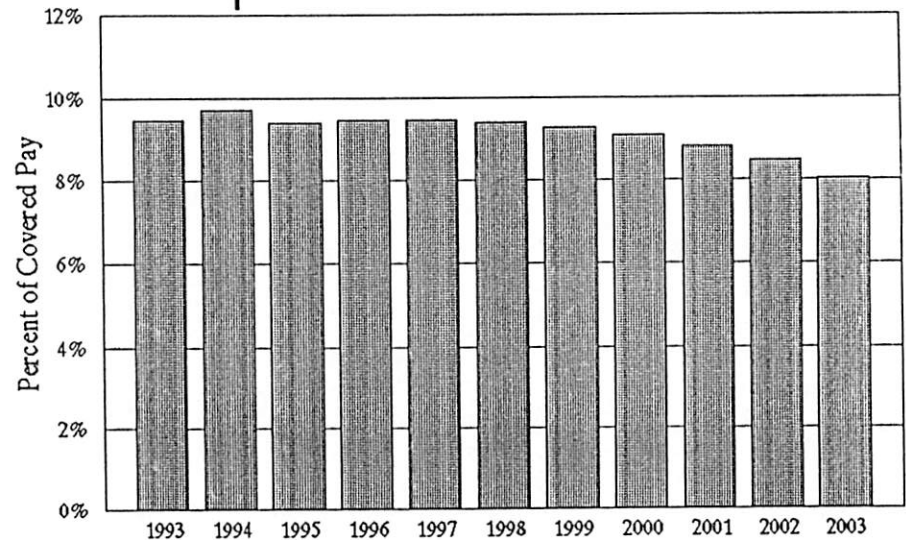
Fiscal Year Beginning July 1	Actuarial Assets	Total Projected Liabilities	Expected Contb. Amount	Expected Payouts	Affordable Wage Base	Affordable Ad Hoc Dividend Incr to Retirees as % of Prior Yr Tot Ann Ben	Prefunded Proj WBASE	Required Contribution Rate
1993	6,365,169,296	8,249,255,760	300,143,546	275,030,466	38,000	*	40,000	9.468%
1994	6,930,590,833	9,109,909,776	309,945,571	296,876,315	40,000	0.00%	40,000	9.709%
1995	7,530,535,146	9,710,069,496	317,240,414	318,971,301	41,500	2.50%	41,500	9.398%
1996	8,165,027,658	10,458,419,339	326,339,760	345,066,552	44,500	1.58%	44,500	9.450%
1997	8,834,614,712	11,225,747,905	337,750,638	372,348,548	47,500	1.67%	47,500	9.450%
1998	9,543,390,074	12,015,453,954	349,161,497	401,078,037	50,500	2.50%	50,500	9.396%
1999	10,293,102,947	12,824,132,775	360,760,398	431,601,397	53,500	2.50%	54,000	9.271%
2000	11,085,475,198	13,652,114,561	372,585,800	463,897,633	56,500	2.50%	56,500	9.076%
2001	11,922,437,421	14,499,766,169	384,690,887	497,806,381	59,500	2.50%	59,500	8.807%
2002	12,806,303,767	15,367,164,619	397,119,986	533,256,023	62,500	2.50%	62,500	8.464%
2003	13,739,700,660	16,253,197,206	409,836,590	571,441,321	65,500	2.50%	65,500	8.042%

* - Reflects increase already adopted

Ratio of Assets to Proj Liabilities



Required Contribution Rate



SCENARIO 7

JULY 1, 1993 ACTUARIAL ASSUMPTIONS SAME AS LAST REGULAR VALUATION; NEW ACTUARIAL ASSUMPTIONS STARTING JULY 1, 1994, WITH AN INTEREST RATE ASSUMPTION OF 6.75%; ASSUMPTIONS MET WITH AN ACTUAL YIELD RATE OF 8.5% ANNUALLY

As is the case for all scenarios: (a) the July 1, 1993 benefits are the basic IPERS benefits, but with a 60% benefit formula effective July 1, 1994 and a \$38,000 covered wage base effective January 1, 1994, (2) the July 1, 1993 actuarial assumptions are the same as those used in the last regular valuation; (3) the July 1, 1994 valuation assumes the covered wage base increases to \$40,000 effective January 1, 1995. In Scenario 7, new actuarial assumptions are used starting July 1, 1994, including an interest rate assumption increase to 6.75% and the actual yield rate is 8.5% per year. Thus, given the framework of this scenario, the projections show what benefit improvements (within the priorities and limitations described on page 2) are likely to be "affordable" if the total contribution rate stays at 9.45%. Within this same framework, the projections show what is likely to happen to the system liabilities, contributions, payouts, and assets over the next 10 years if the valuation assumptions are met, the membership remains stable, and actual net trust earnings are 8.5% a year.

Given these circumstances, over the period from July 1, 1993 through July 1, 2003:

- a) The maximum \$55,000 wage base is achieved on July 1, 1999, with steady \$3,000 increases each year during the intervening years. Prefunding for a \$55,000 wage base can start on July 1, 1998, with some limited (but fairly substantial) prefunding starting July 1, 1994.
- b) There are maximum dividend increases in all years.
- c) The total required contribution rate, as a percentage of salary, is fairly stable at near the 9.45% level through July 1, 1997, and then the rate decreases each of the last six years. This decrease is due to the same basic reasons stated in item (c) of Scenario 3.
- d) Total liabilities will increase from \$8,249,255,760 to \$14,932,493,927, an increase of \$6,683,238,167, or 81.0%.
- e) Total annual contributions, at 9.45% of covered pay, will increase from \$300,143,546 to \$403,188,946, an increase of \$103,045,400, or 34.3%.
- f) Total annual payouts will increase from \$275,030,466 to \$570,237,711, an increase of \$295,207,245, or 107.3%.
- g) Total actuarial assets will increase from \$6,365,169,296 to \$13,731,931,021, an increase of \$7,366,761,725, or 115.7%.

Comparing d) to g), the difference between total projected liabilities and actuarial assets decreases from \$1,884,086,464 to \$1,200,562,906 in terms of dollar amounts. The ratio of actuarial assets to total projected liabilities increases from 77% to 92%. Thus, with the benefit improvements indicated, and with assumptions being met, except for actual fund growth being 8.5% compared to the 6.5% assumed growth, the System will experience a narrowing of the gap between liabilities and actuarial assets, both in terms of dollars and the ratio. In dollar terms, this gap actually peaks at about July 1, 1998 and then starts to decrease in the last five years of the projections when actual contributions exceed required contributions, benefit improvements have ended except for dividend increases, and excess earnings continue. The ratio starts to increase slightly on July 1, 1995, and then the ratio increase accelerates when the dollar gap starts to close.

**IOWA PUBLIC EMPLOYEES' RETIREMENT SYSTEM
10 YEAR PROJECTION STUDY
Performed as of July 1, 1993**

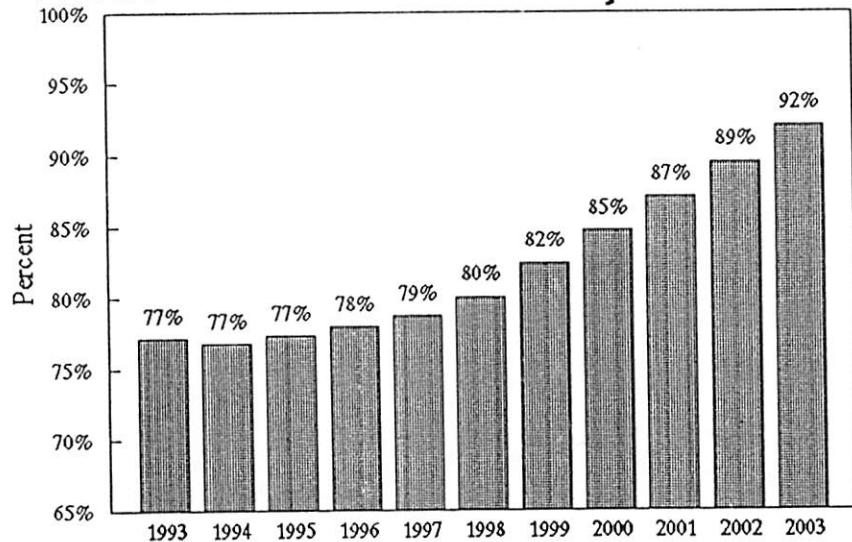
Scenario 7

Discount Rate on Liabilities : 6.75%
Yield Rate on Actuarial Assets : 8.50%

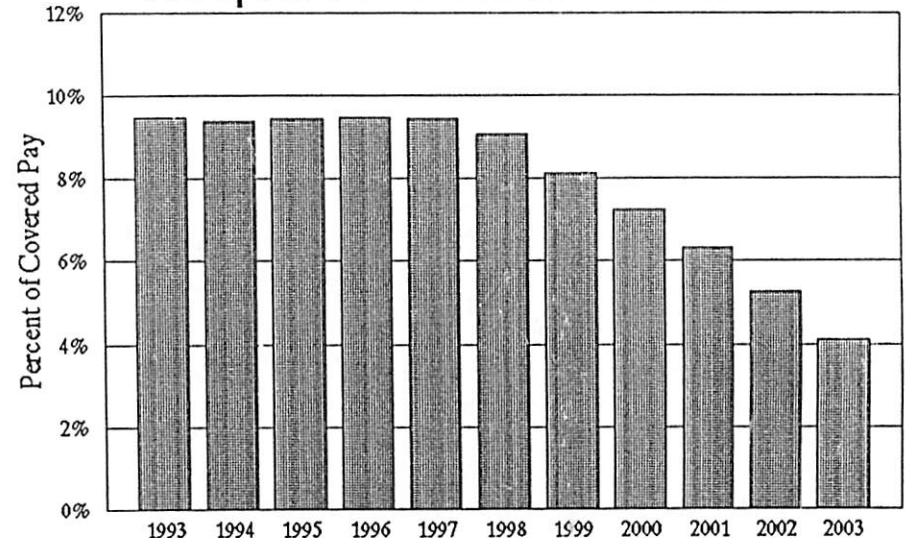
Fiscal Year Beginning July 1	Actuarial Assets	Total Projected Liabilities	Expected Contb. Amount	Expected Payouts	Affordable Wage Base	Affordable Ad Hoc Dividend Incr to Retirees as % of Prior Yr Tot Ann Ben	Prefunded Proj WBASE	Required Contribution Rate
1993	6,365,169,296	8,249,255,760	300,143,546	275,030,466	38,000	*	40,000	9.468%
✓ 1994	6,930,590,833	9,023,937,407	309,945,571	296,876,315	41,000	2.50%	44,500	9.368%
1995	7,530,639,309	9,738,362,205	318,358,628	320,989,386	44,000	2.50%	47,500	9.440%
1996	8,164,389,094	10,468,085,608	329,199,524	347,209,499	47,000	2.50%	50,500	9.444%
1997	8,834,968,597	11,223,334,169	340,145,768	375,028,095	50,000	2.50%	53,500	9.415%
1998	9,543,889,675	11,925,878,799	351,286,903	404,166,555	53,000	2.50%	55,000	9.049%
1999	10,293,172,928	12,494,395,910	362,671,692	434,543,001	55,000	2.50%	55,000	8.117%
2000	11,085,142,006	13,091,304,167	373,621,944	466,564,459	55,000	2.50%	55,000	7.263%
2001	11,921,181,091	13,697,192,010	383,475,238	499,796,782	55,000	2.50%	55,000	6.315%
2002	12,802,553,137	14,311,424,006	393,266,805	534,021,075	55,000	2.50%	55,000	5.270%
2003	13,731,931,021	14,932,493,927	403,188,946	570,237,711	55,000	2.50%	55,000	4.121%

* - Reflects increase already adopted

Ratio of Assets to Proj Liabilities



Required Contribution Rate



SCENARIO 7A

**JULY 1, 1993 ACTUARIAL ASSUMPTIONS SAME AS LAST REGULAR VALUATION;
NEW ACTUARIAL ASSUMPTIONS STARTING JULY 1, 1994, WITH AN INTEREST
RATE ASSUMPTION OF 6.75%; ASSUMPTIONS MET WITH AN
ACTUAL YIELD RATE OF 8.5% ANNUALLY; COVERED WAGE BASE
INCREASES CONTINUE BEYOND \$55,000**

This Scenario 7A is the same as Scenario 7 in all respects except that the increases in the covered wage base are allowed to continue, if affordable, beyond the \$55,000 level. As before, annual increases are in increments of \$500, but any single annual increase cannot exceed \$3,000.

The purpose of this scenario is to demonstrate what impact ongoing wage base increases have on the required contribution rate. By comparing the results of this Scenario 7A with Scenario 7, it can be seen that the ongoing wage base increases have resulted in a required contribution rate which is, at the end of the projection period, over 2.761% of pay higher than it would be when the wage base is limited to \$55,000 (6.882% from Scenario 7A compared to 4.121% from Scenario 7).

IOWA PUBLIC EMPLOYEES' RETIREMENT SYSTEM
10 YEAR PROJECTION STUDY
 Performed as of July 1, 1993

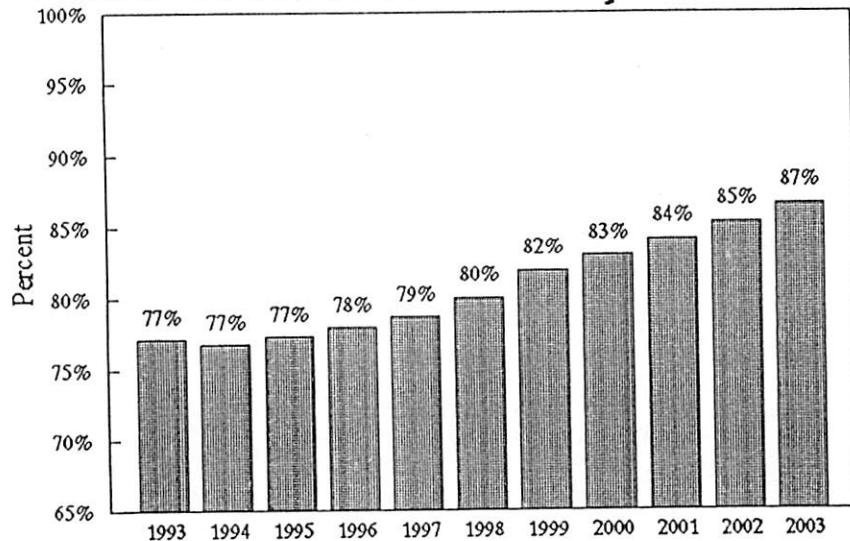
Scenario 7A

Discount Rate on Liabilities :	6.75%
Yield Rate on Actuarial Assets :	8.50%
Projected Wage Base Limit :	NONE

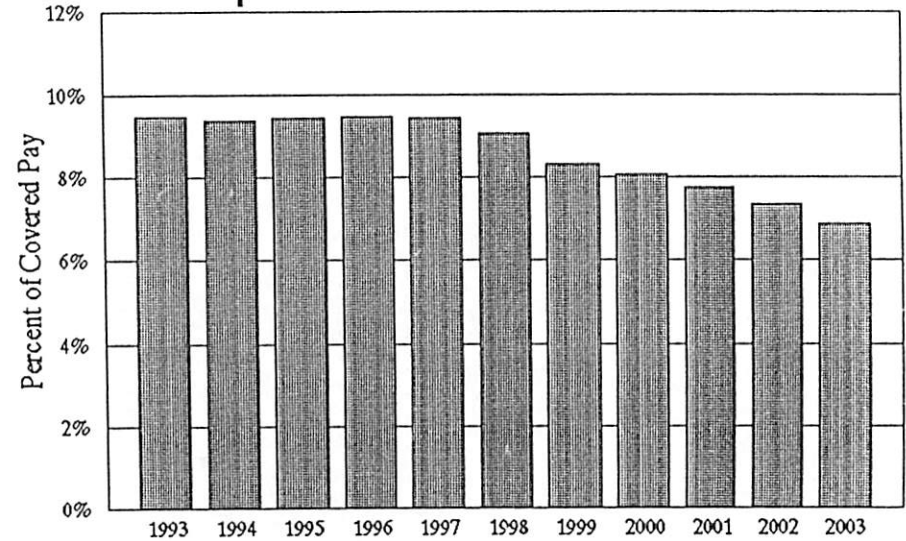
Fiscal Year Beginning July 1	Actuarial Assets	Total Projected Liabilities	Expected Contb. Amount	Expected Payouts	Affordable Wage Base	Affordable Ad Hoc Dividend Incr to Retirees as % of Prior Yr Tot Ann Ben	Prefunded Proj WBASE	Required Contribution Rate
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1994	6,930,590,833	9,023,937,407	309,945,571	296,876,315	41,000	2.50%	44,500	9.368%
1995	7,530,639,309	9,738,362,205	318,358,628	320,989,386	44,000	2.50%	47,500	9.440%
1996	8,164,389,094	10,468,085,608	329,199,524	347,209,499	47,000	2.50%	50,500	9.444%
1997	8,834,968,597	11,223,334,169	340,145,768	375,028,095	50,000	2.50%	53,500	9.415%
1998	9,543,889,675	11,925,878,799	351,286,903	404,166,555	53,000	2.50%	55,000	9.049%
1999	10,293,172,928	12,561,755,924	362,671,692	434,543,001	56,000	2.50%	56,000	8.318%
2000	11,085,142,006	13,360,648,093	374,312,707	466,686,203	59,000	2.50%	59,000	8.065%
2001	11,921,773,152	14,180,039,939	386,255,767	500,438,429	62,000	2.50%	62,000	7.742%
2002	12,805,419,827	15,020,144,120	398,540,715	535,728,688	65,000	2.50%	65,000	7.349%
2003	13,738,745,991	15,879,968,973	411,131,667	573,751,960	68,000	2.50%	68,000	6.882%

* - Reflects increase already adopted

Ratio of Assets to Proj Liabilities



Required Contribution Rate



SCENARIO 11

JULY 1, 1993 ACTUARIAL ASSUMPTIONS SAME AS LAST REGULAR VALUATION; NEW ACTUARIAL ASSUMPTIONS STARTING JULY 1, 1994, WITH AN INTEREST RATE ASSUMPTION OF 7.0%; ASSUMPTIONS MET WITH AN ACTUAL YIELD RATE OF 8.5% ANNUALLY

As is the case for all scenarios: (1) the July 1, 1993 benefits are the basic IPERS benefits, but with a 60% benefit formula effective July 1, 1994 and a \$38,000 covered wage base effective January 1, 1994, (2) the July 1, 1993 actuarial assumptions are the same as those used in the last regular valuation, (3) the July 1, 1994 valuation assumes the covered wage base increases to \$40,000 effective January 1, 1995. In Scenario 11, new actuarial assumptions are used starting July 1, 1994, including an interest rate assumption increase to 7.0% and the actual yield rate is 8.5% per year. Thus, given the framework of this scenario, the projections show what benefit improvements (within the priorities and limitations described on page 2) are likely to be "affordable" if the total contribution rate stays at 9.45%. Within this same framework, the projections show what is likely to happen to the system liabilities, contributions, payouts, and assets over the next 10 years if the valuation assumptions are met, the membership remains stable, and actual net trust earnings are 8.5% a year.

Given these circumstances, over the period from July 1, 1993 through July 1, 2003:

- a) The maximum wage base is achieved on July 1, 1999, and there can be steady \$3,000 increases each year in the intervening years. There is also significant wage base prefunding (up to \$52,000 on July 1, 1994, and \$55,000 by July 1, 1996).
- b) There are maximum dividend increases in all years.
- c) The total required contribution rate, as a percentage of salary, starts to decrease by July 1, 1995, for the same basic reasons as set out in item (c) of Scenario 3.
- d) Total liabilities will increase from \$8,249,255,760 to \$14,462,379,325, an increase of \$6,213,123,565, or 75.3%.
- e) Total annual contributions, at 9.45% of covered pay, will increase from \$300,143,546 to \$403,188,946, an increase of \$103,045,400, or 34.3%.
- f) Total annual payouts will increase from \$275,030,466 to \$570,237,711, an increase of \$295,207,245, or 107.3%.
- g) Total actuarial assets will increase from \$6,365,169,296 to \$13,738,683,965, an increase of \$7,373,514,669, or 115.8%.

Comparing d) to g), the difference between total projected liabilities and actuarial assets decreases from \$1,884,086,464 to \$1,681,845,398 in terms of dollar amounts. The ratio of actuarial assets to total projected liabilities increases from 77% to 95%. Thus, with the benefit improvements indicated, and with assumptions being met, except for actual fund growth being 8.5% compared to the 6.5% assumed growth, the System will experience a narrowing of the gap between liabilities and

actuarial assets, both in terms of dollars and the ratio. In dollar terms, this gap actually peaks at about July 1, 1996 and then starts to decrease in the last seven years of the projections when actual contributions exceed required contributions, benefit improvements have ended except for dividend increases, and excess earnings continue. The ratio starts to increase slightly on July 1, 1995, and then the ratio increase accelerates when the dollar gap starts to close.

IOWA PUBLIC EMPLOYEES' RETIREMENT SYSTEM
10 YEAR PROJECTION STUDY
 Performed as of July 1, 1993

Scenario 11

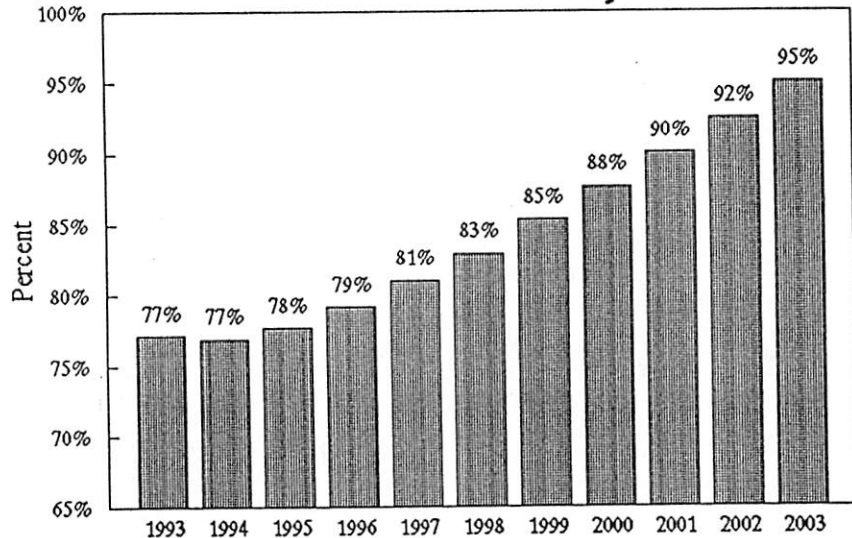
doesn't buy as much as add'l - 2.5%

Discount Rate on Liabilities : 7.00%
 Yield Rate on Actuarial Assets : 8.50%

Fiscal Year Beginning July 1	Actuarial Assets	Total Projected Liabilities	Expected Contb. Amount	Expected Payouts	Affordable Wage Base	Affordable Ad Hoc Dividend Incr to Retirees as % of Prior Yr Tot Ann Ben	Prefunded Proj WBASE	Required Contribution Rate
1993	6,365,169,296	8,249,255,760	300,143,546	275,030,466	38,000	*	40,000	9.468%
1994	6,930,590,833	9,009,746,818	309,945,571	296,876,315	41,000	2.50%	52,000	9.442%
1995	7,530,743,473	9,692,577,049	318,358,628	320,989,386	44,000	2.50%	54,000	9.381%
1996	8,164,715,906	10,316,656,998	329,199,524	347,209,499	47,000	2.50%	55,000	8.955%
1997	8,835,652,344	10,906,616,474	340,145,768	375,028,095	50,000	2.50%	55,000	8.287%
1998	9,545,082,054	11,509,852,058	351,286,903	404,166,555	53,000	2.50%	55,000	7.577%
1999	10,295,044,809	12,066,620,155	362,671,692	434,543,001	55,000	2.50%	55,000	6.632%
2000	11,087,885,349	12,652,039,777	373,621,944	466,564,459	55,000	2.50%	55,000	5.748%
2001	11,925,011,041	13,246,993,690	383,475,238	499,796,782	55,000	2.50%	55,000	4.771%
2002	12,807,710,305	13,850,900,414	393,266,805	534,021,075	55,000	2.50%	55,000	3.698%
2003	13,738,683,965	14,462,379,325	403,188,946	570,237,711	55,000	2.50%	55,000	2.521%

* - Reflects increase already adopted

Ratio of Assets to Proj Liabilities



Required Contribution Rate

