

**Iowa Peace Officers'
Retirement, Accident and Disability System**

**Actuarial Valuation
as of July 1, 1995**

**Watson Wyatt Worldwide
8400 Normandale Lake Boulevard
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October 19, 1995



●	Summary	1
●	Basic Valuation Results	2
●	Explanation of Fund Accounts	4
●	Adjustment of Fund Balances	5
●	Plan Accounting Information	6
●	Participant Data	9
●	Summary of Plan Provisions	12
●	Actuarial Basis	18



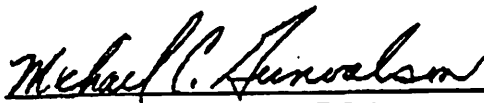
Board of Trustees
October 19, 1995
Page 2

To the best of our knowledge, all plan participants on July 1, 1995 and all plan provisions in effect on that date have been included in the valuation. In our opinion, all actuarial assumptions, calculations, and procedures are in conformity with generally accepted actuarial procedures and practices.

We are available to provide further information or to answer any questions with regard to this report.

Sincerely,

WATSON WYATT WORLDWIDE



Michael C. Gunvalson, F.S.A.
Consulting Actuary



Kathryn M. Duwenhoegger
Actuarial Analyst

MCG/KMD:na

A comparison of this year's and last year's key information is shown below.

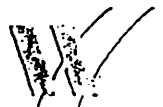
	<u>7/1/84</u>	<u>7/1/85</u>
Contribution Rates		
Total Contribution Rate	20.42%	18.77%
Members' Contribution Rate	8.23%	9.35%
State's Required Contribution Rate	12.19%	7.42%
Appropriated Contribution Rate	18.00%	18.00%
Excess (Shortfall)	5.81%	10.58%
Number of Participants		
Active Members	509	590
Former Members and Beneficiaries Receiving Benefits	314	329
Former Members with Deferred Benefits	17	16
Children Receiving Benefits	14	13
Total Participants	854	948
Averages for Active Participants		
Participating Payroll	40,300	40,280
Age	39.9	38.5
Years of Service	14.0	12.6
Funded Percentages		
Accumulated Benefit		
Actuarial Present Value of Accumulated Benefits	117,113,127	128,263,147
Market Value of Plan Assets	115,966,733	132,708,760
Funded Percentage	99.0%	105.1%
GASB No. 5		
Pension Benefit Obligation	130,157,882	140,803,526
Cost Value of Plan Assets	114,487,217	120,969,993
Funded Percentage	88.0%	85.9%

Basic Valuation Results

	<u>7/1/94</u>	<u>7/1/95</u>
1. Actuarial Present Value of Projected Benefits		
The amount required as of the valuation date to fully fund projected pension benefits:		
a. Annuity Savings Fund	\$ 0	\$ 0
b. Pension Accumulation Fund	93,614,032	102,788,783
c. Annuity Reserve Fund	515	0
d. Pension Reserve Fund	<u>67,271,337</u>	<u>74,143,888</u>
e. Total actuarial present value of projected benefits: (a + b + c + d)	160,885,884	176,932,671
2. Market Value of Plan Assets		
The amount on the Peace Officers' System's books as provided by the System.	115,966,733	132,708,760
3. Actuarial Present Value of Future Contributions		
The excess of the actuarial present value of projected pension benefits over the actuarial value of assets; the amount used to determine the normal cost.	44,919,151	44,223,911
4. Actuarial Present Value of Future Valuation Earnings of Active Members	219,985,800	263,679,000
5. Total Normal Contribution Rate		
The actuarial present value of future contributions divided by the actuarial present value of future earnings.	20.42%	16.77%

Basic Valuation Results

	<u>7/1/94</u>	<u>7/1/95</u>
6. Members' Contribution Rate	8.23%	9.35%
7. State's Normal Contribution Rate (5) - (6)	12.19%	7.42%
8. Contribution Rate Appropriated	18.00%	18.00%
9. Excess (shortfall)		
The excess of the appropriated contribution rate over the normal contribution rate: (8) - (7)	5.81%	10.58%
10. Covered Payroll	\$20,512,937	\$23,765,267
11. Estimated Amount of State's Contribution		
a. Normal contribution: (7) x (10)	2,500,527	1,763,383
b. Appropriated contribution: (8) x (10)	3,692,329	4,277,748
c. Excess (shortfall): (11b) - (11a)	1,191,802	2,514,365



Explanation of Fund Accounts

The Annuity Savings Fund liability represents the accumulated contribution of the individual members and of inactive members who have withdrawn with vested pension rights. Prior amendments have allowed members to withdraw their balance after July 1, 1979.

The Pension Accumulation Fund liability represents the estimated present value of future benefits payable by the State to present active members and their families and to any inactive members with vested pension rights.

The Annuity Reserve Fund liability represents the estimated present value of future annuity benefits payable to members and their beneficiaries now receiving such benefits. The annuity benefits, provided by accumulated contributions of the members, remain constant as they are not adjusted annually under the "half-escalator" provision.

The Pension Reserve Fund liability represents the estimated present value of future pension benefits payable to members and their beneficiaries now receiving such benefits. These benefits are assumed to increase according to the "half-escalator" provision excluding members who terminated with vested benefits. Their benefits remain constant.

The present assets represent the amounts of current bank balances plus the current market value of invested assets. The figures were supplied by the System.

Adjustment of Fund Balances

Chapter 97A.8 states that the actuary shall annually determine the amounts required in the Pension Reserve and Annuity Reserve Funds. If the amount required is less than the amount in the particular reserve fund, the Board of Trustees shall transfer the excess funds from the particular reserve fund to the pension accumulation fund. If the amount required is more than the amount in the particular reserve fund, the respective Board of Trustees shall transfer the additional amount prescribed by the actuary to the particular reserve fund from the pension accumulation fund.

The basic valuation results calculated under the Aggregate Actuarial Cost Method show the required liabilities to be carried in the Pension Reserve Fund and the Annuity Reserve Fund on June 30, 1995. These amounts should be compared with the assets carried in such funds on June 30, 1995 and transfers to or from the Pension Accumulation Fund should then be made to adjust the asset balances so that they equal the required liabilities.

Plan Accounting Information

Actuarial Present Value of Accumulated Plan Benefits

A comparison of assets with the actuarial present value of accumulated plan benefits provides one measure of the funded status of the System. The actuarial present value of accumulated plan benefits consists of the liability that has been earned on the basis of each members' salary and service history as of the valuation date.

	<u>7/1/94</u>	<u>7/1/95</u>
Vested Benefits		
Participants currently receiving payments	\$ 67,271,852	\$ 74,143,888
Other participants	<u>38,683,134</u>	<u>39,487,036</u>
Total vested benefits	105,954,986	113,630,924
Non-vested Benefits		
	<u>11,158,141</u>	<u>12,632,223</u>
Total Actuarial Present Value of Accumulated Plan Benefits	\$117,113,127	\$126,263,147
Market Value of Assets (reported by System)	\$115,966,733	\$132,708,760
Unfunded Actuarial Present Value (surplus)	1,146,394	(6,445,613)
Funded Percentage	99.0%	105.1%

Pension Benefit Obligation -- GASB Statement No. 5

Another measurement for evaluating the funded status of the Plan is the standardized "pension benefit obligation" as set forth in GASB Statement No. 5 for governmental plans. This value is known as the actuarial present value of credited projected benefits and is that portion of the present value of all projected pension benefits, adjusted for the effects of projected salary increases, estimated to be payable in the future as a result of employee service to date under the projected unit credit actuarial cost method. The measure is independent of the actuarial funding method used to determine contributions to the System.

7/1/95

Pension Benefit Obligation

- Retirees and beneficiaries currently receiving benefits and terminated vested employees not yet receiving benefits	\$75,190,376
- Current employees:	
- Accumulated employee contributions including allocated investment earnings ¹	22,292,798
- Employer-financed vested	30,688,129
- Employer-financed nonvested	12,632,223
- Total pension benefit obligation	140,803,526
Net Assets Available for Benefits, at Cost (Market Value is \$132,708,760)	120,969,993
Unfunded Pension Benefit Obligation (excess of liabilities over assets)	19,833,533
Funded Percentage	85.9%

¹ Estimated. The allocated investment earnings is estimated using an 8% interest assumption.

The actuarial assumptions used to determine the present value of accumulated plan benefits and the pension benefit obligation are the same as those used in the current valuation, shown in the Actuarial Basis section. The key assumption is an interest rate of 8.0%.

Source of Data

Data for all participants as of July 1, 1995 was provided by the System.

Testing of Data

An audit of the data was not made. However, a thorough check of data was done and all data was checked for internal consistency.

**Age and Service Distribution for
 Active Participants as of July 1, 1995**

<u>Age Group</u>	<u>Service</u>							<u>Total</u>
	<u>0-4</u>	<u>5-9</u>	<u>10-14</u>	<u>15-19</u>	<u>20-24</u>	<u>25-29</u>	<u>30 +</u>	
21-24	47	0	0	0	0	0	0	47
25-29	90	14	0	0	0	0	0	104
30-34	32	65	11	0	0	0	0	108
35-39	8	24	37	6	0	0	0	75
40-44	0	9	8	49	11	0	0	77
45-49	1	1	4	18	44	11	0	79
50-54	0	0	0	13	14	39	13	79
55-59	0	0	0	2	0	6	9	17
60+	0	0	0	0	0	1	3	4
Total	178	113	60	88	69	57	25	590

Average Attained Age: 38.5

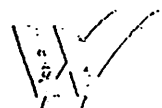
Average Years of Service: 12.6

**Inactive Participants as of July 1, 1995
Retirees and Beneficiaries Receiving Benefits (includes children)**

<u>Age</u>	<u>Number</u>	<u>Average Annual Benefit</u>
-39	15	5,074
40-44	6	20,495
45-49	9	20,326
50-54	17	23,666
55-59	80	21,685
60-64	68	19,914
65-69	63	18,106
70-74	34	15,469
75-79	21	12,245
80-84	16	10,420
85+	13	10,406
Total	342	17,833

Former Members with Deferred Benefits

<u>Age</u>	<u>Number</u>	<u>Average Annual Benefit</u>
-39	2	6,295
40-44	2	13,906
45-49	5	10,877
50-54	7	10,611
55+	0	0
Total	16	10,566



RETIREMENT BENEFIT

Eligibility: Age 55 with 22 years of service.

Monthly Annuity: The sum of (1) and (2):

- (1)
 - a. For retirement prior to July 1, 1990, 50% of average final compensation at retirement. Average final compensation equals average of highest three years of compensation.
 - b. For retirement after June 30, 1990 and before July 1, 1992, 54% of average final compensation at retirement.
 - c. For retirement after June 30, 1992 and before July 1, 1993, 56% of average final compensation at retirement.
 - d. For retirement after June 30, 1993 and before July 1, 1994, 58% of average final compensation at retirement.
 - e. For retirement after June 30, 1994, 60% of average final compensation at retirement.
- (2) For members who do not withdraw member contributions:
 - a. For retirement after June 30, 1990 and before July 1, 1991, 0.3% of average final compensation for each year of service over 22 years (up to 8 years). Service after age 55 is excluded.

Summary of Plan Provisions

- b. For retirement after June 30, 1991 and before October 16, 1992, 0.6% of average final compensation for each year of service over 22 years (up to 8 years). Service after age 55 is excluded.
- c. For retirement after October 16, 1992, 0.6% of average final compensation for each year of service over 22 years (up to 8 years).

DEFERRED VESTED BENEFIT

Eligibility:

Four years of service.

Monthly Annuity:

At age 55. The benefit provided as a retirement benefit at termination times a service ratio. The service ratio equals service at termination divided by 22 (not greater than 1.0).

ORDINARY DISABILITY BENEFIT

Eligibility:

None.

Benefit:

- (1) If service at disability is greater than or equal to 5: 50% of average final compensation at disability.
- (2) If service at disability is greater than or equal to 22 years, the greater of (1) or the benefit amount calculated under a service retirement.
- (3) If service at disability is less than 5: 25% of average final compensation at disability.

Summary of Plan Provisions

ACCIDENTAL DISABILITY BENEFIT

- Eligibility:** None.
- Benefit:**
- (1) For retirement prior to July 1, 1990, 66-2/3% of average final compensation at disability.
 - (2) For retirement after June 30, 1990, 60% of average final compensation at disability. If the service amount at disability is greater than or equal to 22 years, the greater of 60% of average final compensation at disability or the benefit amount calculated under a service retirement.

ORDINARY DEATH BENEFIT

- Eligibility:** For member in service: None.
For member not in service: Four years of service.
- Benefit:**
- (1) A lump sum equal to 50% of compensation during the last year of employment, or
 - (2) A pension based on 40% of average final compensation but not less than 20% of compensation paid to an active member having the rank of senior patrol officer of the Iowa Highway Safety Patrol. For members not in service, benefit is multiplied by service at termination to 22 years (not greater than 1.0)
 - (3) Additional benefit for members in service of 6% of compensation payable to an active member having the rank of senior patrol officer of the Iowa Highway Safety Patrol for each child.

Summary of Plan Provisions

- Payment Date:**
- (1) For members in service: Immediately upon death of member.
 - (2) For member not in service: Payable when member would have been age 55. If there are children of the member, payable commencing at the member's death until children reach age 18 or 22. Pension resumes when member would have been age 55.

ACCIDENTAL DEATH BENEFIT

Eligibility: In actual performance of duty.

- Benefit:**
- (1) 50% of average final compensation payable to surviving spouse, children or dependent parents.
 - (2) If there is no surviving spouse, children or dependent parents, or if accidental death occurs while not in the actual performance of duty, an Ordinary Death Benefit is payable.
 - (3) Additional benefit for members in service of 6% of compensation payable to an active member having the highest grade in the rank of fire fighter, or police patrol officer, for each child.

DEATH AFTER RETIREMENT

- Benefit:**
- (1) 50% of retirement allowance of retired member but not less than 20% of compensation paid to an active member having the rank of senior patrol officer of the Iowa Highway Safety Patrol.
 - (2) Additional benefit of 6% of compensation payable to an active member having the rank of senior patrol officer of the Iowa Highway Safety Patrol, for each child.

Summary of Plan Provisions

ADJUSTMENTS TO PENSIONS:

Each July 1 the following adjustments are made: Monthly earnable compensation payable to an active member, of the same rank and position in the salary scale as was held by the retired or deceased member at the time of the member's retirement or death, for July of the current year less that of the preceding July, times the following percentages:

- (1) 25% for members receiving a service retirement allowance and for beneficiaries receiving an accidental death benefit. For members who retired before July 1, 1990, the applicable percentage is 30%.
- (2) 25% for members with five or more years of membership who are receiving an ordinary disability benefit. For members who retired before July 1, 1990, the applicable percentage is 30%.
- (3) 33-1/3% for members receiving an accidental disability benefit.
- (4) 12.5% for members with less than five years of membership who are receiving an ordinary disability benefit and for beneficiaries receiving an ordinary death benefit. For members who retired before July 1, 1990, the applicable percentage is 15%.
- (5) 50% of the amount which would have been added to the benefit of the retired member, for surviving spouses, but not less than 20% of the monthly earnable compensation paid to an active member having the rank of senior patrol officer.

Surviving children's pensions are adjusted each July to equal 6% of monthly earnable compensation payable to an active member having the rank of senior patrol officer of the Iowa Highway Safety Patrol.

Summary of Plan Provisions

MEMBER CONTRIBUTIONS: (1) The following percentages of earnable compensation will be paid as member contributions:

<u>Period</u>	<u>Member Contribution Rate</u>
Jan. 1, 1995 - June 30, 1995	8.35%
July 1, 1995 forward	9.35%

**WITHDRAWAL OF
MEMBER CONTRIBUTIONS:** Effective July 1, 1990, members who terminate service, other than by death or disability, can elect to withdraw their accumulated contributions with interest in lieu of any benefits to which the member may be entitled from the System.

**CHANGES IN PLAN
PROVISIONS:** The retirement benefit for members who do not withdraw contributions was changed to credit service earned after age 55. The member contribution rate was also changed to reflect a uniform rate regardless of age.

Iowa Peace Officers'
 Retirement, Accident and Disability System
 Actuarial Valuation as of July 1, 1995

Actuarial Basis

ACTUARIAL COST METHOD

The Aggregate Actuarial Cost Method has been used in this valuation. Under this method, the normal cost (the portion of the total cost of pension benefits under this plan allocated to the current year under this actuarial cost method) is determined by multiplying the normal cost accrual rate for the current year by the total valuation earnings for active participants under the assumed retirement age on the current valuation date.

An actuarial accrued liability, as such, is not determined under the Aggregate Actuarial Cost Method; all past and future costs are funded over the future. The normal cost accrual rate for the current year is:

1. the actuarial present value of projected and actual pension benefits for all participants determined using the assumptions shown below for normal cost, minus the actuarial value of assets (as reported by the System), both as of the current valuation date, divided by
2. the actuarial present value of the expected future valuation earnings for all active participants from the current valuation date to the assumed retirement age.

Actuarial gains and losses are reflected in this accrual rate and are spread over the current and future years' normal costs. Experience gains will reduce and experience losses will increase future accrual rates.

ACTUARIAL ASSUMPTIONS

Active Members:

- | | |
|-----------------------------|--|
| 1. Ordinary death rate | 1971 Group Annuity Mortality Table. |
| 2. Accidental death rate | 8.5 deaths per 10,000 exposed for one year. |
| 3. Ordinary disability rate | 1970-71 Industry Experience on Male Lives (Occupational Group II). |

4. **Accidental disability rate** 1970-71 Industry Experience on Male Lives (Occupational Group II) increased by 50% for age 35 and younger, grading up 1% per age to 69% for age 54.
5. **Withdrawal rate** 5% for age 20, grading down to 2% for ages 35-39, then 4% at age 40 grading down to 0% at age 52 and older.
6. **Retirement age** Average age 58 or entry age plus 22, if later, but not greater than 65.
7. **Salary scale** 6% increase each year.
8. **Post-retirement adjustments** Same as for retired members.

Retired Members and Other Beneficiaries:

1. **Mortality rate** Service retirements and female beneficiaries: 1971 Group Annuity Mortality (GAM) Tables - Male and Female.
2. **Mortality rate** Disability retirements: 1971 GAM Tables - Male and Female rated up 5 years in age.
3. **Annual readjustment of pensions**

For retirements prior to July 1, 1990: 3.60% increase each year for retired members and beneficiaries; 3.00% for retired members receiving accidental disability; 3.60% for retired members receiving ordinary disability.

For retirements July 1, 1990 through June 30, 1992: 2.78% increase each year for retired members and beneficiaries; 3.33% for retired members receiving accidental disability; 3.00% for retired members receiving ordinary disability.

For retirements July 1, 1992 through June 30, 1993: 2.68% increase each year for retired members and beneficiaries; 3.33% for retired members receiving accidental disability; 3.00% for retired members receiving ordinary disability.

For retirements July 1, 1993 through June 30, 1994: 2.59% increase each year for retired members and beneficiaries; 3.33% for retired members receiving accidental disability; 3.00% for retired members receiving ordinary disability.

For retirements after July 1, 1994: 2.50% increase each year for retired members and beneficiaries; 3.33% for retired members receiving accidental disability; 3.00% for retired members receiving ordinary disability.

Dependency Ratios:

1. Ordinary death benefit

Alternate benefits payable to widow and minor children in 90% of cases.

2. Pension to spouse and children of deceased pensioned member.

In 90% of cases.

Interest Rate:

8% per year.

Changes In Actuarial Cost Method and Assumptions:

There were no changes in either the actuarial methods or assumptions. In our opinion, the assumptions, both individually and taken in the aggregate, are reasonably related to plan experience and are our best estimate of anticipated experience.