

**REPORT ON THE ACTUARIAL VALUATION
OF THE
CONNECTICUT
POLICEMEN AND FIREMEN
SURVIVORS' BENEFIT FUND**

PREPARED AS OF JUNE 30, 2007





April 30, 2008

State Employees Retirement Commission
Office of the State Comptroller
55 Elm Street
Hartford, CT 06106

Members of the Commission:

Presented in this report are the results of the annual actuarial valuation of the Policemen and Firemen Survivors' Benefit Fund. The purpose of the valuation was to measure the Fund's funding progress and to determine the contribution rate for the year beginning July 1, 2007.

The date of the valuation was June 30, 2007.

The valuation was based upon data, furnished by the Retirement Division of the Office of the State Comptroller and the participating municipalities, concerning active and retired members and annuitants, along with pertinent financial information. The complete cooperation of the staff in furnishing materials requested is hereby acknowledged with appreciation.

Your attention is directed particularly to the comments on page 4 and the results of the valuation commencing on page 7. The Table of Contents, which immediately follows, outlines the material contained in this report.

To the best of our knowledge, this report is complete and accurate. The valuation was performed by, and under the supervision of, independent actuaries who are members of the American Academy of Actuaries with experience in performing valuations for public retirement systems.

The valuation was prepared in accordance with the principles of practice prescribed by the Actuarial Standards Board.

The actuarial calculations were performed by qualified actuaries according to generally accepted actuarial procedures and methods. The calculations are based on the current provisions of the Fund, and on actuarial assumptions that are, in the aggregate, internally consistent and reasonably based on the actual experience of the Fund.

Respectfully submitted,

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REPORT ON THE ACTUARIAL VALUATION OF
THE CONNECTICUT POLICEMEN AND FIREMEN SURVIVORS' BENEFIT FUND
PREPARED AS OF JUNE 30, 2007

SECTION I - SUMMARY OF PRINCIPAL RESULTS

1. For convenience of reference, the principal results of the valuation and a comparison with the preceding year's results are summarized below:

| Valuation Date | 6/30/07 | 6/30/06 |
|---|---------------|---------------|
| Number of active members | 573 | 548 |
| Annual earnable compensation of active members during year | \$ 40,331,971 | \$ 31,150,452 |
| Number of retirees | 374 | 352 |
| Number of annuitants | 98 | 109 |
| Annuitants' annual benefits | \$ 795,258 | \$ 678,299 |
| Assets for valuation purposes | \$ 23,312,682 | \$ 22,260,223 |
| Employer normal contribution rate as percentage of payroll | 0.22% | 0.57% |
| Estimated contributions recommended for payment by participating municipalities for the years beginning July 1, 2007 and July 1, 2006 respectively* | \$ 28,302 | \$ 21,785 |

- * Estimated contributions are comprised of both normal cost payments and administrative expenses for all entities. Additionally, the New Britain Police Department's contributions include an unfunded accrued liability credit and contributions for all other entities include a surplus credit. Effective for the fiscal year beginning July 1, 2007 administrative expenses are comprised of \$40 for each active member. For previous years the expense was \$30 for each active member. The development of estimated contributions can be found on page 5 of the report.

2. Additional comments on the valuation results as of June 30, 2007 are given in Section IV and further discussion of the contribution levels is set out in Section V. There were no amendments made to the provisions of the Fund since the last valuation. The provisions of the Fund are summarized in Schedule C.

3. Schedule B of this report outlines the full set of actuarial assumptions and methods employed. There were no changes in actuarial assumptions or methods since the last valuation.

SECTION II - MEMBERSHIP DATA

In order to obtain the aggregate liabilities and assets on account of members of the Fund as of June 30, 2007, data was needed with respect to each active member, retired member and annuitant of the Fund. For previous valuations, each municipality provided the relevant data for its participating population. For this valuation, a centralized data collection process was implemented and the Retirement Division of the Office of the State Comptroller provided the required data for each municipality to the actuary. The participating municipalities reviewed and verified the data for accuracy.

From the data, tabulations were made showing, as of June 30, 2007, the number and annual earnable compensation of active members classified by age, the number of retired members classified by age, and the number and annual benefits of annuitants on the roll as of June 30, 2007 classified by age. These tabulations are presented in Schedule D.

SECTION III - DEVELOPMENT OF ACTUARIAL VALUE OF ASSETS

| Valuation Date June 30: | 2003 | 2004 | 2005 | 2006 | 2007 |
|--|-------------------|-------------------|-------------------|-------------------|-------------------|
| A. Actuarial Value Beginning of Year | \$ 19,669,506 | \$ 20,090,877 | \$ 20,719,076 | \$ 21,456,097 | \$ 22,260,223 |
| B. Market Value Beginning of Year | 16,806,825 | 17,028,720 | 18,083,356 | 19,036,584 | 19,648,497 |
| C. Cash Flow | | | | | |
| C1. Contributions | 296,748 | 327,034 | 340,584 | 405,186 | 406,240 |
| C2. Benefit Payments | (761,974) | (730,483) | (742,716) | (756,947) | (795,683) |
| C3. Net | (465,226) | (403,449) | (402,132) | (351,761) | (389,443) |
| D. Investment Income | | | | | |
| D1. Market Return | 687,121 | 1,458,085 | 1,355,360 | 963,674 | 2,318,966 |
| D2. Expected Actuarial Return | 1,652,136 | 1,690,578 | 1,744,031 | 1,808,818 | 1,875,568 |
| E. Expected Actuarial Value End of Year | 20,856,416 | 21,378,006 | 22,060,975 | 22,913,154 | 23,746,348 |
| F. Market Value End of Year | 17,028,720 | 18,083,356 | 19,036,584 | 19,648,497 | 21,578,020 |
| G. Phased-In Recognition of Investment Income | | | | | |
| G1. Difference between Market and Expected Actuarial Value | (3,827,696) | (3,294,650) | (3,024,391) | (3,264,657) | (2,168,328) |
| G2. 20% of Difference (0.2 * G1) | (765,539) | (658,930) | (604,878) | (652,931) | (433,666) |
| G3. Preliminary Actuarial Value End of Year | 20,090,877 | 20,719,076 | 21,456,097 | 22,260,223 | 23,312,682 |
| G4. Minimum = 80% of Market Value (0.8 * F) | 13,622,976 | 14,466,685 | 15,229,267 | 15,718,798 | 17,262,416 |
| G5. Maximum = 120% of Market Value (1.2 * F) | <u>20,434,464</u> | <u>21,700,027</u> | <u>22,843,901</u> | <u>23,578,196</u> | <u>25,893,624</u> |
| G6. Actuarial Value End of Year (G3, subject to G4 & G5) | \$ 20,090,877 | \$ 20,719,076 | \$ 21,456,097 | \$ 22,260,223 | \$ 23,312,682 |
| H. Difference Between Market and Actuarial Values | \$ (3,062,157) | \$ (2,635,720) | \$ (2,419,513) | \$ (2,611,726) | \$ (1,734,662) |
| I. Recognized Rate of Return | 4.56% | 5.19% | 5.55% | 5.43% | 6.53% |
| J. Market Value Rate of Return | 4.15% | 8.67% | 7.58% | 5.11% | 11.92% |

The Actuarial Value of Assets recognizes expected investment income (line D2) along with 20% of its difference (gain/loss) with the market return (line D1) in the valuation year, in addition to 20% of any prior years' unrecognized gains/losses. During periods when investment performance exceeds the assumed rate, Actuarial Value of Assets will tend to be less than market value. During periods when investment performance is less than the assumed rate, Actuarial Value of Assets will tend to be greater than market value.

SECTION IV - COMMENTS ON THE VALUATION

The actuarial funding method was changed to the Entry Age Normal Frozen Initial Liability method during the June 30, 2005 valuation, due to a new entity joining the Fund. Under this approved funding method, an unfunded accrued liability (UAL) is computed for each new town that joins the system. This UAL is “frozen” upon entry and amortized over a closed 30-year period using level dollar amortization. Subsequent valuations of the Fund are then based on all members.

The UAL for each new entity since July 1, 2004, as well as the frozen surplus credit for all “original” entities as of July 1, 2004 will be rolled forward each year until they are fully amortized. Due to significant changes in demographic data reported for the June 30, 2007 valuation, a one-time adjustment was made to the asset surplus of the “original” entities and to the unfunded accrued liability of the New Britain Police. A single normal contribution rate for all participating municipalities is then calculated by spreading the difference between the total liability for the entire Fund membership and the sum of the remaining balance in the frozen items and the current actuarial value of assets over the present value of future salaries for the entire membership. Participating municipalities will contribute the calculated normal rate plus any existing UAL payment/credit, as well as estimated expenses of \$40 per active member. Prior to July 1, 2007, administrative expenses were \$30 per active member. Normal cost payments for the “original” municipalities may be offset by any remaining surplus credit.

Schedule A of this report contains the results of the valuation of the Fund as of June 30, 2007, as well as the funding requirements for the next fiscal year. As can be seen, it is recommended that participating municipalities, with the exception of New Britain Police, contribute an amount necessary to cover only the estimated expenses of the Fund for the year ending June 30, 2007, or \$20,320.

Based upon the approved methodology of recommended contributions for entities joining the Fund on or after July 1, 2004, New Britain Police should contribute \$7,982 to the Fund. This is comprised of \$5,382 for normal cost and payments toward their UAL and \$2,600 for estimated expenses.

SECTION V - CONTRIBUTIONS PAYABLE TO THE FUND

On the basis of the data supplied by the Retirement Division and the participating municipalities, the contributions recommended for payment by the participating employers for the year beginning July 1, 2007 are shown in the following table.

Contributions by Participating Municipalities
Payable for the Year Beginning July 1, 2007

| Municipality | Active Members | Estimated Contributions |
|--------------------|----------------|-------------------------|
| New London Police | 73 | \$ 2,920 |
| New London Fire | 73 | 2,920 |
| Seymour Police | 38 | 1,520 |
| Manchester Fire | 80 | 3,200 |
| Milford Police | 105 | 4,200 |
| Milford Fire | 111 | 4,440 |
| Derby Police | 26 | 1,040 |
| Middlefield Police | 2 | 80 |
| New Britain Police | 65 | 7,982* |
| Total | 573 | \$28,302 |

* Includes \$5,382 for normal cost and unfunded accrued liability payments

The foregoing contributions do not include required member contributions equal to 1.00% of payroll. Participating municipalities are expected to remit these contributions no less frequently than monthly, as required by law.

SECTION VI - ACCOUNTING INFORMATION

Statement No. 12 of the Governmental Accounting Standards Board requires certain disclosures regarding post employment benefits other than pension benefits by State and local governmental employers. The benefits payable from the Fund are covered by Statement No. 12. The information provided in this Section is intended to assist participating municipalities in meeting the requirements of that Statement.

Survivor benefits are financed on an actuarial reserve basis using the Entry Age Normal Frozen Initial Liability cost method. The total present value of all benefits to be paid in the future as a result of covered deaths is estimated using the assumptions outlined in Schedule B and the benefit provisions outlined in Schedule C. The resulting contribution requirement consists of a normal cost and a payment or credit towards the unfunded accrued liabilities.

The number of active members as of June 30, 2007 was 573. The assets of the Fund for the plan year ending June 30, 2007 exceeded the actuarial accrued liabilities of the Fund. The amount of actual employer contributions for the plan year ending June 30, 2007 was \$22,288.

SCHEDULE A

RESULTS OF THE VALUATION AS OF JUNE 30, 2007

CALCULATION OF THE ASSET SURPLUS

(using the Entry Age Normal cost method)

| | | | |
|-----|--|-------------------------------|--------------------------|
| (1) | Actuarial Liabilities as of June 30, 2007 | | |
| | Present value of prospective benefits payable with respect to: | New Britain Police Department | All Other Municipalities |
| | (a) Present annuitants | \$ 0 | \$ 6,675,590 |
| | (b) Present retired members | 0 | 8,594,961 |
| | (c) Present active members | 929,722 | 10,910,654 |
| | (d) Non-vested inactive members | <u>5,965</u> | <u>97,681</u> |
| | (e) Total actuarial liabilities | 935,687 | 26,278,886 |
| (2) | Total Entry Age Normal Contribution Rate | 1.20% | 1.19% |
| (3) | Present Value of Future Salary | 66,929,149 | 334,439,003 |
| (4) | Present Value of Future Normal Costs (2)*(3): | 803,150 | 3,979,824 |
| (5) | Actuarial Accrued Liability (1e)-(4): | 132,537 | 22,299,062 |
| (6) | Actuarial Value Assets | 95,150 | 23,217,532 |
| (7) | Assets in excess of Accrued Liabilities: (6)-(5) | \$(37,387) | \$918,470 |

SCHEDULE A

RESULTS OF THE VALUATION AS OF JUNE 30, 2007 (cont'd)

DEVELOPMENT OF REMAINING CREDIT BASES

| | | |
|-----|---|-------------|
| (1) | Beginning Credit Bases as of June 30, 2007 | |
| | (a) New Britain Police | \$ (95,245) |
| | (b) All other municipalities | (4,482,444) |
| (2) | One time charge to credit bases on account of data revisions in June 30, 2007 valuation | |
| | (a) New Britain Police | 37,387 |
| | (b) All other municipalities | 3,563,974 |
| (3) | Remaining credit bases as of June 30, 2007 | |
| | (a) New Britain Police | (57,858) |
| | (b) All other municipalities | (918,470) |

SCHEDULE A

RESULTS OF THE VALUATION AS OF JUNE 30, 2007 (cont'd)

CALCULATION OF ANNUAL NORMAL COST

(using the Frozen Entry Age Normal cost method)

| | | |
|-----|---|----------------|
| (1) | Actuarial Liabilities | |
| | Present value of prospective benefits payable with respect to: | |
| | (a) Present annuitants | \$ 6,675,590 |
| | (b) Present retired members | 8,594,961 |
| | (c) Present active members | 11,840,376 |
| | (d) Non-vested inactive members | <u>103,646</u> |
| | (e) Total actuarial liabilities | 27,214,573 |
| (2) | Actuarial Value of Assets | 23,312,682 |
| (3) | Present Value of Future Contributions by Members | 4,013,681 |
| (4) | Asset Surplus for all towns excluding New Britain | (918,470) |
| (5) | Unfunded Accrued Liability for New Britain | (57,858) |
| (6) | Present Value of Future Employer Normal Costs (1e)-(2)-(3)-(4)-(5) | 864,538 |
| (7) | Present Value of Future Salary | 401,368,152 |
| (8) | Employer Normal Contribution Rate (6) / (7) | 0.22% |

SCHEDULE A

RESULTS OF THE VALUATION AS OF JUNE 30, 2007 (cont'd)

CONTRIBUTION REQUIREMENTS

| | New Britain Police Department | All other municipalities |
|--|----------------------------------|-----------------------------|
| 1. Employer Normal Contribution Rate | 0.22% | 0.22% |
| 2. Payroll | \$4,740,346 | \$35,591,625 |
| 3. Estimated Normal Cost | 10,429 | 78,302 |
| 4. UAL Credit | (5,047) | 0 |
| 5. Surplus Credit | <u>0</u> | <u>(78,302)</u> |
| 6. Estimated Employer Contribution: (3)+(4)+(5) | 5,382 | 0 |
| 7. Expenses (\$40 for each active member) | 2,600 | 20,320 |
| 8. Estimated Total Contribution | <u>\$7,982</u> | <u>\$20,320</u> |

Note that the contribution amounts are listed as estimated. Each municipality's contributions should be calculated using the 0.22% applied to actual payroll. The amounts above are based on payroll as of the valuation date.

SCHEDULE B

OUTLINE OF ACTUARIAL ASSUMPTIONS AND METHODS

VALUATION INTEREST RATE: 8-1/2% per annum, compounded annually.

SEPARATIONS FROM ACTIVE SERVICE: Representative values of the assumed annual rates of withdrawal, death and retirement are as follows:

| <u>Age</u> | <u>Withdrawal</u> | <u>Death</u> | <u>Retirement</u> |
|------------|-------------------|--------------|-------------------|
| 25 | 7.0% | .008% | |
| 30 | 2.5 | .011 | |
| 35 | 1.0 | .015 | |
| 40 | 1.0 | .023 | |
| 45 | | .032 | 5% |
| 50 | | .050 | 10 |
| 55 | | .077 | 12 |
| 60 | | .122 | 20 |
| 65 | | | 100 |

SALARY INCREASES: Representative values of the assumed annual rates of salary increases are as follows:

| <u>Age</u> | <u>Rate</u> | <u>Age</u> | <u>Rate</u> |
|------------|-------------|------------|-------------|
| 25 | 7.25% | 45 | 4.75% |
| 30 | 6.83 | 50 | 4.50 |
| 35 | 6.13 | 55 | 4.50 |
| 40 | 5.25 | 60 | 4.50 |

DEATH AFTER RETIREMENT: For men, according to the 1951 Group Annuity Table projected to 1975. For females, according to the 1983 Group Annuity Table set back three years. No mortality is assumed for children in receipt of a benefit.

MARITAL STATUS: 90% of active members are assumed to have an eligible spouse, and husbands are assumed to be two years older than wives.

LOADING OR CONTINGENCY RESERVE: Expenses are included in the required contribution.

VALUATION METHOD: Entry Age Normal Frozen Initial Liability Cost Method.

ASSET VALUATION METHOD: Market value related basis that recognizes i) 20% of any difference between actual and expected investment income (gain/loss) in the valuation year and ii) 20% of any previous years' unrecognized investment gains/losses. Such smoothed actuarial asset value shall not be less than 80% or greater than 120% of the market value of assets.

SCHEDULE C

SUMMARY OF MAIN FUND PROVISIONS
AS INTERPRETED FOR VALUATION PURPOSES

The Connecticut Policemen and Firemen Survivors' Benefit Fund became effective on July 1, 1966. The following summary describes the main membership, benefits and contribution provisions of the Fund as interpreted for the valuation.

MEMBERSHIP IN THE FUND

Any municipality may elect or vote to include any of its policemen and/or firemen as of the next following July 1st. Only full time employees are eligible for membership.

BENEFITS OF THE FUND

Survivor benefits are provided upon the death of an active or retired member of the Fund. Benefits are based on the annual rate of full time pay on the date of death. For retired members, the rate of pay immediately prior to retirement is used.

The annual benefit payable from the date of death is equal to one of the following:

- 1) To a surviving spouse, an amount equal to 30% of pay.
- 2) To a surviving spouse with one dependent child under the age of 18, an amount equal to 45% of pay.
- 3) To a surviving spouse with two or more dependent children under the age of 18, an amount equal to 60% of pay.
- 4) To one dependent child under the age of 18 in the case where there is no benefit payable to a surviving spouse, an amount equal to 30% of pay.
- 5) To two or more dependent children under the age of 18 in the case where there is no benefit payable to a surviving spouse, an amount equal to 45% of pay.
- 6) To a dependent parent in the case where there is no benefit payable to a surviving spouse or dependent child, an amount equal to 30% of pay.

Benefits to surviving spouses cease upon death or remarriage. Benefits to dependent children cease at age 18. Benefits to dependent parents cease upon death.

If there are no survivors eligible for a benefit on the date of the member's death, accumulated member contributions without interest are paid to a designated beneficiary or the member's estate.

CONTRIBUTIONS TO THE FUND

Active members contribute at the rate of 1.00% of salary. Participating municipalities contribute an amount as determined by actuarial valuation that is necessary to adequately fund all benefits.

SCHEDULE D

TABLE 1

THE NUMBER AND ANNUAL EARNABLE COMPENSATION
OF ACTIVE MEMBERS DISTRIBUTED BY AGE GROUP
AS OF JUNE 30, 2007

| <u>Age Group</u> | <u>NEW LONDON POLICE</u> | | <u>NEW LONDON FIRE</u> | | <u>SEYMOUR POLICE</u> | |
|------------------|--------------------------|---------------|------------------------|---------------|-----------------------|---------------|
| | <u>NUMBER</u> | <u>AMOUNT</u> | <u>NUMBER</u> | <u>AMOUNT</u> | <u>NUMBER</u> | <u>AMOUNT</u> |
| Less than 25 | 6 | \$ 263,859 | 0 | \$ 0 | 0 | \$ 0 |
| 25-29 | 7 | 321,177 | 2 | 97,872 | 2 | 125,371 |
| 30-34 | 6 | 426,749 | 5 | 244,859 | 4 | 308,158 |
| 35-39 | 15 | 1,065,596 | 12 | 627,696 | 12 | 874,516 |
| 40-44 | 14 | 964,734 | 19 | 940,330 | 4 | 304,213 |
| 45-49 | 15 | 1,207,758 | 9 | 454,515 | 2 | 129,120 |
| 50-54 | 6 | 509,925 | 10 | 517,703 | 5 | 359,675 |
| 55-59 | 2 | 144,906 | 5 | 251,376 | 6 | 460,598 |
| 60 + | 2 | 152,120 | 11 | 600,772 | 3 | 234,093 |
| TOTAL | 73 | \$ 5,056,824 | 73 | \$ 3,735,123 | 38 | \$ 2,795,744 |

| <u>Age Group</u> | <u>MANCHESTER FIRE</u> | | <u>MILFORD POLICE</u> | | <u>MILFORD FIRE</u> | |
|------------------|------------------------|---------------|-----------------------|---------------|---------------------|---------------|
| | <u>NUMBER</u> | <u>AMOUNT</u> | <u>NUMBER</u> | <u>AMOUNT</u> | <u>NUMBER</u> | <u>AMOUNT</u> |
| Less than 25 | 2 | \$ 102,480 | 3 | \$ 177,944 | 2 | \$ 118,093 |
| 25-29 | 5 | \$ 313,389 | 9 | \$ 556,680 | 9 | \$ 531,532 |
| 30-34 | 9 | \$ 693,667 | 18 | \$ 1,125,454 | 15 | \$ 1,019,804 |
| 35-39 | 19 | \$ 1,556,291 | 16 | \$ 1,061,671 | 17 | \$ 1,231,050 |
| 40-44 | 21 | \$ 1,755,387 | 30 | \$ 2,205,817 | 28 | \$ 2,081,675 |
| 45-49 | 13 | \$ 1,002,869 | 18 | \$ 1,372,188 | 21 | \$ 1,595,287 |
| 50-54 | 7 | \$ 620,677 | 8 | \$ 571,768 | 12 | \$ 996,083 |
| 55-59 | 3 | \$ 273,447 | 3 | \$ 243,075 | 7 | \$ 589,763 |
| 60 + | 1 | \$ 81,416 | 0 | \$ 0 | 0 | \$ 0 |
| TOTAL | 80 | \$ 6,399,623 | 105 | \$ 7,314,597 | 111 | \$ 8,163,287 |

