

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

**Actuarial Valuation  
as of July 1, 1993**

**The Wyatt Company  
8400 Normandale Lake Boulevard  
Minneapolis, MN 55437  
612-921-8700**

**September 28, 1993**

*Wyatt*



September 28, 1993

Board of Trustees  
Peace Officers' Retirement System  
Des Moines, Iowa 50319

Dear Board Members:

This report presents the results of the July 1, 1993 actuarial valuation of the Peace Officers' Retirement System. The primary purposes of the valuation are to determine:

1. The normal contribution rate which is payable by the State, under Section 97A.8(b) of the Code of Iowa.
2. The satisfaction of reporting requirements under Chapter 97A.8(1a) of the Code of Iowa.
3. The current funding status of the System.
4. The actuarial value of accumulated benefits and the pension benefit obligation under Governmental Accounting Standards Board Statement No. 5.

Additionally, the report documents the data, plan assets, plan provisions, and actuarial methods and assumptions on which the valuation is based.

The valuation has been prepared at the request of the Peace Officers' Retirement System and is based on unaudited participant data and financial information provided by the System.

Board of Trustees  
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To the best of our knowledge, all plan participants on July 1, 1993 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,

THE WYATT COMPANY



Scott S. Willman, F.S.A.  
Consulting Actuary



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

SSW:MCG:adw

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

|   | <u>7/1/92</u> | <u>7/1/93</u> |
|---|---------------|---------------|
| <b>Contribution Rates</b>   |               |               |
| Total Contribution Rate   | 25.52%        | 18.36%        |
| Members' Contribution Rate  | 7.01%         | 7.63%         |
| State's Required Contribution Rate  | 18.51%        | 10.73%        |
| Appropriated Contribution Rate  | 18.00%        | 18.00%        |
| Excess (Shortfall)  | (.51%)        | 7.27%         |
| <b>Number of Participants</b>   |               |               |
| Active Members  | 494           | 514           |
| Former Members and Beneficiaries<br>Receiving Benefits                    | 268           | 285           |
| Former Members with Deferred Benefits                                     | 22            | 19            |
| Children Receiving Benefits   | 9             | 12            |
| Total Participants  | 793           | 830           |
| <b>Averages for Active Participants</b>                                   |               |               |
| Participating Payroll   | 39,245        | 39,480        |
| Age   | 40.9          | 40.5          |
| Years of Service  | 15.2          | 14.6          |
| <b>Funded Percentages</b>   |               |               |
| Accumulated Benefit<br>Actuarial Present Value of<br>Accumulated Benefits | 102,473,367   | 111,628,453   |
| Market Value of Plan Assets   | 95,351,357    | 113,571,943   |
| Funded Percentage   | 93.0%         | 101.7%        |
| <b>GASB No. 5</b>   |               |               |
| Pension Benefit Obligation  | 118,572,469   | 124,278,348   |
| Cost Value of Plan Assets   | 87,304,190    | 101,051,519   |
| Funded Percentage   | 73.6%         | 81.3%         |

**Basic Valuation Results**

|   | <u>7/1/92</u>     | <u>7/1/93</u>     |
|---|-------------------|-------------------|
| <b>1. Actuarial Present Value of Projected Benefits</b>   |                   |                   |
| The amount required as of the valuation date to fully fund projected pension benefits:  |                   |                   |
| a. Annuity Savings Fund   | \$ 0              | \$ 0              |
| b. Pension Accumulation Fund  | 91,810,869        | 94,323,650        |
| c. Annuity Reserve Fund   | 25,177            | 4,297             |
| d. Pension Reserve Fund   | <u>54,167,960</u> | <u>58,125,742</u> |
| e. Total actuarial present value of projected benefits: (a + b + c + d)   | 146,004,006       | 152,453,689       |
| <b>2. Market Value of Plan Assets</b>   |                   |                   |
| The amount on the Peace Officers' System's books as provided by the System.   |                   |                   |
|   | 95,351,369        | 113,571,943       |
| <b>3. Actuarial Present Value of Future Contributions</b>   |                   |                   |
| 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. |                   |                   |
|   | 50,652,637        | 38,881,746        |
| <b>4. Actuarial Present Value of Future Valuation Earnings of Active Members</b>  | 198,454,100       | 211,723,900       |
| <b>5. Total Normal Contribution Rate</b>  |                   |                   |
| The actuarial present value of future contributions divided by the actuarial present value of future earnings.  |                   |                   |
|   | 25.52%            | 18.36%            |

## Basic Valuation Results

|  | <u>7/1/92</u> | <u>7/1/93</u> |
|--|---------------|---------------|
| <b>6. Members' Contribution Rate*</b>  | 7.01          | 7.63          |
| <b>7. State's Normal Contribution Rate (5) - (6)</b>   | 18.51         | 10.73         |
| <b>8. Contribution Rate Appropriated</b>   | 18.00         | 18.00         |
| <b>9. Excess (shortfall)</b>   |               |               |
| The excess of the appropriated contribution rate over<br>the normal contribution rate: (8) - (7) | (0.51%)       | 7.27%         |
| <b>10. Covered Payroll</b>   | \$19,387,030  | \$20,292,646  |
| <b>11. Estimated Amount of State's Contribution</b>  |               |               |
| a. Normal contribution: (7) x (10)   | 3,588,539     | 2,177,401     |
| b. Appropriated contribution: (8) x (10)   | 3,489,665     | 3,652,676     |
| c. Excess (shortfall): (11b) - (11a)   | (98,874)      | 1,475,275     |

\* The weighted average of member contribution rates as of July 1.

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.



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, 1993. These amounts should be compared with the assets carried in such funds on June 30, 1993 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.

**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>7/1/92</u>     | <u>7/1/93</u>     |
|---|-------------------|-------------------|
| <b>Vested Benefits</b>  |                   |                   |
| Participants currently receiving payments                         | \$ 54,193,137     | \$58,130,039      |
| Other participants  | <u>37,276,603</u> | <u>41,769,048</u> |
| Total vested benefits   | 91,469,740        | 99,899,087        |
| <br>  |                   |                   |
| <b>Non-vested Benefits</b>  | <u>11,003,627</u> | <u>11,729,366</u> |
| <br>  |                   |                   |
| <b>Total Actuarial Present Value of Accumulated Plan Benefits</b> | \$102,473,367     | \$111,628,453     |
| <br>  |                   |                   |
| <b>Market Value of Assets (reported by System)</b>                | \$95,351,369      | \$113,571,973     |
| <br>  |                   |                   |
| <b>Unfunded Actuarial Present Value (surplus)</b>                 | 7,121,998         | (1,943,490)       |
| <br>  |                   |                   |
| <b>Funded Percentage</b>  | 93.0%             | 101.7%            |

**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.

7/1/93

**Pension Benefit Obligation**

|   |                    |
|---|--------------------|
| -- Retirees and beneficiaries currently receiving benefits and terminated vested employees not yet receiving benefits | \$59,359,377       |
| -- Current employees:   |                    |
| - Accumulated employee contributions including allocated investment earnings <sup>1</sup>                             | 18,798,736         |
| - Employer-financed vested  | 34,390,869         |
| - Employer-financed nonvested   | 11,729,366         |
| -- Total pension benefit obligation   | 124,278,348        |
| <b>Net Assets Available for Benefits, at Cost<br/>(Market Value is \$113,571,943)</b>                                 | <b>101,051,519</b> |
| <b>Unfunded Pension Benefit Obligation<br/>(excess of liabilities over assets)</b>                                    | <b>23,226,829</b>  |
| <b>Funded Percentage</b>  | <b>81.3%</b>       |

<sup>1</sup> 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, 1993 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, 1993**

| <u>Age<br/>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                | 15             | 0          | 0            | 0            | 0            | 0            | 0           | 15           |
| 25-29                | 63             | 12         | 0            | 0            | 0            | 0            | 0           | 75           |
| 30-34                | 25             | 49         | 11           | 0            | 0            | 0            | 0           | 85           |
| 35-39                | 7              | 26         | 28           | 14           | 0            | 0            | 0           | 75           |
| 40-44                | 0              | 3          | 13           | 46           | 19           | 0            | 0           | 81           |
| 45-49                | 0              | 0          | 3            | 17           | 38           | 16           | 0           | 74           |
| 50-54                | 0              | 0          | 1            | 8            | 12           | 51           | 6           | 78           |
| 55-59                | 0              | 0          | 0            | 1            | 1            | 13           | 13          | 28           |
| 60+                  | 0              | 0          | 0            | 0            | 0            | 0            | 3           | 3            |
| <b>Total</b>         | 110            | 90         | 56           | 86           | 70           | 80           | 22          | 514          |

Average Attained Age: 40.5

Average Years of Service: 14.6

**Inactive Participants as of July 1, 1993  
Retirees and Beneficiaries Receiving Benefits (includes children)**

| <u>Age</u> | <u>Number</u> | <u>Average<br/>Annual Benefit</u> |
|------------|---------------|-----------------------------------|
| -39        | 17            | 6,352                             |
| 40-44      | 5             | 22,937                            |
| 45-45      | 6             | 16,245                            |
| 50-54      | 22            | 21,281                            |
| 55-59      | 57            | 19,258                            |
| 60-64      | 57            | 17,459                            |
| 65-69      | 66            | 16,861                            |
| 70-74      | 21            | 13,128                            |
| 75-79      | 21            | 11,050                            |
| 80-84      | 17            | 9,360                             |
| 85+        | 8             | 9,798                             |
| Total      | 297           | 15,957                            |

**Former Members with Deferred Benefits**

| <u>Age</u> | <u>Number</u> | <u>Average<br/>Annual Benefit</u> |
|------------|---------------|-----------------------------------|
| -39        | 2             | 4,939                             |
| 40-44      | 2             | 10,601                            |
| 45-49      | 7             | 9,835                             |
| 50-54      | 8             | 11,006                            |
| 55+        | 0             | 0                                 |
| Total      | 19            | 9,893                             |

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



**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.

**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.

**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.

**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%.

## Summary of Plan Provisions

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- (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) For members under age 45 on July 1, 1990, the following percentages of earnable compensation will be paid as member contributions:

| <u>For the Fiscal<br/>Year Beginning</u> | <u>Member<br/>Contribution Rate</u> |
|--|-------------------------------------|
| July 1, 1989                             | 3.10%                               |
| July 1, 1990                             | 4.10                                |
| July 1, 1991                             | 5.10                                |
| July 1, 1992                             | 6.10                                |
| July 1, 1993                             | 7.10                                |
| July 1, 1994                             | 8.10                                |
| July 1, 1995                             | 9.10                                |
| July 1, 1996                             | Minimum of 9.10%                    |

(2) For members at least age 45 on July 1, 1990, the following percentages of earnable compensation will be paid as member contributions:

| <u>Age on<br/>July 1, 1990</u> | <u>Member Contribution Rate<br/>7/1/93 - 6/30/94*</u> |
|--------------------------------|---|
| 45                             | 8.10%   |
| 46 +                           | 9.10  |

**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:** There were no changes in plan provisions since the prior valuation.

\* Contribution rates for members at least age 45 on July 1, 1990 will increase 1% each July 1 until reaching 9.10%. Required contributions beginning July 1, 1996 will be at least 9.10% for all members.

## **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.<br><br>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 after July 1, 1993: 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.