Municipal Fire and Police Retirement System of Iowa

July 1, 1997
## Actuarial Valuation Results

November 7, 1997

Towers Perrin

Highlights

- The Cities' contribution rate as a percent of covered payroll is 17.00%. This rate assumes that the State will contribute $2,943,000 for the 1997 plan year

- The Cities' contribution rate was adjusted from 13.62% to provide the minimum required contribution of 17.00%

- The current member contribution rate is 9.35%

- There were no actuarial assumption changes since last year

- The escalator provisions were revised effective July 1, 1997

- The funded percentage under GASB 25 based on the present value of accumulated plan benefits and the actuarial value of assets is 98.1%.

- Contributions are related to the following benefits:

Benefits	Percent
Retirement	61.5%
Disability	30.0%
Death	6.2%
Withdrawal	2.3%
	100.0%

Funding Requirements

% of Payroll
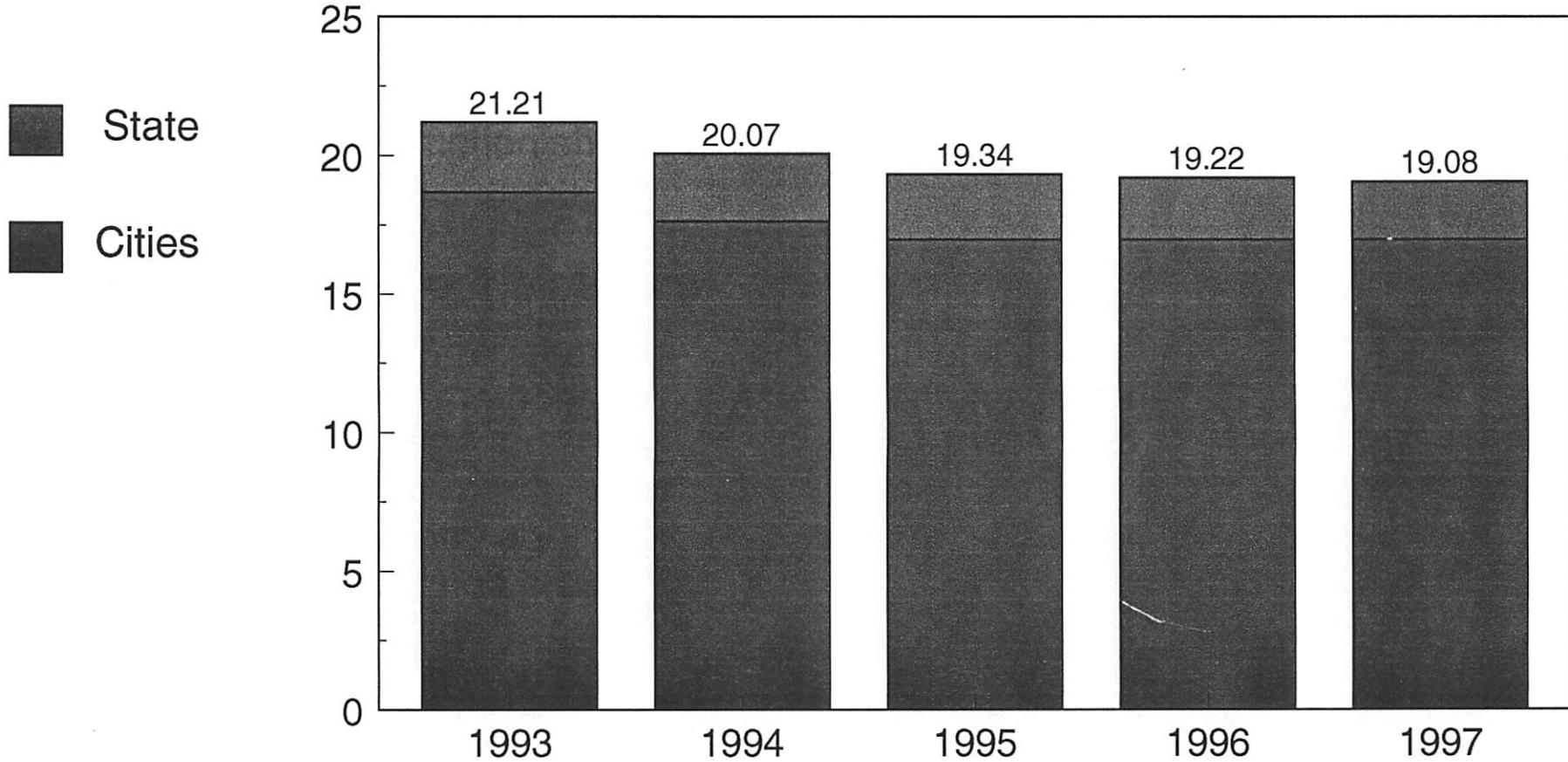
	1993	1994	1995	1996	1997
State Contribution	2.50%	2.41%	2.34%	2.22%	2.08%
Cities Contribution	18.71%	17.66%	17.00%	17.00%	17.00%
Total Contribution	21.21%	20.07%	19.34%	19.22%	19.08%

GASB Statements No. 25 and 27

Actuarial Assumptions

- Must be guided by Actuarial Standard of Practice No. 4
- Emphasis on long-term trends
- Each assumption should be both individually reasonable and consistent with other assumptions

Actuarial Cost Methods

- Old GASB 5 required use of projected unit credit
- Acceptable methods under new statements include

  - Entry age
  - Frozen entry age
  - Projected unit credit
  - Attained age
  - Frozen attained age
  - Aggregate

Amortization Periods

- 1996 - 2005 -- 0 to 40 years
- After 2005 -- 30 years
- Does not impact plans valued under the aggregate method

Basis for Contribution

Aggregate Actuarial Cost Method

- Contribution rate =

Present value of projected benefits

less

Actuarial value of assets

less

Presents value of future member contributions

divided by

Present value of Future Pay

- Amortizes costs as a level percentage of pay over remaining careers of current members. Does not separately calculate an actuarial accrued liability.

- Average remaining service for current active membership is 14.3 years
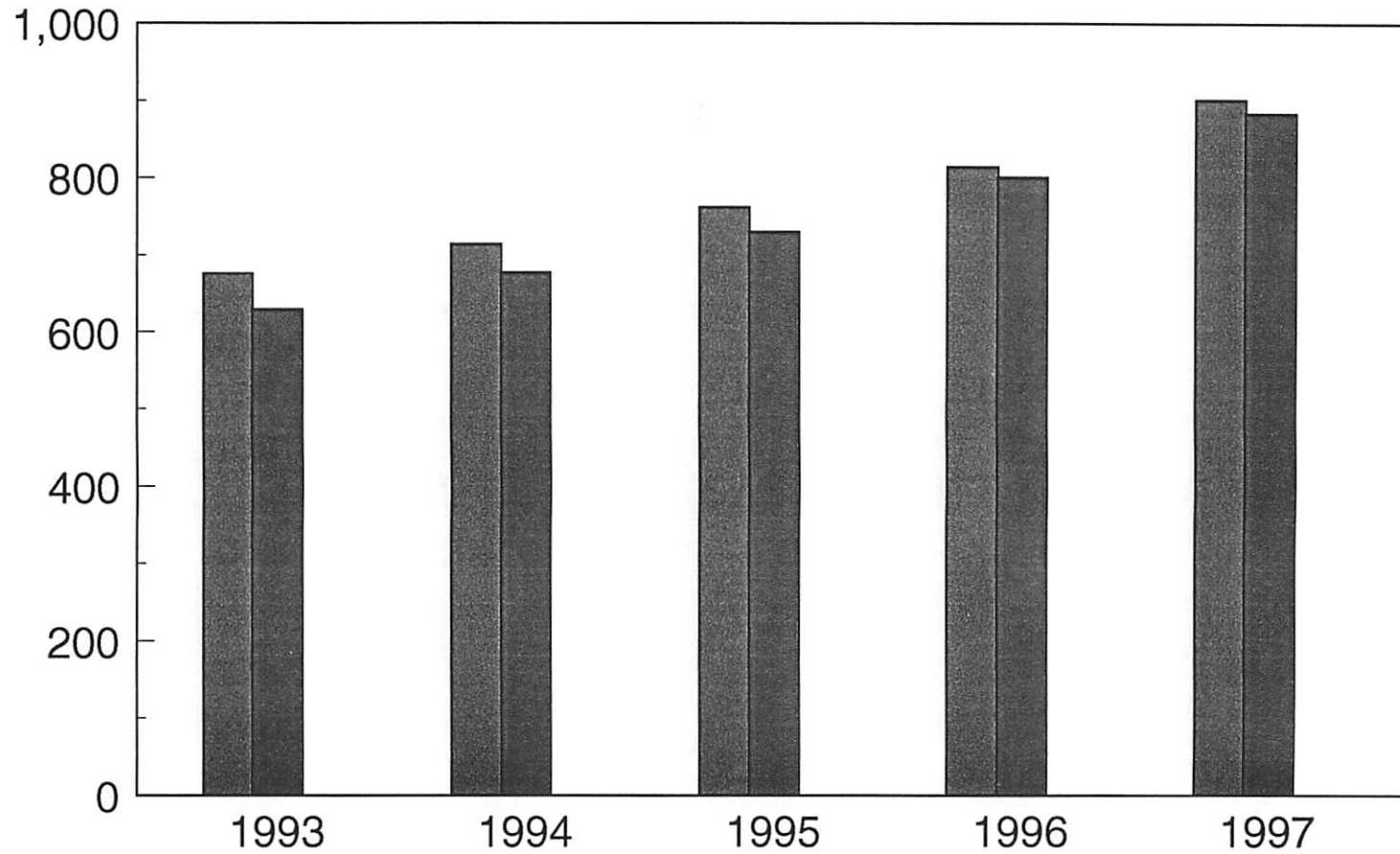
Determination of Contribution Rates

		7/1/96	7/1/97
(1)	Present value of projected benefits	$ 1,210,036,616	$ 1,282,653,171
(2)	Actuarial value of assets	800,677,456	884,113,265
(3)	Present value of future member contributions	139,154,771	148,781,049
(4)	Present value of projected benefits to be funded by cities and state: (1)-(2)-(3)	270,204,389	249,758,857
(5)	Present value of future pay for current members	1,488,286,300	1,591,242,000
(6)	Contribution rate for cities and state: (4)/(5)	18.16%	15.70%
(7)	Expected covered pay for the year	132,400,834	141,357,516
(8)	Total contribution from cities and state: (6)x(7)	24,043,991	22,193,130
(9)	Estimated state contribution	2,943,000	2,943,000
(10)	Cities' contribution: (8)-(9)	21,100,991	19,250,130
(11)	Cities' contribution as a percentage of payroll, (10)/(7), not less than 17.00%	17.00%	17.00%

Sources of Change in the Cities' Contribution Rate

	7/1/97
▪ Decrease in state contribution rate as a percent of payroll	0.14%
▪ Salary increases greater than assumed	0.13
▪ Asset performance greater than assumed	(1.82)
▪ Effect of paying non-investment expenses from the trust	0.06
▪ Difference between minimum required Cities' contribution rate (17%) and calculated rate	(0.04)
▪ Other population changes, including the effect of new entrants	0.27
▪ Change in escalator provisions	(1.06)
▪ Increase to meet minimum required contribution rate	2.32
▪ Net change	0.00%

History of Funded Status

Measures of Funded Status

	7/1/95	7/1/96	7/1/97
Assets			
Market value	$736,424,354	$845,418,373	$ 959,323,108
Actuarial value	729,811,938	800,677,456	884,113,265
Pension benefit obligation based on:			
Projected unit credit (GASB 5 method)	897,931,403	961,206,062	1,038,359,683
Entry age normal cost method	855,757,678	917,138,798	980,654,057
Unit credit cost method (termination basis)	761,828,387	814,583,006	901,545,468
Funded status			
Market value/PUC (GASB 5)	82.0%	88.0%	92.4%
Actuarial value/PUC	81.3%	83.3%	85.1%
Actuarial value/EANC (GASB 25)*	85.3%	87.3%	90.2%
Market value/EANC	86.1%	92.2%	97.8%
Market value/UC	96.7%	103.8%	106.4%

* GASB 25 prescribes use of actuarial value of assets

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Comparative Statistics

The funded ratios for state retirement systems are shown in the chart below based on the ratio of the market value of assets to the projected benefit obligation under GASB 5.

States' Funding Percentages
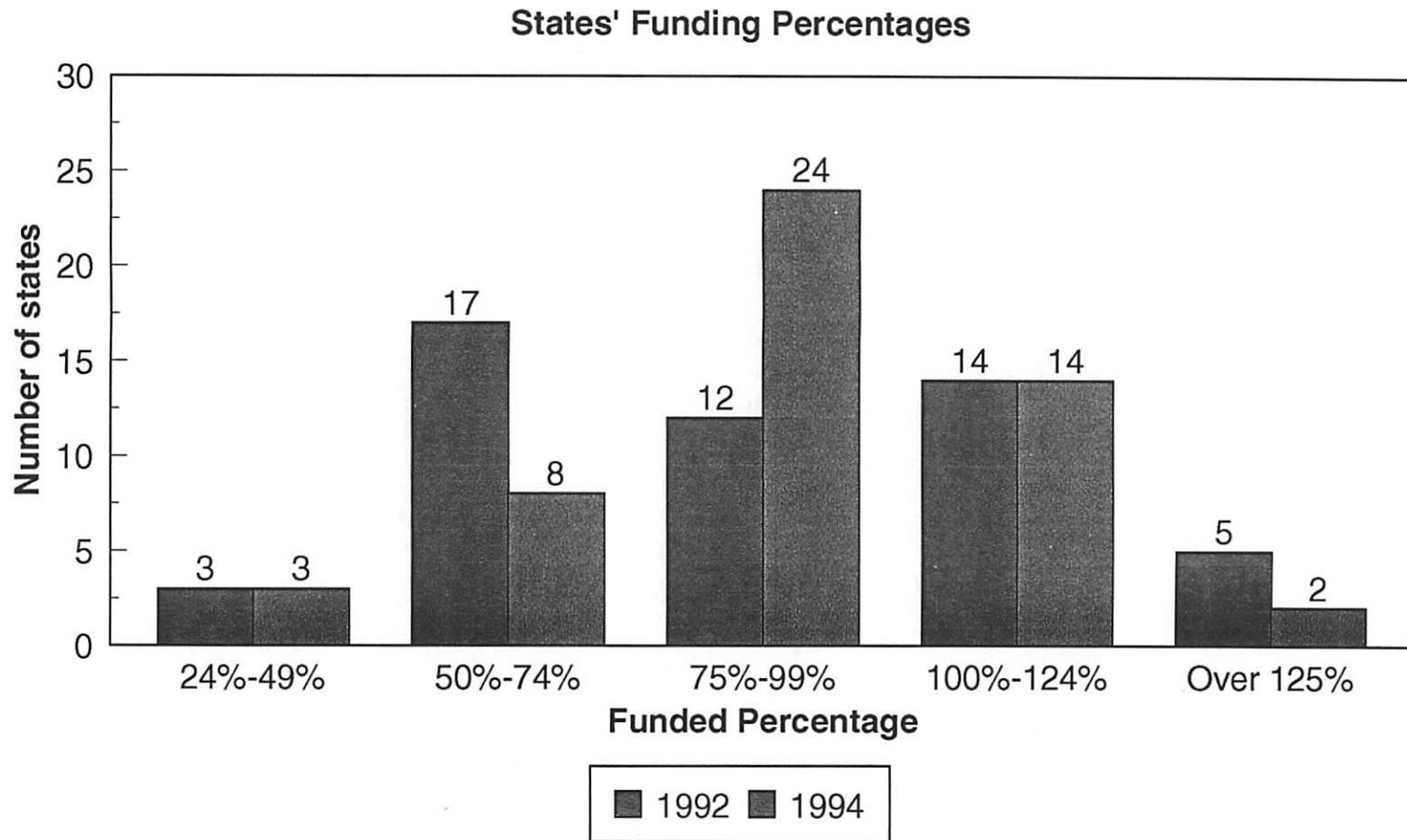
Source: Foster Higgins *1994 Report on State Pension Systems*

Participant Profile

	1993	1994	1995	1996	1997
Actives					
Number	3,580	3,566	3,600	3,615	3,717
Average Age	40.2	40.3	40.1	39.9	39.7
Average Service	14.3	14.3	14.0	13.8	13.5
Total Payroll	$117.7M	$122.4M	$125.7M	$132.5M	$141.4M
Vested Deferred					
Number	128	142	149	157	173
Average Benefit	$10,123	$10,547	$10,836	$11,683	$11,731
In Pay Status					
Number	2,452	2,548	2,674	2,772	2,855
Average Benefit	$12,922	$13,494	$14,133	$15,086	$15,906

Plan Change

	Cities' Contribution Rate	Increase Over Current Plan
Current Plan	13.62%	
Increase Excess Benefit for Service over 22 Years (30-Year Maximum) from 0.6% to 1.5%	16.69%	3.07%

Mortality Experience 1992 to 1996

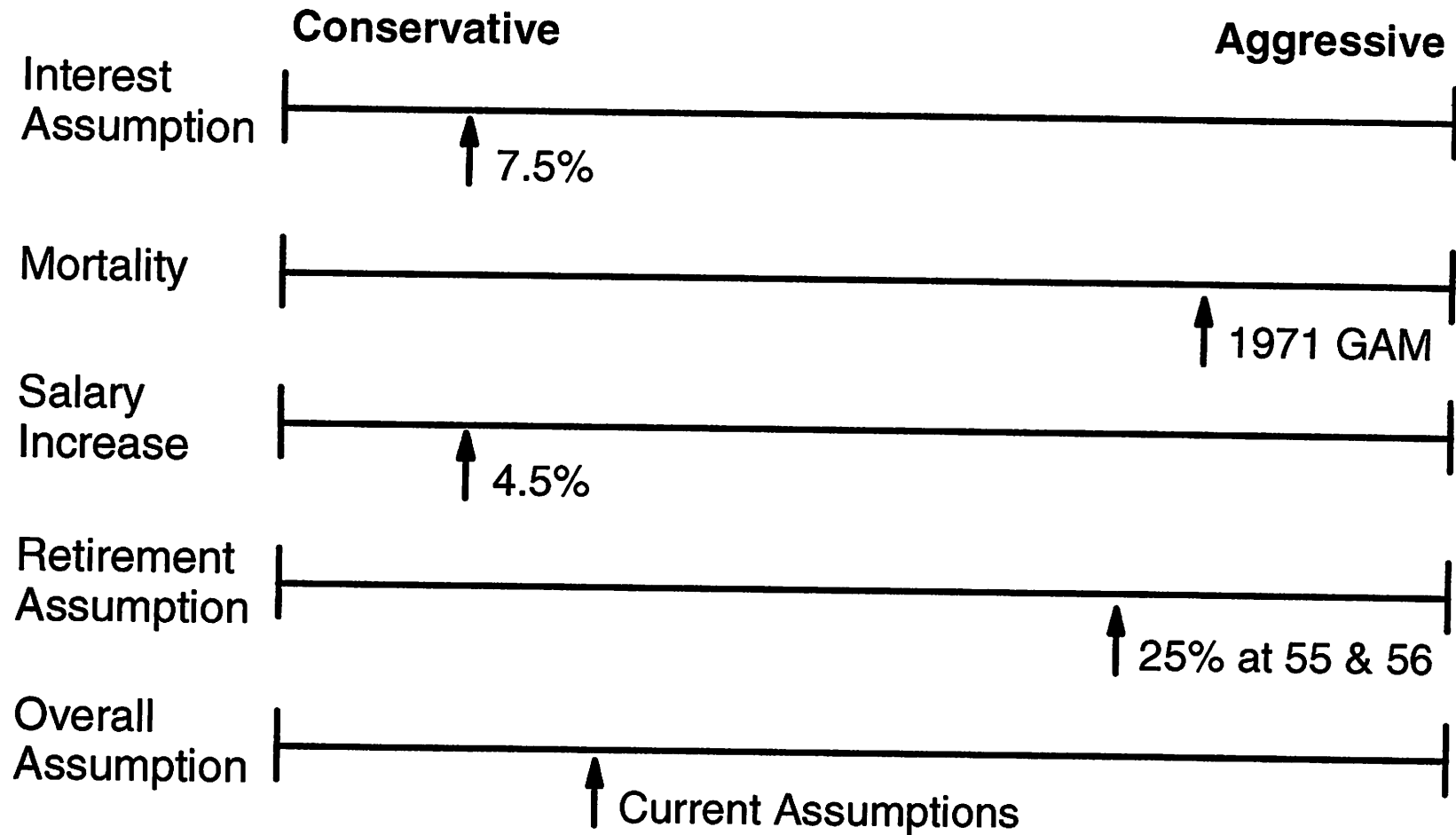|	Actual	Expected	
		1971 GAM*	1983 GAM*
Active Deaths			
Accidential	6	21	21
Ordinary	6	27	16
	12	48	37
Inactive Deaths			
Retirements	132	178	144
Disabilities	74	108	88
Beneficiaries	79	92	72
	285	378	304

* For deaths of disabled retirees, a six-year age set-forward was used.

Plan Experience 1992 to 1996

	Salary Increases			Retirement Rates		
Ages	Actual Rate	Expected Rate	Age	Number of Service Retirements	Actual Rate	Expected Rate
20-24	9.72%	11.35%	55	88	32.0%	25.0%
25-29	6.40	7.40	56	76	42.5	25.0
30-34	5.15	5.20	57	32	29.4	25.0
35-39	4.49	5.00	58	21	25.3	25.0
40-44	4.34	5.00	59	17	24.6	25.0
45-49	3.97	5.00	60	26	38.2	25.0
50-54	4.36	5.00	61	17	33.3	30.0
55-59	3.02	5.00	62	17	50.0	35.0
60-64	3.59	5.00	63	5	20.8	40.0
			64	7	41.2	45.0
			65+	11	55.0	100.0

Total number expected: 260 (actual 317)

Assumption Analysis

Conservative ————————————————— Aggressive

Interest Assumption: ↑ 7.5%

Mortality: ↑ 1971 GAM

Salary Increase: ↑ 4.5%

Retirement Assumption: ↑ 25% at 55 & 56

Overall Assumption: ↑ Current Assumptions

Alternative Assumptions

	Cities' Contribution Rate	Increase Over Current Assumptions
Current Plan	13.62%	
Change Interest Assumption from 7.5% to 8.0%	8.34%	(5.28)%
Change Mortality Assumption from 1971 GAM to 1983 GAM	12.23%*	3.89%
Change Salary Increase Assumption from 5.0% to 4.5% after Age 32	11.10%*	(1.13)%
Increase Retirement Assumption for Ages 55 and 56 from 25% to 35%	12.31%*	1.21%

* Estimated based on increase over current assumptions of a single assumption change. Compound impact will be slightly different.

Forecast of Cities' Contribution Rate