



# **Town of Johnston, Rhode Island Police Pension System**

## **Actuarial Valuation and Review as of June 30, 2017**

This report has been prepared at the request of the Board of Trustees to assist in administering the System. This valuation report may not otherwise be copied or reproduced in any form without the consent of the Board of Trustees and may only be provided to other parties in its entirety. The measurements shown in this actuarial valuation may not be applicable for other purposes.

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November 30, 2017

Joseph Chiodo CPA, MBA  
Finance Director  
Town of Johnston, Rhode Island Police-Pension System  
1385 Hartford Avenue  
Johnston, Rhode Island 02919

Dear Board Members:

We are pleased to submit this Actuarial Valuation and Review as of June 30, 2017. It summarizes the actuarial data used in the valuation, analyzes the preceding year's experience, and establishes the funding requirements for the fiscal year ending June 30, 2019.

This report was prepared in accordance with generally accepted actuarial principles and practices at the request of the Board to assist in administering the Pension System. The census information and financial information on which our calculations were based was prepared by the Town of Johnston and the financial information was obtained from the Town of Johnston trial balance and journal entries for the fiscal year ended June 30, 2017. That assistance is gratefully acknowledged.

The actuarial calculations were directed under our supervision. We are members of the American Academy of Actuaries and we meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinion herein. To the best of our knowledge, the information supplied in this actuarial valuation is complete and accurate. Further, in our opinion, the assumptions recommended by Segal in our experience study for the period July 1, 2011 to June 30, 2014 dated April 1, 2015, as approved by the Town are reasonably related to the experience of and the expectations for the System.

We look forward to reviewing this report at your next meeting and to answering any questions.

Sincerely,

Segal Consulting, a Member of The Segal Group, Inc.

By:

William J. Connolly

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Jeanette R. Cooper

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Vice President and Actuary

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# Section 1: Actuarial Valuation Summary

## Purpose and Basis

This report was prepared by Segal Consulting to present a valuation of the Town of Johnston, Rhode Island Police Pension System as of June 30, 2017. The valuation was performed to determine whether the assets and contributions are sufficient to provide the prescribed benefits. The measurements shown in this actuarial valuation may not be applicable for other purposes. In particular, the measures herein are not necessarily appropriate for assessing the sufficiency of Plan assets to cover the estimated cost of settling the Plan's benefit obligations. Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: plan experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements; and changes in plan provisions or applicable law.

Certain disclosure information required by GASB Statements No 67 and 68 as of June 30, 2017 for the System is provided separately.

The contribution requirements presented in this report are based on:

- The benefit provisions of the Pension System, as administered by the Town;
- The characteristics of covered active participants, retired participants and beneficiaries as of June 30, 2017, provided by the Town;
- The assets of the Plan as of June 30, 2017, provided by the Town;
- Economic assumptions regarding future salary increases and investment earnings;
- Other actuarial assumptions regarding employee terminations, retirement, death, etc.; and
- The funding policy adopted by the Town.

## **Significant Issues**

1. The following changes are included for the first time in this valuation based on a recent settlement agreement:
  - COLA increases are suspended from July 1, 2017 through June 30, 2022. Commencing July 1, 2022, retirees and beneficiaries will receive annual 1.25% increases, compounded annually.
  - The definition of pensionable earnings was amended to cap overtime pay at \$35,000 per year.
  - Employer contributions for the fiscal year ended June 30, 2017 must be at least \$4,575,446 with this amount to increase 3.00% each year.

As a result of these changes, the total normal cost decreased by \$342,064 and the actuarial accrued liability decreased by \$15,956,355. The total impact was a decrease in the actuarially determined contribution of \$3,920,910.

2. The actuarially determined contribution for the fiscal year ending June 30, 2019 is \$4,854,090, a decrease of \$3,655,494 from last year. The decrease is primarily due to the changes under the settlement agreement including the change in the required contributions amount.
3. Segal Consulting (“Segal”) strongly recommends an actuarial funding method that targets 100% funding of the actuarial accrued liability. Generally, this implies payments that are ultimately at least enough to cover normal cost, interest on the unfunded actuarial accrued liability and the principal balance. The funding policy adopted by the Town as outlined in the recent settlement agreement meets this standard.
4. The total contributions made during the fiscal year ending June 30, 2017 were insufficient to reduce the unfunded actuarial accrued liability. While the unfunded actuarial accrued liability is lower than in the prior valuation, the decrease is due to experience gains and the plan changes described above.
5. Actual contributions made during the fiscal year ending June 30, 2017 were \$4,797,069, 59.41% of the actuarially determined contribution. In the prior fiscal year, actual contributions were \$2,783,429, 38.67% of the prior year actuarially determined contribution.
6. Plan assets are currently equivalent to less than four years of projected benefit payments. If the Town continues to comply with the terms of the settlement agreement and investment returns are close to the assumed rate of 7.50%, the System is projected to remain solvent. The imbalance between the benefit levels in the System and the resources available to pay for them must continue to be addressed. We are available to prepare solvency projections as requested.
7. The actuarial value of assets for the System is set equal to market value. The funded ratio (the ratio of the actuarial value of assets to actuarial accrued liability) is 25.65%, compared to the prior year funded ratio of 18.61%. This ratio is one measure of funding status, and its history is a measure of funding progress. The measurement is not necessarily appropriate for assessing the sufficiency of System assets to cover the estimated cost of settling the System’s benefit obligation or the need for or the amount of future contributions.

8. The effective amortization period for the unfunded actuarial accrued liability is 26.75 years.
9. The unfunded actuarial accrued liability is \$52,823,013, which is a decrease of \$14,866,561 since the prior valuation.
10. The actuarial gain from investment and other experience is \$564,604, or 0.6% of the actuarial accrued liability prior to any plan or assumption changes.
11. The rate of return on the actuarial and market value of assets was 10.98% for the July 1, 2016 to June 30, 2017 plan year.
12. This report constitutes an actuarial valuation for the purpose of determining the actuarially determined contribution under the System's funding policy and measuring the progress of that funding policy. The Net Pension Liability (NPL) and Pension Expense under Governmental Accounting Standards Board (GASB) Statements No. 67 and No. 68, for inclusion in the plan and employer's financial statements as of June 30, 2017, were provided separately.
13. This actuarial report as of June 30, 2017 is based on financial and demographic data as of that date. Changes subsequent to that date are not reflected and will affect future actuarial costs of the System.

## Summary of Key Valuation Results

|  |  | 2017         | 2016         |
|--|--|--------------|--------------|
| <b>Contributions for following fiscal year beginning July 1:</b>   | • Actuarially determined employer contribution                                 | \$4,854,090  | \$8,509,584  |
| <b>Actuarial accrued liability for plan year beginning July 1:</b> | • Retired participants and beneficiaries                                       | \$50,068,215 | \$57,763,183 |
|  | • Active participants  | 20,980,165   | 25,408,518   |
|  | • Total  | 71,048,380   | 83,171,701   |
|  | • Normal cost including administrative expenses for plan year beginning July 1 | 1,502,897    | 1,857,592    |
| <b>Assets for plan year beginning July 1:</b>                      | • Market value of assets (MVA)   | \$18,225,367 | \$15,482,127 |
|  | • Actuarial value of assets (AVA)  | 18,225,367   | 15,482,127   |
|  | • Actuarial value of assets as a percentage of market value of assets          | 100.00%      | 100.00%      |
| <b>Funded status for plan year beginning July 1:</b>               | • Unfunded actuarial accrued liability on market value of assets               | \$52,823,013 | \$67,689,574 |
|  | • Funded percentage on MVA basis   | 25.65%       | 18.61%       |
|  | • Unfunded actuarial accrued liability on actuarial value of assets            | \$52,823,013 | \$67,689,574 |
|  | • Funded percentage on AVA basis   | 25.65%       | 18.61%       |
|  | • Effective amortization period on an AVA basis                                | 26.75 years  | 20 years     |
| <b>Key assumptions:</b>  | • Net investment return  | 7.50%        | 7.50%        |
|  | • Inflation rate   | 2.75%        | 2.75%        |
|  | • Payroll increase   | 4.00%        | 4.00%        |
| <b>Demographic data as of June 30</b>                              | • Number of retired participants and beneficiaries                             | 101          | 97           |
|  | • Number of active participants  | 52           | 55           |
|  | • Total payroll  | \$4,941,750  | \$5,054,901  |
|  | • Average payroll  | 95,034       | 91,907       |

## **Important Information About Actuarial Valuations**

An actuarial valuation is a budgeting tool with respect to the financing of future projected obligations of a pension plan. It is an estimated forecast – the actual long-term cost of the plan will be determined by the actual benefits and expenses paid and the actual investment experience of the plan.

In order to prepare a valuation, Segal Consulting (“Segal”) relies on a number of input items. These include:

|                              |   |
|------------------------------|---|
| <b>Plan of benefits</b>      | Plan provisions define the rules that will be used to determine benefit payments, and those rules, or the interpretation of them, may change over time. Even where they appear precise, outside factors may change how they operate. It is important to keep Segal informed with respect to plan provisions and administrative procedures, and to review the plan summary included in our report to confirm that Segal has correctly interpreted the plan of benefits.  |
| <b>Participant data</b>      | An actuarial valuation for a plan is based on data provided to the actuary by the Town. Segal does not audit such data for completeness or accuracy, other than reviewing it for obvious inconsistencies compared to prior data and other information that appears unreasonable. It is important for Segal to receive the best possible data and to be informed about any known incomplete or inaccurate data.  |
| <b>Assets</b>                | The valuation is based on the market value of assets as of the valuation date, as provided by the Town.   |
| <b>Actuarial assumptions</b> | In preparing an actuarial valuation, Segal projects the benefits to be paid to existing plan participants for the rest of their lives and the lives of their beneficiaries. This projection requires actuarial assumptions as to the probability of death, disability, withdrawal, and retirement of each participant for each year. In addition, the benefits projected to be paid for each of those events in each future year reflect actuarial assumptions as to salary increases and cost-of-living adjustments. The projected benefits are then discounted to a present value, based on the assumed rate of return that is expected to be achieved on the plan's assets. There is a reasonable range for each assumption used in the projection and the results may vary materially based on which assumptions are selected. It is important for any user of an actuarial valuation to understand this concept. Actuarial assumptions are periodically reviewed to ensure that future valuations reflect emerging plan experience. While future changes in actuarial assumptions may have a significant impact on the reported results, that does not mean that the previous assumptions were unreasonable. |

The user of Segal's actuarial valuation (or other actuarial calculations) should keep the following in mind:

- The actuarial valuation is prepared at the request of the Town. Segal is not responsible for the use or misuse of its report, particularly by any other party.
- An actuarial valuation is a measurement of the plan's assets and liabilities at a specific date. Accordingly, except where otherwise noted, Segal did not perform an analysis of the potential range of future financial measures. The actual long-term cost of the plan will be determined by the actual benefits and expenses paid and the actual investment experience of the plan.
- Actuarial results in this report are not rounded, but that does not imply precision.
- If the Town is aware of any event or trend that was not considered in this valuation that may materially change the results of the valuation, Segal should be advised, so that we can evaluate it.
- Segal does not provide investment, legal, accounting, or tax advice. Segal's valuation is based on our understanding of applicable guidance in these areas and of the plan's provisions, but they may be subject to alternative interpretations. The Town should look to their other advisors for expertise in these areas.

As Segal Consulting has no discretionary authority with respect to the management or assets of the System, it is not a fiduciary in its capacity as actuaries and consultants with respect to the System.

## Section 2: Actuarial Valuation Results

### A. Participant Data

The Actuarial Valuation and Review considers the number and demographic characteristics of covered participants, including active participants, retired participants and beneficiaries.

This section presents a summary of significant statistical data on these participant groups.

More detailed information for this valuation year and the preceding valuation can be found in *Section 3, Exhibits A, B, and C*.

#### PARTICIPANT POPULATION: 2005 – 2017

| Year Ended June 30 | Active Participants | Vested Terminated Participants* | Retired Participants and Beneficiaries** | Ratio of Non-Actives to Actives |
|--------------------|---------------------|---------------------------------|--|---------------------------------|
| 2005               | 76                  | 1                               | 65                                       | 0.87                            |
| 2007               | 74                  | --                              | 68                                       | 0.92                            |
| 2009               | 73                  | --                              | 80                                       | 1.10                            |
| 2011               | 70                  | --                              | 92                                       | 1.31                            |
| 2012               | 68                  | --                              | 92                                       | 1.35                            |
| 2013               | 60                  | --                              | 96                                       | 1.60                            |
| 2014               | 55                  | --                              | 99                                       | 1.80                            |
| 2015               | 55                  | --                              | 98                                       | 1.78                            |
| 2016               | 55                  | --                              | 97                                       | 1.76                            |
| 2017               | 52                  | --                              | 101                                      | 1.94                            |

\*Excludes terminated participants due to a refund of employee contributions

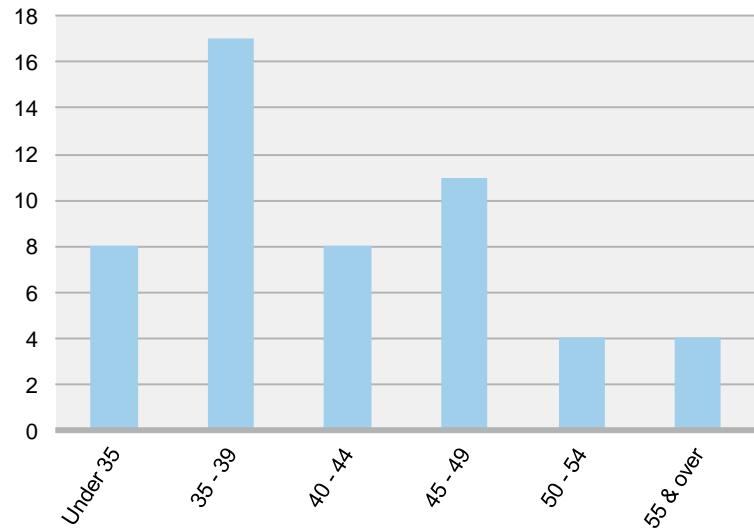
\*\*Includes disabled participants

## Active Participants

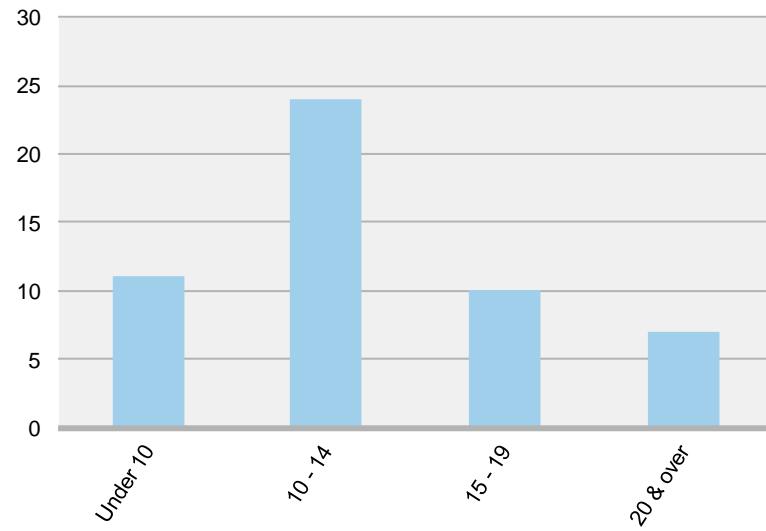
Plan costs are affected by the age, years of service and payroll of active participants. In this year's valuation, there were 52 active participants with an average age of 42.9, average years of service of 13.8 years and average payroll of \$95,034. The 55 active participants in the prior valuation had an average age of 42.3, average service of 13.1 years and average payroll of \$91,907.

Distribution of Active Participants as of June 30, 2017

ACTIVES BY AGE



ACTIVES BY YEARS OF SERVICE



## Inactive Participants

In this year's valuation, there were no participants with a vested right to a deferred or immediate vested benefit.

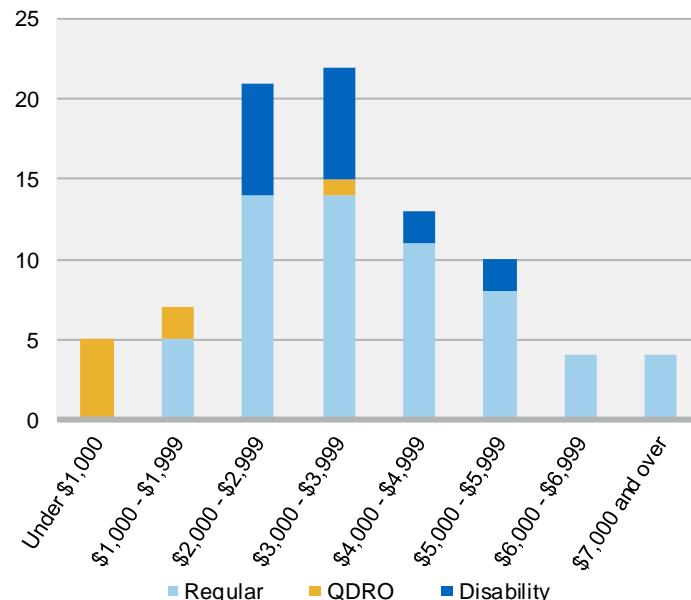
## Retired Participants and Beneficiaries

As of June 30, 2017, 86 retired participants (including eight QDROs) and 15 beneficiaries were receiving total monthly benefits of \$348,282. For comparison, in the previous valuation, there were 82 retired participants (including seven QDROs) and 15 beneficiaries receiving monthly benefits of \$332,013.

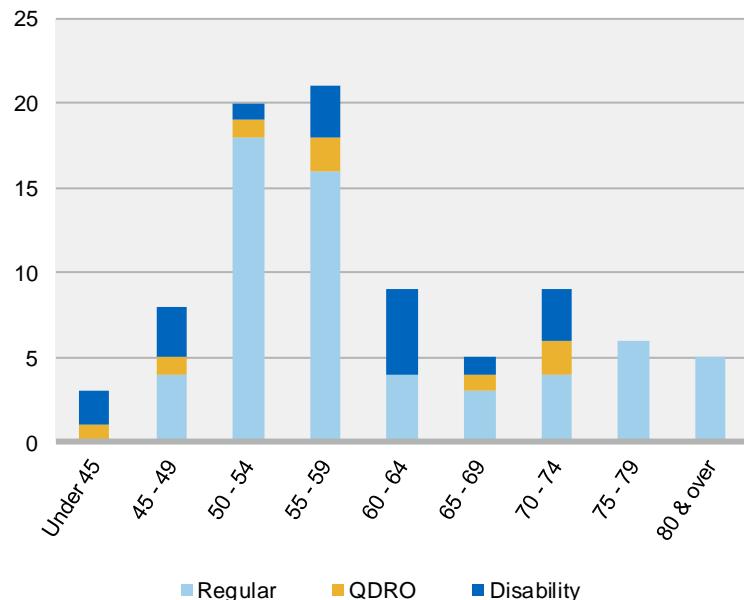
As of June 30, 2017, the average monthly benefit for retired participants is \$3,671, compared to \$3,656 in the previous valuation. The average age for retired participants is 60.0 in the current valuation, compared with 54.4 in the prior valuation.

### Distribution of Pensioners as of June 30, 2017

PENSIONERS BY TYPE AND  
MONTHLY AMOUNT



PENSIONERS BY TYPE AND  
BY AGE



## Historical Plan Population

The chart below demonstrates the decrease of the active population over the last ten valuations. The chart also shows the growth among the retired population over the same time period.

### PARTICIPANT DATA STATISTICS: 2005 – 2017

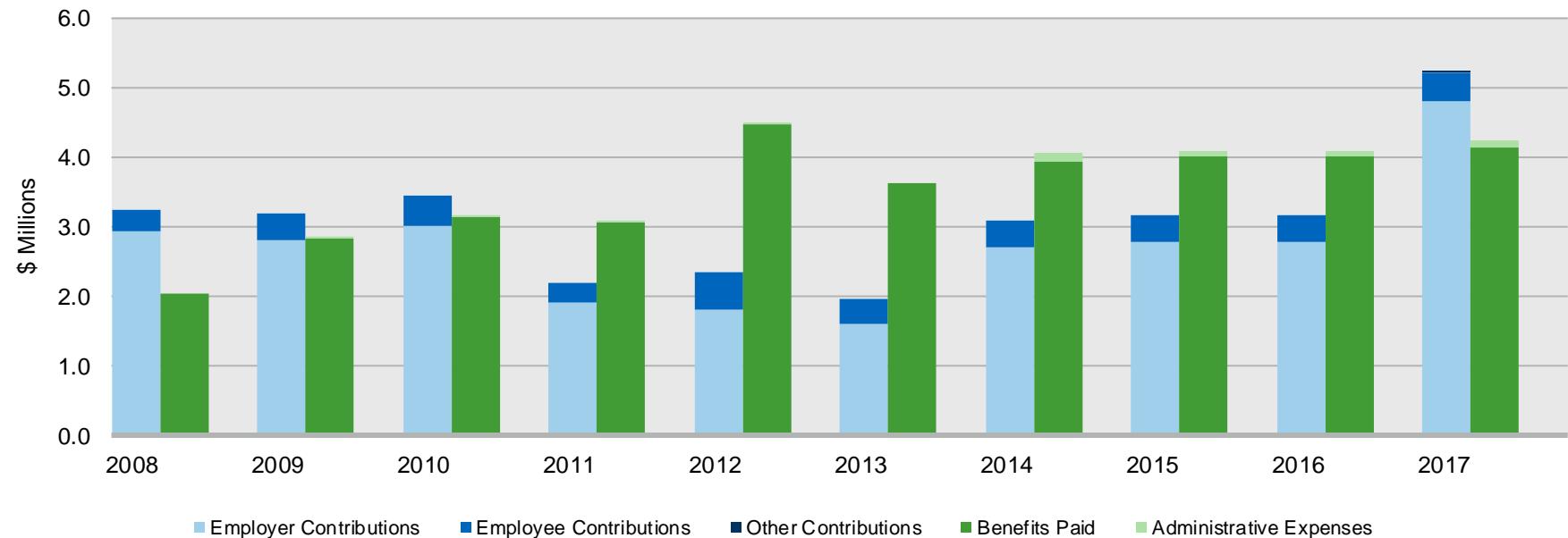
| Year Ended<br>June 30 | Active Participants |                |                    | Retired Participants and Beneficiaries |                |         | Average<br>Monthly<br>Amount |
|-----------------------|---------------------|----------------|--------------------|--|----------------|---------|------------------------------|
|                       | Count               | Average<br>Age | Average<br>Service | Count                                  | Average<br>Age |         |                              |
| 2005                  | 76                  | --             | --                 | 65                                     | --             | --      | --                           |
| 2007                  | 74                  | --             | --                 | 68                                     | --             | --      | --                           |
| 2009                  | 73                  | --             | --                 | 80                                     | --             | --      | --                           |
| 2011                  | 70                  | --             | --                 | 92                                     | --             | --      | --                           |
| 2012                  | 68                  | --             | --                 | 92                                     | --             | --      | --                           |
| 2013                  | 60                  | --             | --                 | 96                                     | --             | --      | --                           |
| 2014                  | 55                  | --             | --                 | 99                                     | --             | --      | --                           |
| 2015                  | 55                  | --             | --                 | 98                                     | --             | --      | --                           |
| 2016                  | 55                  | 42.3           | 13.1               | 97                                     | 56.8           | \$3,423 |                              |
| 2017                  | 52                  | 42.9           | 13.8               | 101                                    | 61.6           | 3,449   |                              |

## B. Financial Information

Retirement plan funding anticipates that, over the long term, both contributions (less administrative expenses) and investment earnings (less investment fees) will be needed to cover benefit payments. Retirement plan assets change as a result of the net impact of these income and expense components.

Additional financial information, including a summary of transactions for the valuation year, is presented in *Section 3, Exhibits D and E*.

### COMPARISON OF CONTRIBUTIONS MADE WITH BENEFITS AND EXPENSES PAID FOR YEARS ENDED JUNE 30, 2008 – 2017



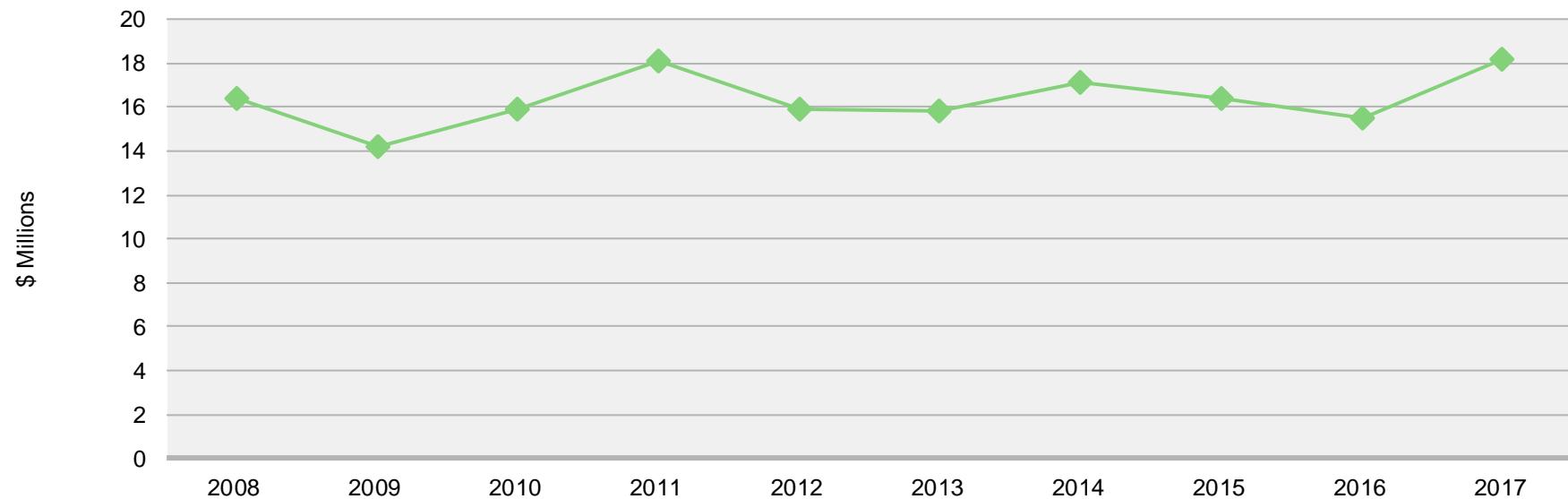
It is desirable to have level and predictable plan costs from one year to the next. However, the Town has approved an asset valuation method that uses market value. Under this valuation method, the full value of market fluctuation is recognized in a single year and, as a result, the asset value and the plan costs are relatively volatile.

## DETERMINATION OF ACTUARIAL VALUE OF ASSETS FOR YEAR ENDED JUNE 30, 2017

|  |                     |
|--|---------------------|
| Actuarial value of assets at beginning of year (equal to market value) | \$15,482,127        |
| Employer contributions   | 4,797,069           |
| Employee contributions   | 408,479             |
| Purchase of service  | 17,807              |
| Refund service buyback   | -49,245             |
| Net investment income  | 1,753,780           |
| Benefit payments   | -4,100,493          |
| Administrative expense   | <u>-84,157</u>      |
| Actuarial value of assets at end of year (equal to market value)       | <u>\$18,225,367</u> |

The actuarial value (equal to the market value of assets) is a representation of the System's financial status. The actuarial asset value is significant because the System's liabilities are compared to these assets to determine what portion, if any, remains unfunded. Amortization of the unfunded actuarial accrued liability is an important element in determining the contribution requirement.

### ACTUARIAL VALUE OF ASSETS (EQUAL TO MARKET VALUE OF ASSETS) AS OF JUNE 30, 2008 – 2017



## C. Actuarial Experience

To calculate any actuarially determined contribution, assumptions are made about future events that affect the amount and timing of benefits to be paid and assets to be accumulated. Each year actual experience is measured against the assumptions. If overall experience is more favorable than anticipated (an actuarial gain), any contribution requirement will decrease from the previous year. On the other hand, any contribution requirement will increase if overall actuarial experience is less favorable than expected (an actuarial loss).

Taking account of experience gains or losses in one year without making a change in assumptions reflects the belief that the single year's experience was a short-term development and that, over the long term, experience will return to the original assumptions. For contribution requirements to remain stable, assumptions should approximate experience.

If assumptions are changed, the contribution requirement is adjusted to take into account a change in experience anticipated for all future years.

The total gain is \$564,604, which includes \$555,516 from investment gains and \$9,088 in gains from all other sources. The net experience variation from individual sources other than investments was less than 0.1% of the actuarial accrued liability before reflecting any plan or assumption changes. A discussion of the major components of the actuarial experience is on the following pages.

### ACTUARIAL EXPERIENCE FOR YEAR ENDED JUNE 30, 2017

|          |  |           |
|----------|--|-----------|
| <b>1</b> | Net gain/(loss) from investments*            | \$555,516 |
| <b>2</b> | Net gain/(loss) from administrative expenses | -490      |
| <b>3</b> | Net gain/(loss) from other experience        | 9,578     |
| <b>4</b> | Net experience gain/(loss): <b>1 + 2 + 3</b> | \$564,604 |

\* Details on next page.

## Investment Experience

A major component of projected asset growth is the assumed rate of return. The assumed return should represent the expected long-term rate of return, based on the Town of Johnston's investment policy. The rate of return on both an actuarial and market value basis was 10.98% for the year ending June 30, 2017.

### INVESTMENT EXPERIENCE

|   | Year Ended<br>June 30, 2017 | Year Ended<br>June 30, 2016 |
|---|-----------------------------|-----------------------------|
|   | Actuarial and Market Value  | Actuarial and Market Value  |
| <b>1</b> Net investment income                    | \$1,753,780                 | \$21,130                    |
| <b>2</b> Average value of assets                  | 15,976,857                  | 15,912,524                  |
| <b>3</b> Rate of return: <b>1 ÷ 2</b>             | 10.98%                      | 0.13%                       |
| <b>4</b> Assumed rate of return                   | 7.50%                       | 7.50%                       |
| <b>5</b> Expected investment income: <b>2 × 4</b> | 1,198,264                   | 1,193,439                   |
| <b>6</b> Actuarial gain/(loss): <b>1 – 5</b>      | <u>\$555,516</u>            | <u>-\$1,172,309</u>         |

Because actuarial planning is long term, it is useful to see how the assumed investment rate of return has followed actual experience over time. The chart below shows the rate of return on an actuarial basis for the last ten years, including averages over select time periods.

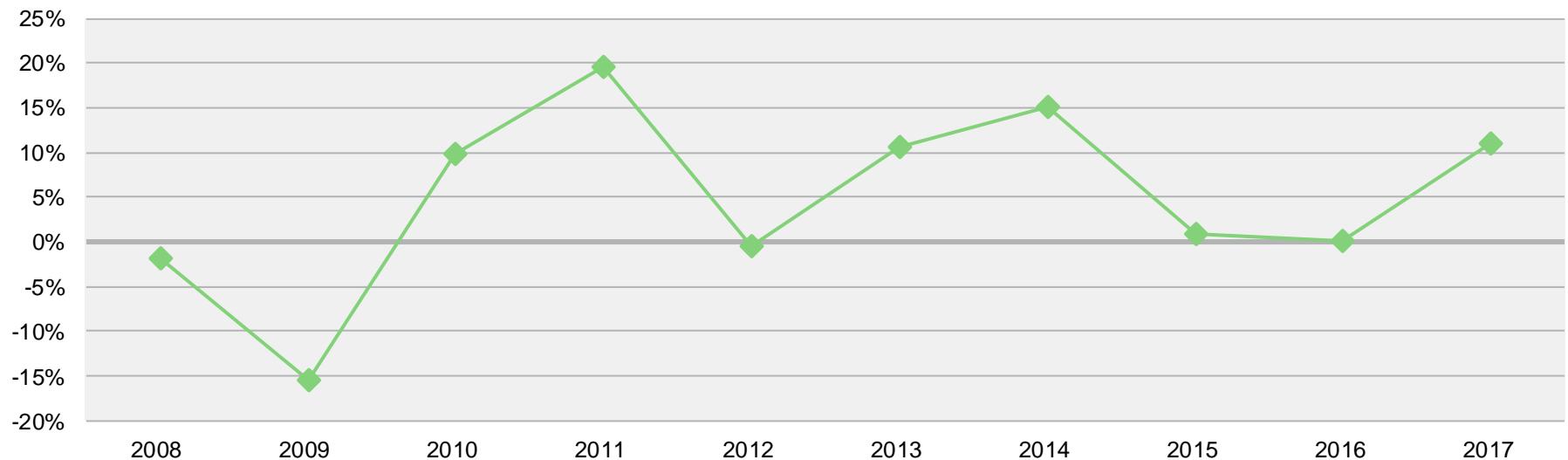
## **INVESTMENT RETURN – ACTUARIAL VALUE OF ASSETS (EQUAL TO MARKET VALUE OF ASSETS): 2008 - 2017**

| Year Ended<br>June 30                | Actuarial and Market Value<br>Investment Return |         |
|--------------------------------------|---|---------|
|                                      | Amount  | Percent |
| 2008                                 | -\$288,579                                      | -1.79%  |
| 2009                                 | -2,561,193                                      | -15.44  |
| 2010                                 | 1,407,076                                       | 9.80    |
| 2011                                 | 3,048,523                                       | 19.68   |
| 2012                                 | -93,521   | -0.55   |
| 2013                                 | 1,611,219                                       | 10.71   |
| 2014                                 | 2,301,494                                       | 15.01   |
| 2015                                 | 141,369   | 0.85    |
| 2016                                 | 21,130  | 0.13    |
| 2017                                 | 1,753,780                                       | 10.98   |
| Total                                | \$7,341,298                                     |         |
| Most recent five-year average return |   | 7.38%   |
| Most recent ten-year average return  |   | 4.63%   |

Note: Each year's yield is weighted by the average asset value in that year.

The actuarial value of assets has been equal to market value for the last ten years. This has resulted in relatively volatile actuarial rates of return and pension plan cost.

### ACTUARIAL RATES OF RETURN (EQUAL TO MARKET VALUE RATES OF RETURN) FOR YEARS ENDED JUNE 30, 2008 - 2017



## **Administrative Expenses**

Administrative expenses for the year ended June 30, 2017 totaled \$84,157 compared to the assumption of \$75,000, payable as of the beginning of the year. This resulted in a loss of \$490 for the year.

## **Other Experience**

There are other differences between the expected and the actual experience that appear when the new valuation is compared with the projections from the previous valuation. These include:

- the extent of turnover among participants,
- retirement experience (earlier or later than projected),
- mortality (more or fewer deaths than projected),
- the number of disability retirements (more or fewer than projected), and
- salary increases (greater or smaller than projected).

The net gain from this other experience for the year ended June 30, 2017 amounted to \$9,578, which is 0.1% of the actuarial accrued liability before reflecting any plan or assumption changes.

## **LIABILITY CHANGES DUE TO DEMOGRAPHIC EXPERIENCE FOR YEAR ENDED JUNE 30, 2017**

|  |                |
|--|----------------|
| Cost-of-living adjustments less than expected and other changes in benefit amounts | \$880,484      |
| Salary increases less than expected  | -516,814       |
| Retirement experience different than expected                                      | -375,353       |
| Mortality experience   | -333,952       |
| Disability retirement experience different than expected                           | 300,384        |
| Miscellaneous  | <u>54,829</u>  |
| <b>Total</b>   | <b>\$9,578</b> |

## **D. Changes in the Actuarial Accrued Liability**

The actuarial accrued liability as of June 30, 2017 is \$71,048,380, that is a decrease of \$12,123,321, or 14.6%, from the actuarial accrued liability as of the prior valuation date. The change in liability is due to actuarial experience (as discussed in the previous subsection), and changes in plan provisions.

### **Plan Provisions**

Effective no later than June 30, 2017, the following changes have been made to the benefit provisions:

- Between July 1, 2017 and June 30, 2022, cost-of-living adjustments have been suspended. Commencing July 1, 2022, retirees and beneficiaries will receive annual 1.25% increases, compounded annually.
- The definition of pensionable earnings has been changed to cap overtime pay at \$35,000.
- These changes decreased the actuarial accrued liability by \$15,956,355 and decreased the employer normal cost by \$335,823.
- A summary of plan provisions is in *Section 4, Exhibit II*.

### **Actuarial Assumptions**

- The COLA assumption now matches the new COLA provision.
- This change has been treated as a plan change.
- Details on actuarial assumptions and methods are in *Section 4, Exhibit I*.

## E. Development of Unfunded Actuarial Accrued Liability

### DEVELOPMENT OF UNFUNDDED ACTUARIAL ACCRUED LIABILITY FOR YEAR ENDED JUNE 30, 2017

|          |   |                      |
|----------|---|----------------------|
| <b>1</b> | Unfunded actuarial accrued liability at beginning of year | \$67,689,574         |
| <b>2</b> | Total normal cost at beginning of year                    | 1,857,592            |
| <b>3</b> | Total contributions                                       | -5,223,355           |
| <b>4</b> | Interest  |                      |
|          | • For whole year on <b>1 + 2</b>                          | \$5,216,037          |
|          | • For half year on <b>3</b>                               | <u>-195,876</u>      |
|          | Total interest  | <u>5,020,161</u>     |
| <b>5</b> | Expected unfunded actuarial accrued liability             | \$69,343,972         |
| <b>6</b> | Changes due to:   |                      |
|          | • (Gain)/loss   | -564,604             |
|          | • Assumptions   | N/A                  |
|          | • Funding method  | N/A                  |
|          | • Plan provisions   | <u>-15,956,355</u>   |
|          | Total changes   | <u>-\$16,520,959</u> |
| <b>7</b> | Unfunded actuarial accrued liability at end of year       | <u>\$52,823,013</u>  |

## F. Actuarially Determined Contribution

The actuarially determined contribution is based on a settlement agreement whereby the employer contribution for the fiscal year ending June 30, 2017 cannot be less than \$4,575,446 with this amount increasing 3.00% per year. For the fiscal year ending June 30, 2019, the actuarially determined contribution is \$4,854,090.

Based upon the required contribution of \$4,854,090, the unfunded actuarial accrued liability of \$52,823,013 as of June 30, 2017 is effectively being amortized over 26.75 years.

The contribution requirement for the fiscal year ending June 30, 2019 is based on the data previously described, the actuarial assumptions and plan provisions described in *Section 4*, including all changes affecting future costs adopted at the time of the actuarial valuation, actuarial gains and losses, and changes in the actuarial assumptions.

### ACTUARILY DETERMINED CONTRIBUTION FOR YEAR BEGINNING JULY 1

|   | 2017               | 2016               |
|---|--------------------|--------------------|
|   | Amount             | Amount             |
| 1. Total normal cost                                | \$1,427,897        | \$1,782,592        |
| 2. Administrative expenses                          | 75,000             | 75,000             |
| 3. Expected employee contributions                  | 395,340            | 404,392            |
| 4. Employer normal cost: (1) + (2) - (3)            | \$1,107,557        | \$1,453,200        |
| 5. Actuarial accrued liability                      | \$71,048,380       | \$83,171,701       |
| 6. Actuarial value of assets                        | 18,225,367         | 15,482,127         |
| 7. Unfunded actuarial accrued liability: (5) - (6)  | \$52,823,013       | \$67,689,574       |
| 8. Payment on unfunded actuarial accrued liability  | 3,244,667          | 6,176,576          |
| 9. Adjustment for timing*                           | <u>501,866</u>     | <u>879,808</u>     |
| 10. Total recommended contribution: (4) + (8) + (9) | <u>\$4,854,090</u> | <u>\$8,509,584</u> |

\*Actuarially determined contributions are assumed to be paid at the middle of the next fiscal year.

## **Reconciliation of Actuarially Determined Contribution**

The chart below details the changes in the actuarially determined contribution from the prior valuation to the current year's valuation.

### **RECONCILIATION OF ACTUARILY DETERMINED CONTRIBUTION**

|  | <b>Amount</b> |
|--|---------------|
| Recommended mid-year contribution for fiscal year ending June 30, 2018                     | \$8,509,584   |
| • Effect of plan changes under settlement agreement including new contribution requirement | -3,920,910    |
| • Effect of contributions less than actuarially determined contribution                    | 335,187       |
| • Effect of investment gain  | -57,872       |
| • Effect of other gains and losses on accrued liability                                    | -947          |
| • Net effect of other changes, including composition and number of participants            | -10,952       |
| Total change   | -\$3,655,494  |
| Recommended mid-year contribution for fiscal year ending June 30, 2019                     | \$4,854,090   |

## G. History of Employer Contributions

A history of the most recent years of contributions is shown below.

### HISTORY OF EMPLOYER CONTRIBUTIONS: 2009 – 2018

| Fiscal Year<br>Ended<br>June 30 | Actuarially Determined<br>Employer Contribution<br>(ADEC)* | Actual Employer Contribution |                        |
|---------------------------------|--|------------------------------|------------------------|
|                                 | Amount   | Amount                       | Percent<br>Contributed |
| 2009                            | \$3,337,523  | \$2,817,204                  | 84.41%                 |
| 2010                            | 3,454,336  | 3,013,527                    | 87.24%                 |
| 2011                            | 4,570,429  | 1,899,530                    | 41.56%                 |
| 2012                            | 4,730,394  | 1,610,531                    | 34.05%                 |
| 2013                            | 4,984,688  | 1,614,233                    | 32.38%                 |
| 2014                            | 6,633,618  | 2,711,326                    | 40.87%                 |
| 2015                            | 6,579,139  | 2,786,367                    | 42.35%                 |
| 2016                            | 7,197,627  | 2,783,429                    | 38.67%                 |
| 2017                            | 8,073,936  | 4,797,069                    | 59.41%                 |
| 2018                            | 8,509,584  | --                           | --                     |

\*Prior to 2015, this amount was the Annual Required Contribution (ARC).

## Section 3: Supplemental Information

### EXHIBIT A – TABLE OF PLAN COVERAGE

| Category                                 | Year Ended June 30 |           | Change From<br>Prior Year |
|--|--------------------|-----------|---------------------------|
|  | 2017               | 2016      |                           |
| <b>Active participants in valuation:</b> |                    |           |                           |
| • Number                                 | 52                 | 55        | -5.5%                     |
| • Average age                            | 42.9               | 42.3      | 0.6                       |
| • Average years of service               | 13.8               | 13.1      | 0.7                       |
| • Total payroll                          | \$4,941,750        | 5,054,901 | -2.2%                     |
| • Average payroll                        | 95,034             | 91,907    | 3.4%                      |
| • Total active vested participants       | 41                 | 40        | 2.5%                      |
| <b>Retired participants*:</b>            |                    |           |                           |
| • Number in pay status                   | 68                 | 64        | 6.3%                      |
| • Average age                            | 60.7               | 53.9      | 6.8                       |
| • Average monthly benefit                | \$3,716            | \$3,660   | 1.5%                      |
| <b>Disabled participants:</b>            |                    |           |                           |
| • Number in pay status                   | 18                 | 18        | 0.0%                      |
| • Average age                            | 57.3               | 56.3      | 1.0                       |
| • Average monthly benefit                | \$3,503            | \$3,643   | -3.8%                     |
| <b>Beneficiaries:</b>                    |                    |           |                           |
| • Number in pay status                   | 15                 | 15        | 0.0%                      |
| • Average age                            | 70.7               | 69.7      | 1.0                       |
| • Average monthly benefit                | \$2,171            | \$2,145   | 1.2%                      |

\*Includes alternate payees receiving benefits subject to a QDRO

**EXHIBIT B – PARTICIPANTS IN ACTIVE SERVICE AS OF JUNE 30, 2017  
BY AGE, YEARS OF SERVICE, AND AVERAGE PAYROLL**

| <b>Age</b>   | <b>Total</b> | <b>5 - 9</b> | <b>10 - 14</b> | <b>15 - 19</b> | <b>20 - 24</b> | <b>25 - 29</b> |
|--------------|--------------|--------------|----------------|----------------|----------------|----------------|
| 30 - 34      | 8            | 5            | 3              | --             | --             | --             |
|              | \$92,913     | \$91,962     | \$94,495       | --             | --             | --             |
| 35 - 39      | 17           | 2            | 15             | --             | --             | --             |
|              | 90,386       | 92,403       | 90,118         | --             | --             | --             |
| 40 - 44      | 8            | 2            | 2              | 3              | 1              | --             |
|              | 89,114       | 59,879       | 84,897         | \$107,647      | \$100,426      | --             |
| 45 - 49      | 11           | 1            | 4              | 5              | 1              | --             |
|              | 97,069       | 90,353       | 89,162         | 101,320        | 114,157        | --             |
| 50 - 54      | 4            | 1            | --             | --             | 1              | 2              |
|              | 110,355      | 94,525       | --             | --             | 119,538        | \$113,679      |
| 55 - 59      | 2            | --           | --             | 2              | --             | --             |
|              | 97,206       | --           | --             | 97,206         | --             | --             |
| 60 - 64      | 1            | --           | --             | --             | 1              | --             |
|              | 120,310      | --           | --             | --             | 120,310        | --             |
| 65 - 69      |              | --           | --             | --             | --             | --             |
|              |              | --           | --             | --             | --             | --             |
| 70 & over    | 1            | --           | --             | --             | 1              | --             |
|              | 125,057      | --           | --             | --             | 125,057        | --             |
| <b>Total</b> | <b>52</b>    | <b>11</b>    | <b>24</b>      | <b>10</b>      | <b>5</b>       | <b>2</b>       |
|              | \$95,034     | \$86,295     | \$90,071       | \$102,395      | \$115,898      | \$113,679      |

## EXHIBIT C – RECONCILIATION OF PARTICIPANT DATA

|                                   | Active<br>Participants | Disableds | Retired<br>Participants | Beneficiaries | Total      |
|-----------------------------------|------------------------|-----------|-------------------------|---------------|------------|
| <b>Number as of June 30, 2016</b> | <b>55</b>              | <b>18</b> | <b>64</b>               | <b>15</b>     | <b>152</b> |
| • Retirements                     | -3                     | N/A       | 3                       | N/A           | 0          |
| • New alternate payees            | N/A                    | 0         | 1                       | N/A           | 1          |
| <b>Number as of June 30, 2017</b> | <b>52</b>              | <b>18</b> | <b>68</b>               | <b>15</b>     | <b>153</b> |

**EXHIBIT D – SUMMARY STATEMENT OF INCOME AND EXPENSES  
ON AN ACTUARIAL AND MARKET VALUE BASIS**

|  | <b>Year Ended<br/>June 30 , 2017</b> | <b>Year Ended<br/>June 30 , 2016</b> |
|--|--------------------------------------|--------------------------------------|
| Net assets at actuarial and market value at the beginning of the year  | \$15,482,127                         | \$16,364,051                         |
| <b>Contribution income:</b>  |                                      |                                      |
| • Employer contributions   | \$4,797,069                          | \$2,783,429                          |
| • Employee contributions   | 408,479                              | 394,051                              |
| • Purchase of service contributions                                    | 17,807                               | 0                                    |
| • Less administrative expenses   | <u>-84,157</u>                       | <u>-77,828</u>                       |
| <i>Net contribution income</i>   | <i>\$5,139,198</i>                   | <i>\$3,099,652</i>                   |
| <b>Investment income</b>   | <b><u>\$1,753,780</u></b>            | <b><u>\$21,130</u></b>               |
| <b>Total income available for benefits</b>                             | <b><u>\$6,892,978</u></b>            | <b><u>\$3,120,782</u></b>            |
| <b>Less benefit payments:</b>  |                                      |                                      |
| • Benefit payments   | -\$4,100,493                         | \$4,002,706                          |
| • Refunds service buyback  | <u>-49,245</u>                       | <u>0</u>                             |
| <i>Net benefit payments</i>  | <i>-\$4,149,738</i>                  | <i>-\$4,002,706</i>                  |
| <b>Change in reserve for future benefits</b>                           | <b><u>\$2,743,240</u></b>            | <b><u>-\$881,924</u></b>             |
| <b>Net assets at actuarial and market value at the end of the year</b> | <b><u>\$18,225,367</u></b>           | <b><u>\$15,482,127</u></b>           |

## EXHIBIT E – DEVELOPMENT OF THE FUND THROUGH JUNE 30, 2017

| Year<br>Ended<br>June 30 | Employer<br>Contributions <sup>1</sup> | Employee<br>Contributions <sup>2</sup> | Net<br>Investment<br>Return <sup>3</sup> | Admin.<br>Expenses <sup>4</sup> | Benefit<br>Payments <sup>5</sup> | Actuarial and<br>Market<br>Value of<br>Assets at<br>Year-End |
|--------------------------|--|--|--|---------------------------------|----------------------------------|--|
| 2008                     | \$2,923,367                            | \$309,667                              | -\$288,579                               | \$0                             | \$2,040,057                      | \$16,420,395   |
| 2009                     | 2,817,204                              | 363,039                                | -2,561,193                               | 3,340                           | 2,834,239                        | 14,201,866   |
| 2010                     | 3,013,527                              | 438,133                                | 1,407,076                                | 3,760                           | 3,138,155                        | 15,918,687   |
| 2011                     | 1,899,530                              | 306,796                                | 3,048,523                                | 3,800                           | 3,055,991                        | 18,113,745   |
| 2012                     | 1,808,661                              | 528,246                                | -93,521                                  | 3,495                           | 4,471,261                        | 15,882,375   |
| 2013                     | 1,614,233                              | 347,048                                | 1,611,219                                | 0                               | 3,638,703                        | 15,816,172   |
| 2014                     | 2,711,326                              | 369,825                                | 2,301,494                                | 127,317                         | 3,929,063                        | 17,142,437   |
| 2015                     | 2,786,367                              | 388,335                                | 141,369                                  | 71,000                          | 4,023,457                        | 16,364,051   |
| 2016                     | 2,783,429                              | 394,051                                | 21,130                                   | 77,828                          | 4,002,706                        | 15,482,127   |
| 2017                     | 4,797,069                              | 426,286                                | 1,753,780                                | 84,157                          | 4,149,738                        | 18,225,367   |

<sup>1</sup> Includes employer contribution for claims and judgments

<sup>2</sup> Includes single premium deferred annuities

<sup>3</sup> Net of investment fees

<sup>4</sup> Through 2013, only reflects ING account balance maintenance fees

<sup>5</sup> Includes refunds service buybacks

## EXHIBIT F – DEFINITION OF PENSION TERMS

The following list defines certain technical terms for the convenience of the reader:

|  |   |
|--|---|
| <b>Actuarial Accrued Liability for Actives:</b>                      | The equivalent of the accumulated normal costs allocated to the years before the valuation date.  |
| <b>Actuarial Accrued Liability for Pensioners and Beneficiaries:</b> | The single-sum value of lifetime benefits to existing pensioners and beneficiaries. This sum takes account of life expectancies appropriate to the ages of the annuitants and the interest that the sum is expected to earn before it is entirely paid out in benefits.   |
| <b>Actuarial Cost Method:</b>  | A procedure allocating the Actuarial Present Value of Future Benefits to various time periods; a method used to determine the Normal Cost and the Actuarial Accrued Liability that are used to determine the actuarially determined contribution.   |
| <b>Actuarial Gain or Loss:</b>                                       | A measure of the difference between actual experience and that expected based upon a set of Actuarial Assumptions, during the period between two Actuarial Valuation dates. Through the actuarial assumptions, rates of decrements, rates of salary increases, and rates of fund earnings have been forecasted. To the extent that actual experience differs from that assumed, Actuarial Accrued Liabilities emerge which may be the same as forecasted, or may be larger or smaller than projected. Actuarial gains are due to favorable experience, e.g., assets earn more than projected, salary increases are less than assumed, members retire later than assumed, etc. Favorable experience means actual results produce actuarial liabilities not as large as projected by the actuarial assumptions. On the other hand, actuarial losses are the result of unfavorable experience, i.e., actual results yield in actuarial liabilities that are larger than projected. Actuarial gains will shorten the time required for funding of the actuarial balance sheet deficiency while actuarial losses will lengthen the funding period. |
| <b>Actuarially Equivalent:</b>                                       | Of equal actuarial present value, determined as of a given date and based on a given set of Actuarial Assumptions.  |
| <b>Actuarial Present Value (APV):</b>                                | The value of an amount or series of amounts payable or receivable at various times, determined as of a given date by the application of a particular set of Actuarial Assumptions. Each such amount or series of amounts is:<br><br>Adjusted for the probable financial effect of certain intervening events (such as changes in compensation levels, marital status, etc.)<br><br>Multiplied by the probability of the occurrence of an event (such as survival, death, disability, withdrawal, etc.) on which the payment is conditioned, and<br><br>Discounted according to an assumed rate (or rates) of return to reflect the time value of money.   |

|   |   |
|---|---|
| <b>Actuarial Present Value of Future Plan Benefits:</b> | The Actuarial Present Value of benefit amounts expected to be paid at various future times under a particular set of Actuarial Assumptions, taking into account such items as the effect of advancement in age, anticipated future compensation, and future service credits. The Actuarial Present Value of Future Plan Benefits includes the liabilities for active members, retired members, beneficiaries receiving benefits, and inactive members entitled to either a refund or a future retirement benefit. Expressed another way, it is the value that would have to be invested on the valuation date so that the amount invested plus investment earnings would provide sufficient assets to pay all projected benefits and expenses when due. |
| <b>Actuarial Valuation:</b>                             | The determination, as of a valuation date, of the Normal Cost, Actuarial Accrued Liability, Actuarial Value of Assets, and related Actuarial Present Values for a plan. An Actuarial Valuation for a governmental retirement system typically also includes calculations of items needed for compliance with GASB, such as the Actuarially Determined Contribution (ADC) and the Net Pension Liability (NPL).   |
| <b>Actuarial Value of Assets (AVA):</b>                 | The value of the Fund's assets as of a given date, used by the actuary for valuation purposes. This may be the market or fair value of plan assets, but commonly plans use a smoothed value in order to reduce the year-to-year volatility of calculated results, such as the funded ratio and the ADC.   |
| <b>Actuarially Determined:</b>                          | Values that have been determined utilizing the principles of actuarial science. An actuarially determined value is derived by application of the appropriate actuarial assumptions to specified values determined by provisions of the law.   |
| <b>Actuarially Determined Contribution (ADC):</b>       | The employer's periodic required contributions, expressed as a dollar amount or a percentage of covered plan compensation, determined under the Plan's funding policy. The ADC consists of the Employer Normal Cost and the Amortization Payment.   |
| <b>Amortization Method:</b>                             | A method for determining the Amortization Payment. The most common methods used are level dollar and level percentage of payroll. Under the Level Dollar method, the Amortization Payment is one of a stream of payments, all equal, whose Actuarial Present Value is equal to the UAAL. Under the Level Percentage of Pay method, the Amortization Payment is one of a stream of increasing payments, whose Actuarial Present Value is equal to the UAAL. Under the Level Percentage of Pay method, the stream of payments increases at the assumed rate at which total covered payroll of all active members will increase.   |
| <b>Amortization Payment:</b>                            | The portion of the pension plan contribution, or ADC, that is designed to pay interest on and to amortize the Unfunded Actuarial Accrued Liability.   |

|  |  |
|--|--|
| <b>Assumptions or Actuarial Assumptions:</b> | The estimates upon which the cost of the Fund is calculated, including:<br><u>Investment return</u> - the rate of investment yield that the Fund will earn over the long-term future;<br><u>Mortality rates</u> - the death rates of employees and pensioners; life expectancy is based on these rates;<br><u>Retirement rates</u> - the rate or probability of retirement at a given age or service;<br><u>Disability rates</u> – the probability of disability retirement at a given age;<br><u>Withdrawal rates</u> - the rates at which employees of various ages are expected to leave employment for reasons other than death, disability, or retirement;<br><u>Salary increase rates</u> - the rates of salary increase due to inflation and productivity growth. |
| <b>Closed Amortization Period:</b>           | A specific number of years that is counted down by one each year, and therefore declines to zero with the passage of time. For example, if the amortization period is initially set at 30 years, it is 29 years at the end of one year, 28 years at the end of two years, etc. See Open Amortization Period.   |
| <b>Decremnts:</b>                            | Those causes/events due to which a member's status (active-inactive-retiree-beneficiary) changes, that is: death, retirement, disability, or withdrawal.   |
| <b>Defined Benefit Plan:</b>                 | A retirement plan in which benefits are defined by a formula applied to the member's compensation and/or years of service.   |
| <b>Defined Contribution Plan:</b>            | A retirement plan, such as a 401(k) plan, a 403(b) plan, or a 457 plan, in which the contributions to the plan are assigned to an account for each member, the plan's earnings are allocated to each account, and each member's benefits are a direct function of the account balance.   |
| <b>Employer Normal Cost:</b>                 | The portion of the Normal Cost to be paid by the employer. This is equal to the Normal Cost less expected member contributions.  |
| <b>Experience Study:</b>                     | A periodic review and analysis of the actual experience of the Fund that may lead to a revision of one or more actuarial assumptions. Actual rates of decrement and salary increases are compared to the actuarially assumed values and modified as deemed appropriate by the Actuary.   |
| <b>Funded Ratio:</b>                         | The ratio of the actuarial value of assets (AVA) to the actuarial accrued liability (AAL). Plans sometimes calculate a market funded ratio, using the market value of assets (MVA), rather than the AVA.   |

|  |  |
|--|--|
| <b>GASB 67 and GASB 68:</b>                        | Governmental Accounting Standards Board (GASB) Statements No. 67 and No. 68. These are the governmental accounting standards that set the accounting rules for public retirement systems and the employers that sponsor or contribute to them. Statement No. 68 sets the accounting rules for the employers that sponsor or contribute to public retirement systems, while Statement No. 67 sets the rules for the systems themselves.   |
| <b>Investment Return:</b>                          | The rate of earnings of the Fund from its investments, including interest, dividends and capital gain and loss adjustments, computed as a percentage of the average value of the fund. For actuarial purposes, the investment return often reflects a smoothing of the capital gains and losses to avoid significant swings in the value of assets from one year to the next.  |
| <b>Net Pension Liability (NPL):</b>                | The Net Pension Liability is equal to the Total Pension Liability minus the Plan Fiduciary Net Position.   |
| <b>Normal Cost:</b>                                | That portion of the Actuarial Present Value of pension plan benefits and expenses allocated to a valuation year by the Actuarial Cost Method. Any payment in respect of an Unfunded Actuarial Accrued Liability is not part of Normal Cost (see Amortization Payment). For pension plan benefits that are provided in part by employee contributions, Normal Cost refers to the total of employee contributions and employer Normal Cost unless otherwise specifically stated.   |
| <b>Open Amortization Period:</b>                   | An open amortization period is one which is used to determine the Amortization Payment but which does not change over time. If the initial period is set as 30 years, the same 30-year period is used in determining the Amortization Period each year. In theory, if an Open Amortization Period with level percentage of payroll is used to amortize the Unfunded Actuarial Accrued Liability, the UAAL will never decrease, but will become smaller each year, in relation to covered payroll, if the actuarial assumptions are realized. |
| <b>Plan Fiduciary Net Position:</b>                | Market value of assets.  |
| <b>Total Pension Liability (TPL):</b>              | The actuarial accrued liability under the entry age normal cost method and based on the blended discount rate as described in GASB 67 and 68.  |
| <b>Unfunded Actuarial Accrued Liability:</b>       | The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. This value may be negative, in which case it may be expressed as a negative Unfunded Actuarial Accrued Liability, also called the Funding Surplus.   |
| <b>Valuation Date or Actuarial Valuation Date:</b> | The date as of which the value of assets is determined and as of which the Actuarial Present Value of Future Plan Benefits is determined. The expected benefits to be paid in the future are discounted to this date.  |

## Section 4: Actuarial Valuation Basis

### EXHIBIT I – ACTUARIAL ASSUMPTIONS AND ACTUARIAL COST METHOD

|                                    |   |
|------------------------------------|---|
| <b>Rationale for Assumptions</b>   | The information and analysis used in selecting each demographic assumption that has a significant effect on this actuarial valuation is shown in the Actuarial Experience Review July 1, 2011 to June 30, 2014 dated April 1, 2015. Please see this study for the rationale for each assumption used. As noted in this study, due to the low number of participants in the Police and Firefighters System, the mortality experience is not credible. It is our understanding that the State of Rhode Island deems the mortality assumptions reasonable if they match the assumptions used for the State of Rhode Island Municipal Employees Retirement System (MERS). Therefore, the mortality assumptions shown below match the MERS assumptions used at the time of the experience study. |
| <b>Net Investment Return:</b>      | 7.50%.<br>The net investment return assumption is a long-term estimate derived from historical data, current and recent market expectations, and professional judgment. As part of the analysis, a building block approach was used that reflects inflation expectations and anticipated risk premiums for each of the portfolio's asset classes as well as the System's target asset allocation.   |
| <b>Inflation:</b>                  | 2.75%   |
| <b>Salary Increases:</b>           | 4.00%. including, 2.75% for inflationary increases, 0.50% for productivity increases and 0.75% for promotional and longevity increases.   |
| <b>Cost-of-Living Adjustments:</b> | 0% through June 30, 2022; 1.25% compounded annually commencing July 1, 2022   |
| <b>Mortality Rates:</b>            | <i>Healthy:</i> Males – 115% of the RP-2000 Combined Healthy White Collar Mortality Table for Males<br><br>Females – 95% of the RP-2000 Combined Healthy White Collar Mortality Table for Females<br><br>The healthy mortality tables are adjusted to the valuation date using generational projection under Scale AA to reflect future mortality improvements.<br><br><i>Disabled:</i> Males – 60% of PBGC Table V(a) for disabled males eligible for Social Security disability benefits.<br><br>Females - 60% of PBGC Table VI(a) for disabled females eligible for Social Security disability benefits.<br><br>No provision was made to the disabled mortality tables for future mortality improvement after the measurement date.  |

**Termination Rates before Retirement:**

| Age | Rate (%)  |        |            |        |      |        |
|-----|-----------|--------|------------|--------|------|--------|
|     | Mortality |        | Disability |        |      |        |
|     | Male      | Female | Male       | Female | Male | Female |
| 20  | 0.04%     | 0.02%  | 0.34       | 0.34   | 0.00 | 0.00   |
| 25  | 0.04      | 0.02   | 0.34       | 0.34   | 0.00 | 0.00   |
| 30  | 0.04      | 0.03   | 0.44       | 0.44   | 0.00 | 0.00   |
| 35  | 0.07      | 0.04   | 0.58       | 0.58   | 0.00 | 0.00   |
| 40  | 0.10      | 0.06   | 0.88       | 0.88   | 0.00 | 0.00   |
| 45  | 0.15      | 0.10   | 1.44       | 1.44   | 0.00 | 0.00   |
| 50  | 0.23      | 0.15   | 2.42       | 2.42   | 0.00 | 0.00   |
| 55  | 0.38      | 0.25   | 2.42       | 2.42   | 0.00 | 0.00   |
| 60  | 0.64      | 0.44   | 2.42       | 2.42   | 0.00 | 0.00   |

*100% of deaths and disabilities are assumed to be service related.*

*\* Generational projection is not reflected in tabular rates.*

**Retirement Rates:**

| Years of Service | Retirement Probability |
|------------------|------------------------|
| 18 - 20          | 25%                    |
| 21 - 22          | 35%                    |
| 23 - 24          | 50%                    |
| 25 or more       | 100%                   |

*All employees are assumed to retire no later than age 65.*

**Description of Weighted Average Retirement Age:**

Age 50, determined as follows: The weighted average retirement age for each participant is calculated as the sum of the product of each potential current or future retirement age times the probability of surviving from current age to that age and then retiring at that age, assuming no other decrements. The overall weighted retirement age is the average of the individual retirement ages based on all the active participants included in the June 30, 2017 actuarial valuation.

**Percent Married:**

85% of all active and retired police officers are assumed to be married.

**Age of Spouse:**

Females are assumed to be three years younger than males, unless dates of birth are provided.

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| <b>Administrative Expenses:</b>                            | Administrative expenses are assumed to be \$75,000, payable as of the beginning of the year.   |
| <b>Amortization Method:</b>                                | Each year, the amortization payment is determined by subtracting the employer normal cost from the required contribution under the settlement agreement. The effective amortization period is then determined from the current unfunded actuarial accrued liability and the calculated amortization payment based on the System's funding interest rate and assuming the payment will increase 3.00% annually. |
| <b>Actuarial Value of Assets:</b>                          | At market value.   |
| <b>Actuarial Cost Method:</b>                              | Entry Age Normal Actuarial Cost Method. Entry Age is the age at the time the participant would have commenced participation if the plan had always been in existence. Normal Cost and Actuarial Accrued Liability are calculated on an individual basis and are allocated by service, with Normal Cost determined as if the current benefit accrual rate had always been in effect.                            |
| <b>Justification for Changes in Actuarial Assumptions:</b> | <ul style="list-style-type: none"> <li>• Due to the new plan changes, the COLA assumption reflects the provisions in the settlement agreement.</li> <li>• The amortization method was also changed to reflect the new contribution requirement.</li> <li>• These changes were treated as plan changes for valuation purposes.</li> </ul>   |

## EXHIBIT II – SUMMARY OF PLAN PROVISIONS

This exhibit summarizes the major provisions of the Plan included in the valuation. It is not intended to be, nor should it be interpreted as, a complete statement of all plan provisions.

| <b>Plan Year:</b>                  | July 1 through June 30   |                  |   |    |       |    |      |    |      |    |      |    |      |    |      |    |      |    |      |    |      |    |      |    |      |    |      |            |      |
|------------------------------------|--|------------------|---|----|-------|----|------|----|------|----|------|----|------|----|------|----|------|----|------|----|------|----|------|----|------|----|------|------------|------|
| <b>Plan Status:</b>                | Closed to new entrants as of July 1, 2010  |                  |   |    |       |    |      |    |      |    |      |    |      |    |      |    |      |    |      |    |      |    |      |    |      |    |      |            |      |
| <b>Normal Retirement:</b>          | <p><i>Eligibility:</i> 18 years of service</p> <p><i>Amount:</i> The annual benefit at retirement is equal to the percentage of final salary specified in the table below. For pension purposes, final average salary is a three-year average of pay which is documented on the W-2 tax form, except monies paid to the Town of Johnston which were funded by private companies to hire officers for non-municipal detail assignments and the officer's gun/qualification allowance, with overtime limited to \$35,000 each year.</p> <table style="width: 100%; border-collapse: collapse;"> <thead> <tr style="background-color: #0070C0; color: white;"> <th style="text-align: center; padding: 5px;">Years of Service</th> <th style="text-align: center; padding: 5px;">Benefit as a Percentage of Final Average Salary</th> </tr> </thead> <tbody> <tr><td style="text-align: center; padding: 5px;">18</td><td style="text-align: center; padding: 5px;">45.0%</td></tr> <tr><td style="text-align: center; padding: 5px;">19</td><td style="text-align: center; padding: 5px;">47.5</td></tr> <tr><td style="text-align: center; padding: 5px;">20</td><td style="text-align: center; padding: 5px;">50.0</td></tr> <tr><td style="text-align: center; padding: 5px;">21</td><td style="text-align: center; padding: 5px;">52.5</td></tr> <tr><td style="text-align: center; padding: 5px;">22</td><td style="text-align: center; padding: 5px;">55.0</td></tr> <tr><td style="text-align: center; padding: 5px;">23</td><td style="text-align: center; padding: 5px;">57.5</td></tr> <tr><td style="text-align: center; padding: 5px;">24</td><td style="text-align: center; padding: 5px;">60.0</td></tr> <tr><td style="text-align: center; padding: 5px;">25</td><td style="text-align: center; padding: 5px;">65.0</td></tr> <tr><td style="text-align: center; padding: 5px;">26</td><td style="text-align: center; padding: 5px;">66.0</td></tr> <tr><td style="text-align: center; padding: 5px;">27</td><td style="text-align: center; padding: 5px;">67.0</td></tr> <tr><td style="text-align: center; padding: 5px;">28</td><td style="text-align: center; padding: 5px;">68.0</td></tr> <tr><td style="text-align: center; padding: 5px;">29</td><td style="text-align: center; padding: 5px;">69.0</td></tr> <tr><td style="text-align: center; padding: 5px;">30 or more</td><td style="text-align: center; padding: 5px;">70.0</td></tr> </tbody> </table> | Years of Service | Benefit as a Percentage of Final Average Salary | 18 | 45.0% | 19 | 47.5 | 20 | 50.0 | 21 | 52.5 | 22 | 55.0 | 23 | 57.5 | 24 | 60.0 | 25 | 65.0 | 26 | 66.0 | 27 | 67.0 | 28 | 68.0 | 29 | 69.0 | 30 or more | 70.0 |
| Years of Service                   | Benefit as a Percentage of Final Average Salary  |                  |   |    |       |    |      |    |      |    |      |    |      |    |      |    |      |    |      |    |      |    |      |    |      |    |      |            |      |
| 18                                 | 45.0%  |                  |   |    |       |    |      |    |      |    |      |    |      |    |      |    |      |    |      |    |      |    |      |    |      |    |      |            |      |
| 19                                 | 47.5   |                  |   |    |       |    |      |    |      |    |      |    |      |    |      |    |      |    |      |    |      |    |      |    |      |    |      |            |      |
| 20                                 | 50.0   |                  |   |    |       |    |      |    |      |    |      |    |      |    |      |    |      |    |      |    |      |    |      |    |      |    |      |            |      |
| 21                                 | 52.5   |                  |   |    |       |    |      |    |      |    |      |    |      |    |      |    |      |    |      |    |      |    |      |    |      |    |      |            |      |
| 22                                 | 55.0   |                  |   |    |       |    |      |    |      |    |      |    |      |    |      |    |      |    |      |    |      |    |      |    |      |    |      |            |      |
| 23                                 | 57.5   |                  |   |    |       |    |      |    |      |    |      |    |      |    |      |    |      |    |      |    |      |    |      |    |      |    |      |            |      |
| 24                                 | 60.0   |                  |   |    |       |    |      |    |      |    |      |    |      |    |      |    |      |    |      |    |      |    |      |    |      |    |      |            |      |
| 25                                 | 65.0   |                  |   |    |       |    |      |    |      |    |      |    |      |    |      |    |      |    |      |    |      |    |      |    |      |    |      |            |      |
| 26                                 | 66.0   |                  |   |    |       |    |      |    |      |    |      |    |      |    |      |    |      |    |      |    |      |    |      |    |      |    |      |            |      |
| 27                                 | 67.0   |                  |   |    |       |    |      |    |      |    |      |    |      |    |      |    |      |    |      |    |      |    |      |    |      |    |      |            |      |
| 28                                 | 68.0   |                  |   |    |       |    |      |    |      |    |      |    |      |    |      |    |      |    |      |    |      |    |      |    |      |    |      |            |      |
| 29                                 | 69.0   |                  |   |    |       |    |      |    |      |    |      |    |      |    |      |    |      |    |      |    |      |    |      |    |      |    |      |            |      |
| 30 or more                         | 70.0   |                  |   |    |       |    |      |    |      |    |      |    |      |    |      |    |      |    |      |    |      |    |      |    |      |    |      |            |      |
| <b>Service Related Disability:</b> | <p><i>Eligibility:</i> Retirement because of a job related mental or physical incapacity</p> <p><i>Amount:</i> 66 2/3% of final salary</p>   |                  |   |    |       |    |      |    |      |    |      |    |      |    |      |    |      |    |      |    |      |    |      |    |      |    |      |            |      |

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| <b>Vesting:</b>                              | <i>Eligibility</i>   | Upon termination of employment after 10 years of service a member is eligible for a benefit deferred to retirement age.  |
|  | <i>Benefit Formula</i>   | 25% of final salary at termination plus cumulative COLA. Member may waive right to deferred retirement benefit in return for refund of employee and employer contribution account. |
|  | <i>Commencement Date</i>   | 21 <sup>st</sup> anniversary of employment for deferred annuity. Immediate payment for refund.   |
| <b>Spouse's Pre-Retirement Death Benefit</b> | <i>Eligibility</i>   | Death while actively employed  |
|  | <i>Benefit Formula</i>   | Surviving spouse (or if none, dependent children) receives benefit of 50% of final salary (30% of final salary for non-service related death)                                      |
|  | <i>Commencement Date</i>   | Benefits commence as of the first payroll period after death   |
| <b>Retiree Cost-Of-Living Increases:</b>     | Between July 1, 2017 and June 30, 2011, the COLA is suspended. Commencing July 1, 2022 the annual COLA will be 1.25%, compounded annually.   |  |
| <b>Military Service Purchase:</b>            | A member may purchase up to two years of pension service credit for prior military service by contributing 6% of pay at any time prior to retirement, for each year purchased.   |  |
| <b>Employee Contributions:</b>               | 8% of pensionable earnings. Employees terminating before retirement may withdraw the employee-provided account and forfeit their right to pension benefits.  |  |
| <b>Eligibility:</b>                          | All members of the Police Department hired before July 1, 2010 (members hired after this date are participants in the Rhode Island Municipal Employees Retirement System).   |  |
| <b>Optional Forms of Benefits:</b>           | All single participants receive a life annuity. All married participants receive a fully subsidized 67.5% joint and survivor annuity. There are no optional forms of payment.  |  |
| <b>Changes in Plan Provisions:</b>           | <p>Effective no later than June 30, 2017, the following changes have been made to the benefit provisions:</p> <ul style="list-style-type: none"> <li>– Suspend COLA increases beginning July 1, 2017 with COLA payments of 1.25% per year compounded, to return beginning July 1, 2022</li> <li>– Cap overtime in pensionable earning at \$35,000</li> </ul> |  |

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