GRS Gabriel Roeder Smith & Company
Consultants & Actuaries

# *CITY OF WARWICK, RHODE ISLAND FIREFIGHTERS / POLICE I PENSION FUND*
# ACTUARIAL VALUATION AS OF JULY 1, 2016

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# DISCUSSION

## I. Purpose and Summary

This report presents the results of our July 1, 2016 actuarial valuation of the City of Warwick, Rhode Island Firefighters/Police I Pension Fund. The valuation was performed at the request of the City of Warwick to determine the City's annual contribution for the fiscal year beginning July 1, 2017 under the City's funding ordinance.

The City's contribution level is $17,934,399 for 2017-2018, as shown on Table 4.

The development of the valuation results is shown in Tables 1 through 10 and is described in more detail on the following pages.

## II. Membership Data

The City furnished data for active and retired members as of December 31, 2015. The data was projected to July 1, 2016 for valuation purposes reflecting age, salary and benefit increases, with adjustments of data due to data questions response. Although we did not audit this data, we did review it for reasonableness and consistency with the data collected in the previous valuation (prepared as of July 1, 2015). Tables 5A, 5B and 5C provide distributions by age and service for active members. Tables 1A, 1B, and 1C provide information about the retirees and inactive members.

## III. Plan Provisions

A summary of the principal plan provisions recognized for purposes of the valuation is provided in Table 10. There were no changes to this plan adopted since the last actuarial valuation.

## IV. Assets

The City of Warwick furnished audited financial statements for the fiscal years ending June 30, 2016. Tables 3a, 3b, and 3c provide information about the composition of plan assets and the development of valuation assets.

The asset value used in the determination of the annual contribution level is set equal to the market value of assets, adjusted to phase in the difference between actual and expected investment return over five years, at 20% per year. As shown in Table 3c, the market value of assets on July 1, 2016 was $66,038,452 while the valuation assets were $70,662,214, or 107.0% of the market value.

As shown in Table 3b, the dollar-weighted rates of return on the market value of assets for FY 2016 was -1.40%. These returns are net of all investment and administrative expenses.

## V. Actuarial Methods and Assumptions

The results of the actuarial valuation are dependent on the actuarial assumptions used. Actual results can and almost certainly will differ, as actual experience deviates from the assumptions. Even seemingly minor changes in the assumptions can materially change the liabilities, calculated contribution rates and funding periods.

There were several changes to the assumptions and methods since the last actuarial valuation. We believe the assumptions are internally consistent and are reasonable, based on the actual experience of the City of Warwick, Rhode Island Firefighters/Police I Pension Fund.

### *Summary of Assumption Changes*

- Reduce the general price inflation assumption by 0.50%, from 2.75% to 2.25%.
- Reduced the salary scale assumption by 0.50%, consistent with the change in inflation.
- Decreased the nominal investment return assumption from 7.50% to 6.90%.

## VI. Funding Policy

The plan is funded on an actuarially determined basis in accordance with the City's pension ordinances. The unfunded actuarial accrued liability as of July 1, 2016, is amortized using multiplier layers as a level percentage of payroll and is anticipated to grow 2.75% annually. The main portion of the current UAAL has 19 years remaining as of the valuation date. The increase in accrued liability as of July1, 2016, due to the change in assumptions is ratably recognized over a five year period beginning in the FY2019 contribution requirement according to the schedule found in Table 2. The increase in normal cost from the change in assumptions was recognized fully in the FY2018 contribution requirement.

In addition, per the funding plan, the contribution for the 2017-2018 fiscal year will be equal to the greater of the actuarially determined amount from the formula above and the 2016-2017 contribution increased by 2.75% until the plan exceeds the 60% funded level.

## VII. Analysis of Changes

The plan experienced an actuarial loss of $16.95 million over last year. This is mainly comprised of an increase accrued liabilities of $16.53 million due to the change in assumptions. Furthermore, there was unfavorable experience on the actuarial value of assets which also contributed to the loss.

The UAAL increased from $208 million to $224 million since last year, close to expectations after recognizing the change in assumptions. The funded ratio decreased from 24.97% to 23.98%. The funded status measure alone is not appropriate for assessing the need for future contributions. Also, the funded status is not appropriate for assessing the sufficiency of plan assets to cover the estimated cost of settling the plan's benefit obligations

## VIII. Future Expectations

We commend the City for continuing to meet its actuarial contribution requirements as dictated by the approved funding policy. If the City continues to meet those obligations, we anticipate the funded ratio will increase consistently after the phase in of the new assumption set.

## IX. Certification

We certify that the information included herein and contained in this Actuarial Valuation Report is accurate and fairly presents the actuarial position of the City of Warwick, Rhode Island Firefighters/Police I Pension Fund as of the valuation date.

All of our work conforms with generally accepted actuarial principles and practices, and to the Actuarial Standards of Practice issued by the Actuarial Standards Board. In our opinion, our calculations also comply with the requirements of, where applicable, the Internal Revenue Code, ERISA, and the Statements of the Governmental Accounting Standards Board.

The undersigned are independent actuaries and consultants. Joseph P. Newton and Paul T. Wood are Members of the American Academy of Actuaries, and meet the Qualification Standards of the American Academy of Actuaries. Finally, both of the undersigned are experienced in performing valuations for large public retirement systems.

We are available to answer any questions in connection with this valuation of the plan or the information presented in this report.



Joseph P. Newton, FSA, EA, MAAA
Pension Market Leader and Actuary



Paul T. Wood, ASA, FCA, MAAA
Consultant

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# TABLES

# Valuation Results

## Combined FireFighters and Police I

| | | July 1, 2016 | July 1, 2015 |
|---|---|---|---|
| **A.** | **Membership Data** | | |
| 1. | Active members | | |
| a. | Number | 31 | 41 |
| b. | Expected covered payroll | $ 3,030,168 | $ 4,005,246 |
| c. | Average pay | $ 97,747 | $ 97,689 |
| d. | Average attained age | 53.5 | 52.9 |
| e. | Average past service | 28.3 | 27.7 |
| 2. | Retired members and beneficiaries | | |
| a. | Number | 404 | 395 |
| b. | Average benefit | $ 51,567 | $ 50,482 |
| c. | Average attained age | 70.2 | 69.8 |
| 3. | Inactive members | | |
| a. | Number | - | - |
| b. | Refund | $ - | $ - |
| **B.** | **Liabilities** | | |
| 1. | Normal cost with interest | | |
| a. | Dollar amount | $ 811,103 | $ 936,610 |
| b. | % of covered payroll | 26.77% | 23.38% |
| 2. | Actuarial accrued liability | | |
| a. | Active members | $ 30,225,212 | $ 36,768,411 |
| b. | Retired members and beneficiaries | 264,453,551 | 240,552,242 |
| c. | Inactive | - | - |
| d. | Total | $ 294,678,763 | $ 277,320,653 |
| 3. | Valuation assets | $ 70,662,214 | $ 69,244,289 |
| 4. | Unfunded actuarial accrued liability [2(d) - (3)] | $ 224,016,549 | $ 208,076,364 |
| 5. | Funded Ratio | 23.98% | 24.97% |

# Valuation Results

## Police I Only

| | | | July 1, 2016 | | July 1, 2015 |
|---|---|---|---|---|---|
| **A.** | **Membership Data** | | | | |
| 1. | Active members | | | | |
| | a. Number | | 1 | | 1 |
| | b. Expected covered payroll | $ | 94,052 | $ | 90,746 |
| | c. Average pay | $ | 94,052 | $ | 90,746 |
| | d. Average attained age | | 73.1 | | 72.1 |
| | e. Average past service | | 50.0 | | 49.0 |
| 2. | Retired members and beneficiaries | | | | |
| | a. Number | | 100 | | 100 |
| | b. Average benefit | $ | 43,640 | $ | 43,051 |
| | c. Average attained age | | 76.7 | | 75.9 |
| 3. | Inactive members | | | | |
| | a. Number | | - | | - |
| | b. Refund | $ | - | $ | - |
| **B.** | **Liabilities** | | | | |
| 1. | Normal cost with interest | | | | |
| | a. Dollar amount | $ | - | $ | - |
| | b. % of covered payroll | | 0.00% | | 0.00% |
| 2. | Actuarial accrued liability | | | | |
| | a. Active members | $ | 689,919 | $ | 654,369 |
| | b. Retired members and beneficiaries | | 43,021,188 | | 42,030,622 |
| | c. Total | $ | 43,711,107 | $ | 42,684,991 |

# Valuation Results

## FireFighters Only

| | | | July 1, 2016 | July 1, 2015 |
|---|---|---|---|---|
| **A.** | **Membership Data** | | | |
| 1. | Active members | | | |
| | a. | Number | 30 | 40 |
| | b. | Expected covered payroll | $ 2,936,116 | $ 3,914,500 |
| | c. | Average pay | $ 97,871 | $ 97,863 |
| | d. | Average attained age | 52.9 | 52.5 |
| | e. | Average past service | 27.5 | 27.2 |
| 2. | Retired members and beneficiaries | | | |
| | a. | Number | 304 | 295 |
| | b. | Average benefit | $ 54,174 | $ 53,001 |
| | c. | Average attained age | 68.1 | 67.7 |
| 3. | Inactive members (Non-Vesting) | | | |
| | a. | Number | - | - |
| | b. | Refund | $ - | $ - |
| **B.** | **Liabilities** | | | |
| 1. | Normal cost with interest | | | |
| | a. | Dollar amount | $ 781,781 | $ 936,610 |
| | b. | % of covered payroll | 26.63% | 23.93% |
| 2. | Actuarial accrued liability | | | |
| | a. | Active members | $ 29,535,293 | $ 36,114,042 |
| | b. | Retired members and beneficiaries | 221,432,363 | 198,521,620 |
| | c. | Inactive | - | - |
| | d. | Total | $ 250,967,656 | $ 234,635,662 |

## Summary of Amortization Bases

| | Date Established | Purpose | Initial Amount | Remaining Balance as of July 1, 2016 | 2017 - 2018 Amortization Payment * | Years Remaining as of July 1, 2017 |
|---|---|---|---|---|---|---|
| | 7/14 | Fresh Start, Offsetting of Prior Bases at 2.75% Growth Rate | $ 210,830,722 | $ 209,286,648 | $ 16,322,089 | 18 |
| | 7/15 | 2015 Experience (Gain)/Loss | (2,226,779) | (2,216,016) | (172,825) | 18 |
| | 7/16 | 2016 Experience (Gain)/Loss | 411,071 | 411,071 | 30,987 | 19 |
| ** | 7/16 | 2016 Assumption Change - FY19 Stagger | 3,306,969 | 3,306,969 | - | 21 |
| ** | 7/16 | 2016 Assumption Change - FY20 Stagger | 3,306,969 | 3,306,969 | - | 22 |
| ** | 7/16 | 2016 Assumption Change - FY21 Stagger | 3,306,969 | 3,306,969 | - | 23 |
| ** | 7/16 | 2016 Assumption Change - FY22 Stagger | 3,306,969 | 3,306,969 | - | 24 |
| ** | 7/16 | 2016 Assumption Change - FY23 Stagger | 3,306,969 | 3,306,969 | - | 25 |
| | | Total | | $ 224,016,549 | $ 16,180,251 | |

* Assuming payment made throughout of the year.

** Assumption change staggers will begin in the fiscal year indicated and be 20 scheduled payments

# Asset Information
## Composition of Fund as of June 30, 2016

| | | Market Value | Percentage of Total |
|---|---|---|---|
| 1. | Cash and equivalents | $ 954,014 | 1.4% |
| 2. | Equities, including index funds | 29,448,585 | 44.6% |
| 3. | Fixed income investments | 35,691,390 | 54.1% |
| 4. | Receivables less payables | (55,537) | -0.1% |
| 5. | Total | $ 66,038,452 | 100.0% |

## Asset Information
## Asset Reconciliation and Expected Returns

| | FY 2013 | FY 2014 | FY 2015 | FY 2016 |
|---|---|---|---|---|
| 1. Beginning of year market value | 63,762,219 | 65,991,960 | 71,622,345 | 69,544,038 |
| 2. Contributions | | | | |
| a. City | 14,276,546 | 15,206,485 | 16,039,998 | 17,378,897 |
| b. Member | 350,536 | 321,061 | 284,810 | 266,831 |
| c. Total | 14,627,082 | 15,527,546 | 16,324,808 | 17,645,728 |
| 3. Benefits paid | (19,691,440) | (19,675,904) | (19,753,740) | (20,192,173) |
| 4. Net return | 7,294,099 | 9,778,743 | 1,350,625 | (959,141) |
| 5. End of year market value | 65,991,960 | 71,622,345 | 69,544,038 | 66,038,452 |
| 6. Net market return | 11.91% | 15.30% | 1.93% | -1.40% |
| 7. Expected market value | | | | |
| a. Beginning of year | 63,762,219 | 65,991,960 | 71,622,345 | 69,544,038 |
| b. Net cash flow | (5,064,358) | (4,148,358) | (3,428,932) | (2,546,445) |
| c. Earnings assumption | 7.50% | 7.50% | 7.50% | 7.50% |
| d. Expected earnings | 4,592,253 | 4,793,834 | 5,243,091 | 5,120,311 |
| e. Excess/(shortfall) | 2,701,846 | 4,984,909 | (3,892,466) | (6,079,452) |

## Development of Actuarial Value of Assets

| | Year Ending June 30, 2015 |
|---|---|
| 1. Market value of assets at beginning of year | $ 69,544,038 |
| 2. Net new investments | |
| a. Contributions | $ 17,645,728 |
| b. Benefits paid | (20,192,173) |
| c. Subtotal | (2,546,445) |
| 3. Market value of assets at end of year | $ 66,038,452 |
| 4. Net earnings (3-1-2) (includes misc revenues) | $ (959,141) |
| 5. Assumed investment return rate for fiscal year | 7.50% |
| 6. Expected return | $ 5,120,311 |
| 7. Excess return (4-6) | $ (6,079,452) |

8. Development of amounts to be recognized as of June 30, 2016:

| Fiscal Year End | Remaining Deferrals of Excess (Shortfall) of Investment Income* | Offsetting of Gains/(Losses) | Net Deferrals Remaining* | Years Remaining | Recognized for this valuation | Remaining after this valuation |
|---|---|---|---|---|---|---|
| | (1) | (2) | (3) = (1) + (2) | (4) | (5) = (3) / (4) | (6) = (3) - (5) |
| 2012 | $ 0 | 0 | $ 0 | 1 | $ 0 | $ 0 |
| 2013 | 0 | 0 | 0 | 2 | 0 | 0 |
| 2014 | 299,749 | (299,749) | 0 | 3 | 0 | 0 |
| 2015 | 0 | 0 | 0 | 4 | 0 | 0 |
| 2016 | (6,079,452) | 299,749 | (5,779,703) | 5 | (1,155,941) | (4,623,762) |
| Total | $ (5,779,703) | $ 0 | $ (5,779,703) | | $ (1,155,941) | $ (4,623,762) |

| | |
|---|---|
| 9. Actuarial value of assets as of June 30, 2016 (Item 3 - Item 8) | $ 70,662,214 |
| 10. Ratio of actuarial value to market value | 107.0% |

*Values of $0 result from the beginning balance being offset by future gains or losses in the opposite direction.

# Development of Contribution Levels

| | | Valuation Results 2016 - 2017 | Statutory Contribution for 2017 - 2018 |
|---|---|---|---|
| 1. | Gross normal cost | $ 811,103 | |
| 2. | Anticipated employee contributions | (161,823) | |
| 3. | Net normal cost [(1) - (2)] | $ 649,280 | $ 667,136 |
| 4. | Sum of amortization amounts | | 16,180,251 |
| 5. | Total [(3) + (4)] | | $ 16,847,387 |
| 6. | Determination of Minimum Contribution Per Funding Plan | | |
| | a. Contribution for 2016-2017 from Prior Year's Report | $ 17,454,402 | |
| | b. Prior Year Contribution with 2.75% growth | | $ 17,934,399 |
| 7. | Maximum of (5) and (6) | | $ 17,934,399 |

## Distribution of Active Members by Age and by Years of Service (Police I)
## As of July 1, 2016

| | Years of Credited Service | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Attained Age | 0<br>Count &<br>Avg. Comp. | 1<br>Count &<br>Avg. Comp. | 2<br>Count &<br>Avg. Comp. | 3<br>Count &<br>Avg. Comp. | 4<br>Count &<br>Avg. Comp. | 5-9<br>Count &<br>Avg. Comp. | 10-14<br>Count &<br>Avg. Comp. | 15-19<br>Count &<br>Avg. Comp. | 20-24<br>Count &<br>Avg. Comp. | 25-29<br>Count &<br>Avg. Comp. | 30-34<br>Count &<br>Avg. Comp. | 35 & Over<br>Count &<br>Avg. Comp. | Total<br>Count &<br>Avg. Comp. |
| Under 25 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 |
| 25-29 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 |
| 30-34 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 |
| 35-39 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 |
| 40-44 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 |
| 45-49 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 |
| 50-54 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 |
| 55-59 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 |
| 60-64 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 |
| 65 & Over | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 |
| | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $94,052 | $94,052 |
| Total | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 |
| | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $94,052 | $94,052 |

## Distribution of Active Members by Age and by Years of Service (Fire I)
## As of July 1, 2016

| Attained Age | Years of Credited Service | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 0 | 1 | 2 | 3 | 4 | 5-9 | 10-14 | 15-19 | 20-24 | 25-29 | 30-34 | 35 & Over | Total |
| | Count & Avg. Comp. | Count & Avg. Comp. | Count & Avg. Comp. | Count & Avg. Comp. | Count & Avg. Comp. | Count & Avg. Comp. | Count & Avg. Comp. | Count & Avg. Comp. | Count & Avg. Comp. | Count & Avg. Comp. | Count & Avg. Comp. | Count & Avg. Comp. | Count & Avg. Comp. |
| Under 25 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 |
| 25-29 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 |
| 30-34 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 |
| 35-39 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 |
| 40-44 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 |
| 45-49 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 5 | 0 | 0 | 7 |
| | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $89,912 | $92,644 | $0 | $0 | $91,864 |
| 50-54 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 11 | 1 | 0 | 13 |
| | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $90,226 | $97,386 | $91,187 | $0 | $96,358 |
| 55-59 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 5 | 3 | 0 | 9 |
| | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $90,104 | $103,632 | $106,885 | $0 | $103,213 |
| 60-64 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 |
| | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $111,493 | $0 | $0 | $111,493 |
| 65 & Over | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 |
| Total | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 22 | 4 | 0 | 30 |
| | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $90,039 | $98,369 | $102,961 | $0 | $97,871 |

## Distribution of Active Members by Age and by Years of Service (Police I and Fire I)
## As of July 1, 2016

| | Years of Credited Service | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Attained Age | 0<br>Count &<br>Avg. Comp. | 1<br>Count &<br>Avg. Comp. | 2<br>Count &<br>Avg. Comp. | 3<br>Count &<br>Avg. Comp. | 4<br>Count &<br>Avg. Comp. | 5-9<br>Count &<br>Avg. Comp. | 10-14<br>Count &<br>Avg. Comp. | 15-19<br>Count &<br>Avg. Comp. | 20-24<br>Count &<br>Avg. Comp. | 25-29<br>Count &<br>Avg. Comp. | 30-34<br>Count &<br>Avg. Comp. | 35 & Over<br>Count &<br>Avg. Comp. | Total<br>Count &<br>Avg. Comp. |
| Under 25 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 |
| 25-29 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 |
| 30-34 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 |
| 35-39 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 |
| 40-44 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 |
| 45-49 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 5 | 0 | 0 | 7 |
| | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $89,912 | $92,644 | $0 | $0 | $91,864 |
| 50-54 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 11 | 1 | 0 | 13 |
| | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $90,226 | $97,386 | $91,187 | $0 | $96,358 |
| 55-59 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 5 | 3 | 0 | 9 |
| | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $90,104 | $103,632 | $106,885 | $0 | $103,213 |
| 60-64 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 |
| | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $111,493 | $0 | $0 | $111,493 |
| 65 & Over | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 |
| | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $94,052 | $94,052 |
| Total | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 22 | 4 | 1 | 31 |
| | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $90,039 | $98,369 | $102,961 | $94,052 | $97,747 |

**History of Investment Return Rates**

| Year Ending June 30 of (1) | Market (2) |
|---|---|
| 2000 | 20.61% |
| 2001 | -18.81% |
| 2002 | -6.79% |
| 2003 | 3.40% |
| 2004 | 16.63% |
| 2005 | 9.25% |
| 2006 | 8.24% |
| 2007 | 14.79% |
| 2008 | -4.12% |
| 2009 | -16.88% |
| 2010 | 14.27% |
| 2011 | 22.30% |
| 2012 | -0.07% |
| 2013 | 11.91% |
| 2014 | 15.30% |
| 2015 | 1.93% |
| 2016 | -1.40% |
| Average Returns: | |
| Last 5 Years | 5.32% |
| Last 10 Years | 5.18% |

# Near Term Outlook

| Valuation as of July 1, | Unfunded Actuarial Accrued Liability (UAAL) | Funded Ratio | Market Value of Fund | For Fiscal Year Ending June 30, | Covered Compensation | Employer Contributions | Employee Contributions | Benefit Payments and Refunds | Net External Cash Flow |
|---|---|---|---|---|---|---|---|---|---|
| (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) |
| 2016 | $ 224,016,549 | 24.0% | $ 66,038,452 | 2017 | $ 3,030,168 | $ 17,454,402 | $ 161,823 | $ 21,225,985 | $ (3,609,760) |
| 2017 | 223,503,901 | 23.9% | 66,830,475 | 2018 | 2,351,512 | 17,934,399 | 126,249 | 21,788,464 | (3,727,816) |
| 2018 | 222,239,136 | 23.9% | 67,554,215 | 2019 | 1,834,584 | 18,427,595 | 91,201 | 22,325,594 | (3,806,799) |
| 2019 | 220,158,764 | 24.0% | 68,245,417 | 2020 | 1,325,273 | 18,934,354 | 62,866 | 22,770,994 | (3,773,774) |
| 2020 | 217,219,095 | 24.1% | 69,017,840 | 2021 | 913,526 | 19,563,746 | 43,194 | 23,102,281 | (3,495,340) |
| 2021 | 212,112,333 | 24.8% | 70,131,127 | 2022 | 627,671 | 20,411,336 | 26,794 | 23,365,738 | (2,927,608) |

These projections are based on the current funding policy and assumes that all current assumptions are met each year in the future.

## Schedule of Funding Progress

| Date | Actuarial Value of Assets (AVA) | Actuarial Accrued Liability (AAL) | Unfunded Actuarial Accrued Liability (UAAL) (3) - (2) | Funded Ratio (2)/(3) | Annual Benefits* | UAAL as % of Benefits (4)/(6) |
|---|---|---|---|---|---|---|
| (1) | (2) | (3) | (4) | (5) | (6) | (7) |
| July 1, 2009 | $ 76,142,283 | $ 286,514,010 | $ 210,371,727 | 26.6% | $17,787,184 | 1182.7% |
| July 1, 2011 | 69,580,218 | 311,707,868 | 242,127,650 | 22.3% | 18,532,731 | 1306.5% |
| July 1, 2013 | 62,796,555 | 309,774,579 | 246,978,024 | 20.3% | 19,675,904 | 1255.2% |
| July 1, 2014 | 66,348,673 | 277,179,395 | 210,830,722 | 23.9% | 19,753,740 | 1071.5% |
| July 1, 2015 | 69,244,289 | 277,320,653 | 208,076,364 | 25.0% | 19,753,740 | 1053.4% |
| July 1, 2016 | 70,662,214 | 294,678,763 | 224,016,549 | 24.0% | 20,192,173 | 1109.4% |

* Due to closed plan, exhibit was modified to compare the UAAL to the Annual Benefits

## Actuarial Methods and Assumptions

**Actuarial Cost Method:** *Entry Age Normal actuarial cost method:* Under this method, the normal cost is the amount calculated as the level percentage of pay necessary to fully fund each active member's prospective benefit from entry age to retirement age. The total actuarial accrued liability, which is redetermined for each individual member as of each valuation date, represents the theoretical accumulation of all prior years' normal costs for the active members as if the present plan had always been in effect, plus the liability for any retirees, beneficiaries, or inactive members. The unfunded actuarial accrued liability represents the excess of the total actuarial accrued liability over the valuation assets.

**Amortization Policy:** The amortization of the UAAL is determined as a level percentage of payroll over a closed period using the process of "laddering". Bases that existed prior to this valuation continue to be amortized on their original schedule. New experience losses are amortized over individual periods of either 20 years or the remaining average remaining life expectancy of the group, whichever is lesser. New gains are offset against and amortized over the same period as the current largest outstanding loss which in turn decreases contribution rate volatility.

**Asset Valuation Method**: The actuarial value of assets is based on the market value of assets with a five-year phase-in of actual investment return in excess of (less than) expected investment income. Offsetting unrecognized gains and losses are immediately recognized, with the shortest remaining bases recognized first and the net remaining bases continue to be recognized on their original timeframe. Expected investment income is determined using the assumed investment return rate and the market value of assets (adjusted for receipts and disbursements during the year). The returns are computed net of investment expenses.

**Actuarial Assumptions:**

***1. Interest*** 6.90% per year, net of investment expenses.

***2 . Salary Increases*** The sum of (i) a 3.50% wage inflation assumption (composed of a 2.75% price inflation assumption and a 0.75% additional general increase), and (ii) a service-related component as shown below:

| Police/Fire Employees | | |
|---|---|---|
| Years of Service | Service-Related Component | Total Increase |
| 1 | 10.00% | 13.50% |
| 2 | 9.00 | 12.50 |
| 3 | 7.00 | 10.50 |
| 4 | 4.00 | 7.50 |
| 5 | 2.50 | 6.00 |
| 6 | 3.00 | 6.50 |
| 7 | 0.50 | 4.00 |
| 8 | 0.50 | 4.00 |
| 9 or more | 0.00 | 3.50 |

Salary increases are assumed to occur once a year, on January 1. Therefore the pay used for the period year following the valuation date is equal to the reported pay for the prior year, increased by the salary increase assumption. For employees with less than one year of service, the reported rate of pay is used rather than the fiscal year salary paid.

***3. Mortality***

A. Pre-retirement mortality (combined ordinary and duty):

a. Male employees: 115% of the RP-2000 Combined Healthy for Males with White Collar adjustments, projected with Scale AA.

b. Female employees: 95% of the RP-2000 Combined Healthy for Females with White Collar adjustments, projected with Scale AA.

c. Disabled males – 60% of the PBGC Table Va for disabled males eligible for Social Security disability benefits.

d. Disabled females – 60% of the PBGC Table VIa for disabled females eligible for Social Security disability benefits.

B. Pre-retirement mortality (combined ordinary and duty):

a. Male employees: 75% of RP-2000 Combined Healthy for Males with White Collar adjustments.

b. Female employees: 75% of RP-2000 Combined Healthy for Females with White Collar adjustments.

Sample rates are shown below:

| Number of Deaths per 100 | | |
|---|---|---|
| Age | Males | Females |
| 25 | 0.03 | 0.02 |
| 30 | 0.03 | 0.02 |
| 35 | 0.04 | 0.03 |
| 40 | 0.07 | 0.05 |
| 45 | 0.10 | 0.08 |
| 50 | 0.15 | 0.12 |
| 55 | 0.25 | 0.19 |
| 60 | 0.42 | 0.35 |
| 65 | 0.83 | 0.65 |
| 70 | 1.45 | 1.14 |

***4. Disability***

Sample rates per 1,000 active members are shown below. Ordinary disability rates are not applied to members eligible for retirement.

| Age | Number of Disabilities per 1,000 | |
|---|---|---|
| | Ordinary, Males and Females | Accidental, Males and Females |
| 25 | 0.26 | 2.55 |
| 30 | 0.33 | 3.30 |
| 35 | 0.44 | 4.35 |
| 40 | 0.66 | 6.60 |
| 45 | 1.08 | 10.80 |
| 50 | 1.82 | 18.15 |
| 55 | 1.82 | 18.15 |
| 60 | 1.82 | 18.15 |
| 65 | 1.82 | 18.15 |

***5 . Termination:***

Termination rates (for causes other than death, disability, or retirement) are a function of the member's service. Termination rates are not applied to members eligible for retirement. Rates are shown below:

| Service | Termination Rate | Service | Termination Rate |
|---|---|---|---|
| 1 | 0.100000 | 11 | 0.012761 |
| 2 | 0.047300 | 12 | 0.011332 |
| 3 | 0.036903 | 13 | 0.010026 |
| 4 | 0.030821 | 14 | 0.008826 |
| 5 | 0.026506 | 15 | 0.007714 |
| 6 | 0.023158 | 16 | 0.006679 |
| 7 | 0.020424 | 17 | 0.005711 |
| 8 | 0.018111 | 18 | 0.004802 |
| 9 | 0.016108 | 19 | 0.003944 |
| 10 | 0.014342 | 20+ | 0.000000 |

***6. Retirement Age*** Rates of retirement are based on an employee's length of service, as follows:

| Firefighters/Police I Members | |
|---|---|
| Service | Retirement Election |
| 20 | 12% |
| 21 | 10% |
| 22 | 10% |
| 23 | 10% |
| 24 | 12% |
| 25 | 14% |
| 26 | 16% |
| 27 | 18% |
| 28 | 20% |
| 29 | 20% |
| 30+ | 35% |

***7. Benefit and Compensation Limits*** Benefit limits under Section 415 and compensation limits under Section 401(a)(17) of the Internal Revenue Code are assumed to have no impact on benefits earned under this plan.

***8. Marriage / Dependents*** 80% of active employees are assumed to be married at retirement or death, with two children ages 11 and 13. Wives are assumed to be three years younger than their husbands. No remarriage is assumed.

***9. Service Purchase*** None assumed.

***10. Election of Fire II Program by Retiring Firefighters*** We assume members who retire with 28 or more years of service will elect the Fire II plan.

***11. Administrative and*** It was assumed administrative expenses will be equal to the actual administrative expenses for the previous fiscal year.

# Outline of Principal Plan Provisions

## A. FIREFIGHTERS

### *1. Effective Dates*

| | |
|---|---|
| a. Original Plan | May 7, 1953. |
| b. Most Recent Amendment | July 23, 1996. |

### *2. Eligibility*

All permanent members of the fire department hired prior to May 29, 1992.

### *3. Retirement*

| | |
|---|---|
| a. Eligibility | Members who have completed 20 years of service may retire. |
| b. Benefit Formula | The annual benefit at retirement is equal to 50% of highest annual salary, plus 1% of salary for each year of service in excess of 20 (maximum 10). For pension purposes, annual salary includes regular, holiday, and longevity pay. Members may also select the benefit formula for the Firefighters II Pension Fund. The Firefighter II benefit formula is 50% of the final year's compensation, plus 2% for each year of service from 20 to 25 years, plus 3% for each year of service from 25 to 30 years with a fixed 3% compound cost of living adjustment. |
| c. Commencement Date | Retirement benefits commence as of the first payroll period after retirement. |
| d. Form of Payment | The annual benefit calculated in accordance with the formula in (b) above is payable semi-monthly for the remainder of the retired member's life, with 67.5% of the member's benefit payable for the lifetime of his surviving spouse. |

***4. Vested Termination***

| | |
|---|---|
| a. Eligibility | Upon termination of employment after 10 years of service, a member is eligible for a benefit deferred to retirement age. |
| b. Benefit Formula | 2.5% of highest annual salary multiplied by full years of service at termination. |
| c. Commencement Date | 20th anniversary of employment. |
| d. Form of Payment | Same as retirement. |

***5. Disability Retirement***

| | |
|---|---|
| a. Eligibility | A member who is unable to perform active duty as a result of disability which the Board of Public Safety finds to be permanently incapacitating is eligible to receive disability retirement benefits. |
| b. Benefit Formula | Service-Related (and involving heart, lung, cancer or other Social Security disabilities). $66^{2}/_{3}\%$ of highest annual salary, reduced for each dollar of earned income in excess of the salary the member would earn as an active employee, to a minimum of 50% of salary.<br><br>Other Service Related and Non-Service Related. 50% of highest annual salary. |
| c. Commencement Date | Benefits commence as of the first payroll period after disability. |
| d. Form of Payment | Same as retirement. |

***6. Non-vested Termination of Employment***

A member who leaves employment prior to completing 10 years of service will receive a lump sum payment of his accumulated contributions without interest.

***7. Death Before Retirement -- Survivor Annuity Benefits***

| | | |
|---|---|---|
| a. | Eligibility | Death while actively employed. |
| b. | Benefit Formula | |
| (1) | Surviving Spouse | Service Related. The annual benefit is 50% of the deceased member's highest annual salary, payable to the surviving spouse until death or earlier remarriage.<br><br>Non-Service Related. 30% of the deceased member's highest annual salary, payable to the surviving spouse until death or earlier remarriage. |
| (2) | Surviving Children | 10% of the deceased member's highest annual salary, payable to each surviving child until his 18th birthday (or for life if such child is permanently disabled prior to the member's death). |
| (3) | Maximum Family Death Benefit | Service-Related. 75% of deceased's highest annual salary.<br><br>Non-Service Related. 50% of deceased's highest annual salary. |
| c. | Commencement Date | Benefits commence as of the first payroll period after death. |
| d. | Form of Payment | Surviving spouse's and children's benefits are payable semi-monthly. |

***8. Death Before Retirement -- Lump Sum Refund of Contributions***

A lump sum payment equal to the member's accumulated contributions without interest shall be paid to the estate of any active member who dies with no surviving spouse or children.

| | | |
|---|---|---|
| *9.* | ***Retiree Cost-of-Living Increases*** | All benefits in pay status are indexed in accordance with the base salary increases provided to active employees. We have assumed 4.0% per annum in this valuation. |
| *10.* | ***Service Purchase*** | An active employee eligible to retire who has served in the U.S. armed forces may "purchase" additional years of service up to his number of years of military service, but no more than four years. A member may also purchase up to four years of prior civilian employment time with the City of Warwick. Either purchase would require the employee to contribute to the fund, at retirement, an amount which represents the actuarial equivalent value of the benefit increase purchased. |
| *11.* | ***Employee Contributions*** | Active members contribute 7% of their covered earnings (regular, holiday, and longevity). |
| *12.* | ***Optional Retirement Under Fire II Program*** | Any firefighter retiring after July 23, 1996 may irrevocably elect to have his or her pension calculated under the City's Fire II program, including final year's compensation, a benefit multiplier increasing from 50% of pay after 20 years of service to 75% of pay after 30 years of service, and a fixed 3.0% annual cost-of-living increase. |

**B. POLICE I**

| | | |
|---|---|---|
| *1.* | ***Eligibility*** | Active and retired Police hired before February 1, 1971 are covered under this program. |
| *2.* | ***Benefits*** | Benefits provided to remaining active police are in accordance with the proposed City's Code of Ordinances. Retirement, death, and disability benefits payable to retired members and beneficiaries are indexed in accordance with the base salary increases provided to active members of the police force. |
| *3.* | ***Employee Contributions*** | Active members contribute 7% of their covered earnings (regular, holiday, and longevity). |