# The Employee Retirement System of the City of Providence

**Actuarial Valuation and Review as of July 1, 2016**

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*September 18, 2017*

*Retirement Board*
*The Employee Retirement System of the City of Providence*
*City Hall*
*Providence, RI 02903*

*Dear Board Members:*

*We are pleased to submit this Actuarial Valuation and Review as of July 1, 2016. It summarizes the actuarial data used in the valuation, establishes the funding requirements for fiscal 2017 and later years and analyzes the preceding year's experience.*

*This report was prepared in accordance with generally accepted actuarial principles and practices at the request of the Board to assist in administering the Retirement System. The census information and financial information on which our calculations were based was prepared by the staff of the System. That assistance is gratefully acknowledged.*

*The measurements shown in this actuarial valuation may not be applicable for other purposes. 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 (such as the end of an amortization period); and changes in plan provisions or applicable law.*

*An actuarial valuation is a measurement at a specific date – it is not a prediction of a plan's future financial condition. We have not been retained to perform an analysis of the potential range of financial measurements, except where otherwise noted.*

*The actuarial calculations were directed under the supervision of Kathleen A. Riley, FSA, MAAA, EA. She is a member of the American Academy of Actuaries and meets the Qualification Standards of the American Academy of Actuaries to render the actuarial opinion herein. To the best of her knowledge, the information supplied in the actuarial valuation is complete and accurate. Further, in her opinion, the assumptions as approved by the Board are reasonably related to the experience of and the expectations for the Plan.*

*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:* ______________________________

*Kathleen A. Riley, FSA, MAAA, EA*
*Senior Vice President and Actuary*

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*William J. Connolly, FCA, MAAA, EA*
*Consulting Actuary*

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## SECTION 1

### VALUATION SUMMARY



## SECTION 2

### VALUATION RESULTS



## SECTION 3

### SUPPLEMENTAL INFORMATION



## SECTION 4

### REPORTING INFORMATION

## Purpose

This report has been prepared by Segal Consulting to present a valuation of The Employee Retirement System of the City of Providence as of July 1, 2016. The valuation was performed to determine whether the assets and contributions are sufficient to provide the prescribed benefits. The contribution requirements presented in this report are based on:

- The benefit provisions of The Employee Retirement System of the City of Providence, as administered by the Board;
- The characteristics of covered active participants, inactive participants, and retired participants and beneficiaries as of July 1, 2016;
- The assets of the Plan as of June 30, 2016;
- Economic assumptions regarding future salary increases and investment earnings; and
- Other actuarial assumptions, regarding employee terminations, retirement, death, etc.

Certain disclosure information required by Governmental Accounting Standards Board Statements (GASB) Numbers 67 and 68 as of June 30, 2016 for The Employee Retirement System of the City of Providence is provided in a separate report.

## Significant Issues in Valuation Year

The following key findings were the result of this actuarial valuation:

1. The actuarial valuation report as of July 1, 2016 is based on financial information as of that date. Changes in the value of assets subsequent to that date are not reflected.
2. During the year ended June 30, 2016, the market value rate of return was 2.27%, compared to the assumed rate of return of 8.00%. Because the actuarial value of assets gradually recognizes market value fluctuations at 20% per year over a five-year period, the actuarial rate of return for the year ended June 30, 2016 was 6.17%. The actuarial value of assets as of June 30, 2016 was $349.1 million, or 104.7% of the market value of assets of $333.3 million. As of June 30, 2015, the actuarial value of assets was 100.7% of the market value.
3. The total unrecognized investment loss as of July 1, 2016 is $15,807,429. This investment loss will be recognized in the determination of the actuarial value of assets in the next few years, to the extent it is not offset by recognition of investment gains derived from future experience. This implies that earning the assumed rate of investment return (net of investment expenses) on a market value basis will result in investment losses on the actuarial value of assets in the next few years. The funding schedule shown in Section 2, Chart 16 reflects the deferred investment losses.

4. The unfunded liability has increased by $29.4 million from $951.8 million as of July 1, 2015 to $981.2 million as of July 1, 2016. The unfunded liability was expected to increase to $965.9 million. The difference between the expected unfunded liability of $965.9 million and the actual unfunded liability of $981.2 million is attributable to an investment loss on an actuarial basis of $6.2 million and a loss due to demographic experience of $9.1 million.

5. Because the fiscal 2017, 2018 and 2019 appropriations have been budgeted based on prior valuations, the results of this valuation will first be reflected in the fiscal 2020 appropriation. The unfunded liability, less the liability associated with the 1995 Deferral, is amortized through June 30, 2040. The amortization payments are initially calculated to increase 3.5% per year beginning with the fiscal 2020 appropriation. The 1995 deferral liability is amortized through June 30, 2031 in level payments.

   Chart 16 in Section 2 shows the details of a funding schedule that fully funds the System by June 30, 2040. In developing the funding schedule, assets and liabilities were projected from the valuation date. The market value of assets are assumed to earn 8% per year and the deferred investment gains and losses are recognized in the actuarial value of assets in accordance with the methodology adopted by the Board. As a result of recognizing these deferred gains and losses, the actual increase in the amortization payment may be more or less than 3.5%.

   Recommended contributions are assumed to be paid on June 30. If the contribution is made before or after June 30, Segal will calculate the change in interest charge based on the date of payment.

6. On a market value basis, the funded ratio has decreased from 26.9% as of July 1, 2015 to 25.1% as of July 1, 2016. On an actuarial basis, the funded ratio has decreased from 27.1% as of July 1, 2015 to 26.2% as of July 1, 2016. The decrease is due to the net experience loss mentioned above.

## Summary of Key Valuation Results

| | 2016 | 2015 |
|---|---|---|
| **Contributions for plan year beginning July 1:** | | |
| Recommended for fiscal 2017 and 2016 | $73,217,543 | $70,858,867 |
| Recommended for fiscal 2018 and 2017 | 78,123,118 | 73,217,543 |
| Actual contribution for fiscal 2016 | - - | 70,704,000 |
| **Funding elements for plan year beginning July 1:** | | |
| Total normal cost, without interest | $18,973,208 | $19,533,554 |
| Market value of assets | 333,287,000 | 351,068,000 |
| Actuarial value of assets | 349,094,429 | 353,520,549 |
| Actuarial accrued liability | 1,330,301,262 | 1,305,338,091 |
| Unfunded actuarial accrued liability | 981,206,833 | 951,817,542 |
| Funded ratio based on market value of assets | 25.1% | 26.9% |
| Funded ratio based on actuarial value of assets | 26.2% | 27.1% |
| **Demographic data for plan year ending June 30:** | | |
| Number of retired participants and beneficiaries | 3,185 | 3,094 |
| Number of inactive participants entitled to a return of employee contributions | 421 | 390 |
| Number of inactive participants with a vested right to a deferred or immediate benefit | 52 | 42 |
| Number of active participants | 2,889 | 3,012 |
| Total compensation | $138,236,828 | $140,908,879 |
| Average compensation | 47,849 | 46,782 |

*Note: Recommended contributions are assumed to be paid on June 30. If the contribution is made before or after June 30, Segal will calculate the change in interest charge based on the date of payment.*

**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:

- **Plan of benefits** 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.
- **Participant data** An actuarial valuation for a plan is based on data provided to the actuary by the System. 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.
- **Assets** The valuation is based on the market value of assets as of the valuation date, as provided by the System. The System uses an "actuarial value of assets" that differs from market value to gradually reflect year-to-year changes in the market value of assets in determining the contribution requirements.
- **Actuarial assumptions** 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 System. 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.
- If the System 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 System 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 Plan, it is not a fiduciary in its capacity as actuaries and consultants with respect to the Plan.

## A. PARTICIPANT DATA

The Actuarial Valuation and Review considers the number and demographic characteristics of covered participants, including active participants, inactive 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, through H.

*A historical perspective of how the participant population has changed over the past nine valuations can be seen in this chart.*

**CHART 1**

**Participant Population: 2007 – 2016**

| Year Ended June 30 | Active Participants | Inactive Participants | Retired Participants and Beneficiaries | Ratio of Non-Actives to Actives |
|---|---|---|---|---|
| 2007 | 3,083 | 179 | 2,821 | 0.97 |
| 2008 | 3,008 | 237 | 2,875 | 1.03 |
| 2009 | 2,955 | 455 | 2,883 | 1.13 |
| 2010 | 2,998 | 432 | 2,929 | 1.12 |
| 2011 | 2,987 | 435 | 2,999 | 1.15 |
| 2013 | 2,998 | 407 | 3,094 | 1.17 |
| 2014 | 2,986 | 428 | 3,108 | 1.18 |
| 2015 | 3,012 | 432 | 3,094 | 1.17 |
| 2016 | 2,889 | 473 | 3,185 | 1.27 |

*Note: Participants who retired on June 30, but were not in pay status, were included as active participants.*

**Active Participants**
Plan costs are affected by the age, years of service and compensation of active participants. In this year's valuation, there were 2,889 active participants with an average age of 47.3, average years of service of 13.1 years and average compensation of $47,849. The 3,012 active participants in the prior valuation had an average age of 46.8, average service of 12.8 years and average compensation of $46,782.

Among the active participants, there were none with unknown age and/or service information.

**Inactive Participants**
In this year's valuation, there were 52 participants with a vested right to a deferred or immediate vested benefit and 421 entitled to a return of their employee contributions.

*These graphs show a distribution of active participants by age and by years of service.*

**CHART 2**

**Distribution of Active Participants by Age as of June 30, 2016**

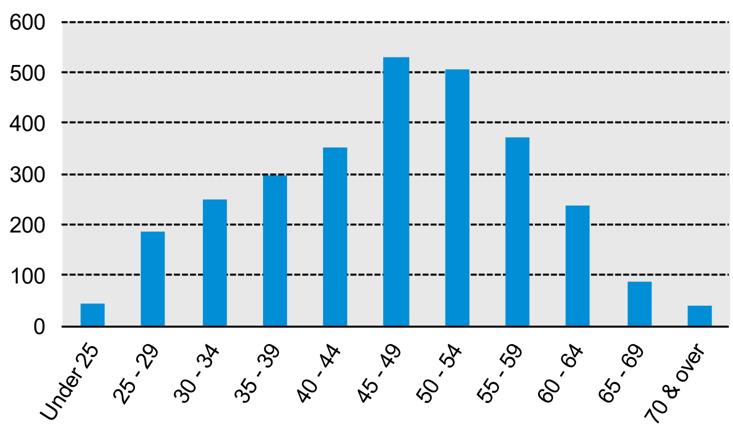
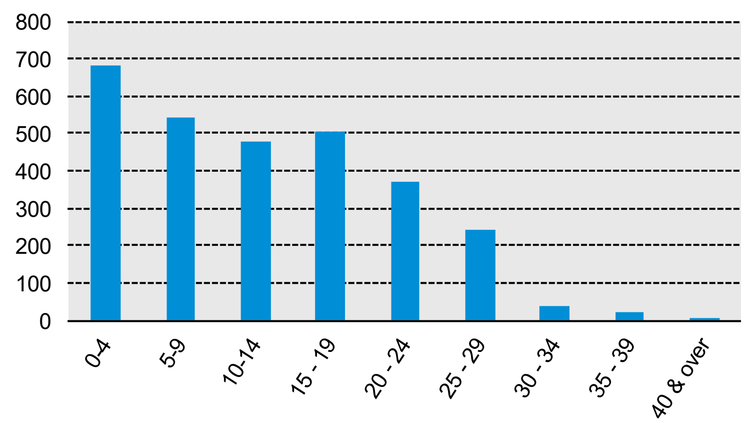



**CHART 3**

**Distribution of Active Participants by Years of Service as of June 30, 2016**



**Retired Participants and Beneficiaries**
As of June 30, 2016, 2,637 retired participants and 548 beneficiaries were receiving total monthly benefits of $7,737,748. For comparison, in the previous valuation, there were 2,563 retired participants and 531 beneficiaries receiving monthly benefits of $7,530,395. There were three retired participants in suspended status this year and three retired participants in the prior valuation.

*These graphs show a distribution of the current retired participants based on their monthly amount and age, by type of pension.*

**CHART 4**

**Distribution of Retired Participants by Type and by Monthly Amount as of June 30, 2016**

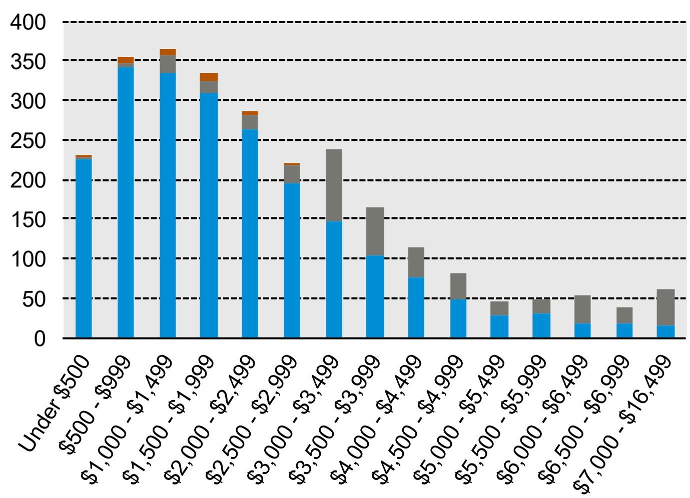
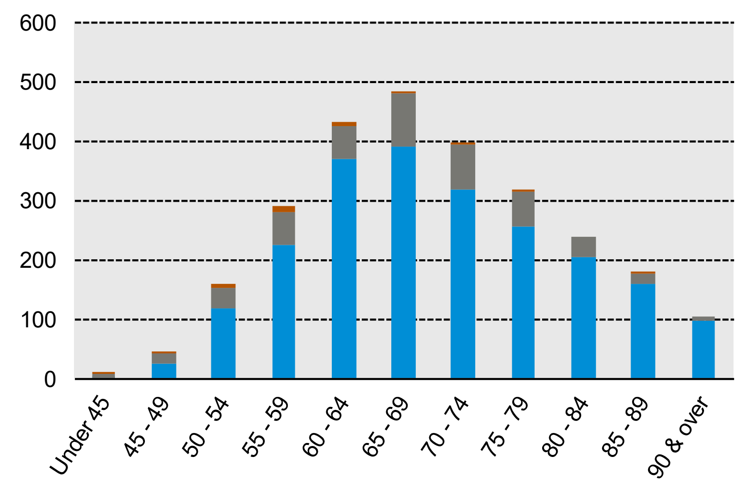



**CHART 5**

**Distribution of Retired Participants by Type and by Age as of June 30, 2016**




Ordinary Disability

Accidental Disability

Service

## B. FINANCIAL INFORMATION

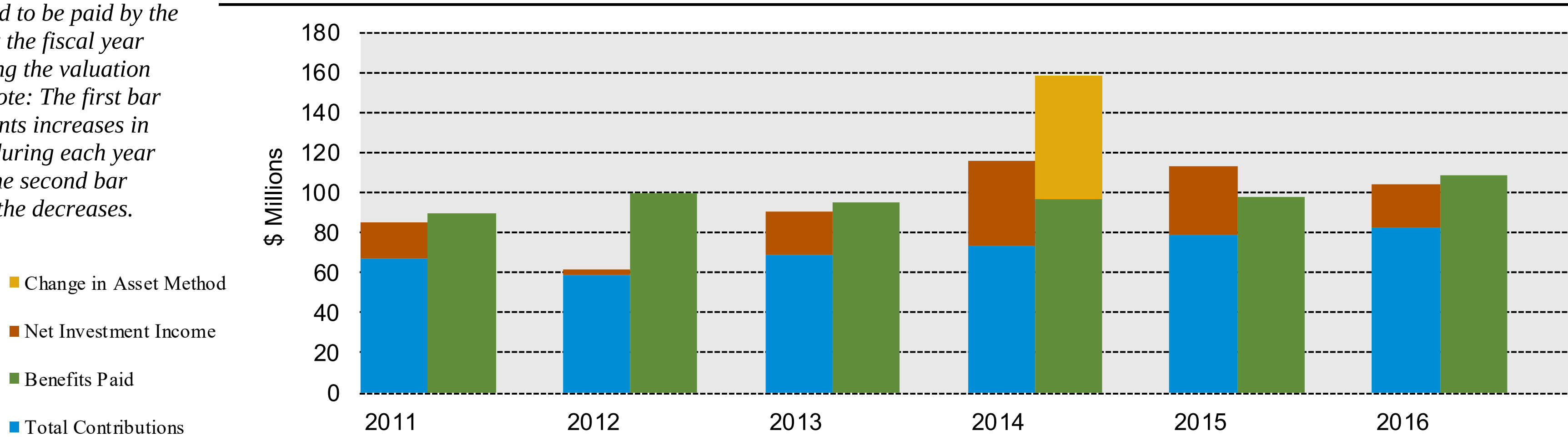
Retirement plan funding anticipates that, over the long term, both contributions and net investment earnings (less investment fees and administrative expenses) will be needed to cover benefit payments.

Retirement plan assets change as a result of the net impact of these income and expense components. Additional financial information, including a summary of these transactions for the valuation year, is presented in Section 3, Exhibits I and J.

*The chart depicts the components of changes in the actuarial value of assets over the last six years. Assets as of July 1, 2014 no longer include the discounted contribution expected to be paid by the City for the fiscal year following the valuation date. Note: The first bar represents increases in assets during each year while the second bar details the decreases.*

**CHART 6**

**Comparison of Increases and Decreases in the Actuarial Value of Assets for Years Ended June 30, 2011 – 2016**



It is desirable to have level and predictable plan costs from one year to the next. For this reason, the Board has approved an asset valuation method that gradually adjusts to market value. Under this valuation method, the full value of market fluctuations is not recognized in a single year and, as a result, the asset value and the plan costs are more stable.

The amount of the adjustment to recognize market value is treated as income, which may be positive or negative. Realized and unrealized gains and losses are treated equally and, therefore, the sale of assets has no immediate effect on the actuarial value.

*The chart shows the determination of the actuarial value of assets as of the valuation date.*

**CHART 7**

**Determination of Actuarial Value of Assets for Year Ended June 30, 2016**

| | | | |
|---|---|---|---|
| 1. Market value of assets, June 30, 2016 | | | $333,287,000 |
| | Original | Unrecognized | |
| 2. Calculation of unrecognized return* | Amount | Return | |
| (a) Year ended June 30, 2016 | -$19,402,600 | -$15,522,080 | |
| (b) Year ended June 30, 2015 | -16,214,261 | -9,728,557 | |
| (c) Year ended June 30, 2014 | 18,753,464 | 7,501,386 | |
| (d) Year ended June 30, 2013 | 9,709,109 | 1,941,822 | |
| (e) Year ended June 30, 2012 | -23,084,313 | 0 | |
| (f) Total unrecognized return | | | -15,807,429 |
| 3. Preliminary actuarial value: (1) - (2f) | | | 349,094,429 |
| 4. Adjustment to be within 20% corridor | | | 0 |
| 5. Final actuarial value of assets as of June 30, 2016: (3) + (4) | | | $349,094,429 |
| 6. Actuarial value as a percentage of market value: (5) ÷ (1) | | | 104.7% |

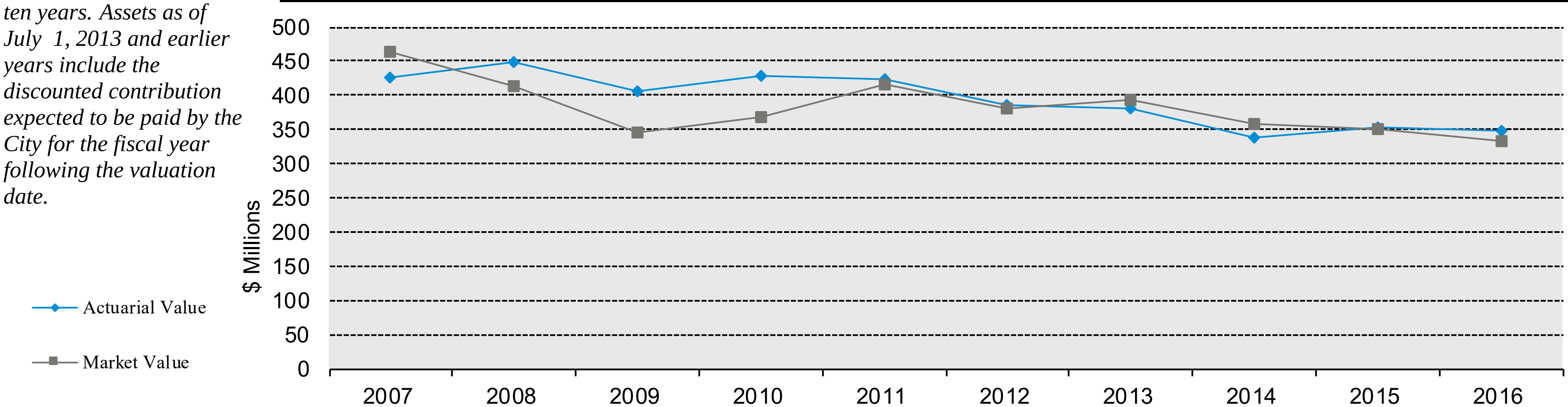
* *Unrecognized return is the difference between the total return and the expected return on a market value basis and is recognized at 20% per year over a five-year period.*

Both the actuarial value and market value of assets are representations of the System's financial status. As investment gains and losses are gradually taken into account, the actuarial value of assets tracks the market value of assets. 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.

*This chart shows the change in the actuarial value of assets versus the market value over the past ten years. Assets as of July 1, 2013 and earlier years include the discounted contribution expected to be paid by the City for the fiscal year following the valuation date.*

**CHART 8**

**Actuarial Value of Assets vs. Market Value of Assets as of June 30, 2007 – 2016**



## C. ACTUARIAL EXPERIENCE

To calculate the required 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), the contribution requirement will decrease from the previous year. On the other hand, the 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 net experience loss is $15,330,091. A discussion of the major components of the actuarial experience is on the following pages.

*This chart provides a summary of the actuarial experience during the past year.*

**CHART 9**

**Actuarial Experience for Year Ended June 30, 2016**

| | | |
|---|---|---|
| 1. | Net loss from investments* | -$6,243,924 |
| 2. | Net loss from other experience** | -9,086,167 |
| 3. | Net experience loss: (1) + (2) | -$15,330,091 |

* *Details in Chart 10*

** *Details in Chart 13*

**Investment Rate of Return**
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 System's investment policy. For valuation purposes, the assumed rate of return on the actuarial value of assets is 8.00%. The actual rate of return on an actuarial basis for the 2016 plan year was 6.17%.

Since the actual return for the year was less than the assumed return, the System experienced an actuarial loss of $6,243,924 during the year ended June 30, 2016 with regard to its investments.

*This chart shows the gain/(loss) due to investment experience.*

**CHART 10**

**Actuarial Value Investment Experience for Year Ended June 30, 2016**

| | | |
|---|---|---|
| 1. | Actual return | $21,019,880 |
| 2. | Average value of assets | 340,797,549 |
| 3. | Actual rate of return: (1) ÷ (2) | 6.17% |
| 4. | Assumed rate of return | 8.00% |
| 5. | Expected return: (2) x (4) | $27,263,804 |
| 6. | Actuarial loss: (1) – (5) | -$6,243,924 |

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 compared to the market value investment return for the last six years, including the five-year average.

Based upon this experience and future expectations, we have maintained the assumed rate of return of 8.00%.

**CHART 11**

**Investment Return – Actuarial Value vs. Market Value: 2011 - 2016**

| Year Ended | Change in Asset Method | | Actuarial Value Investment Return | | Market Value Investment Return | |
|---|---|---|---|---|---|---|
| June 30 | Amount | Percent | Amount | Percent | Amount | Percent |
| 2011 | - - | - - | N/A | 3.42% | N/A | 21.33% |
| 2012 | - - | - - | $3,391,254 | 0.97 | $5,100,797 | 1.49 |
| 2013 | - - | - - | 18,132,553 | 5.70 | 35,563,000 | 11.35 |
| 2014 | -$61,472,487 | -19.74% | 38,601,141 | 12.39 | 45,484,000 | 14.04 |
| 2015 | - - | - - | 34,418,220 | 10.47 | 12,507,000 | 3.59 |
| 2016 | - - | - - | 21,019,880 | 6.17 | 7,665,000 | 2.27 |
| Total | -$61,472,487 | | $115,563,048 | | $106,319,797 | |
| | | | Five-year average return | 7.01% | | 6.38% |

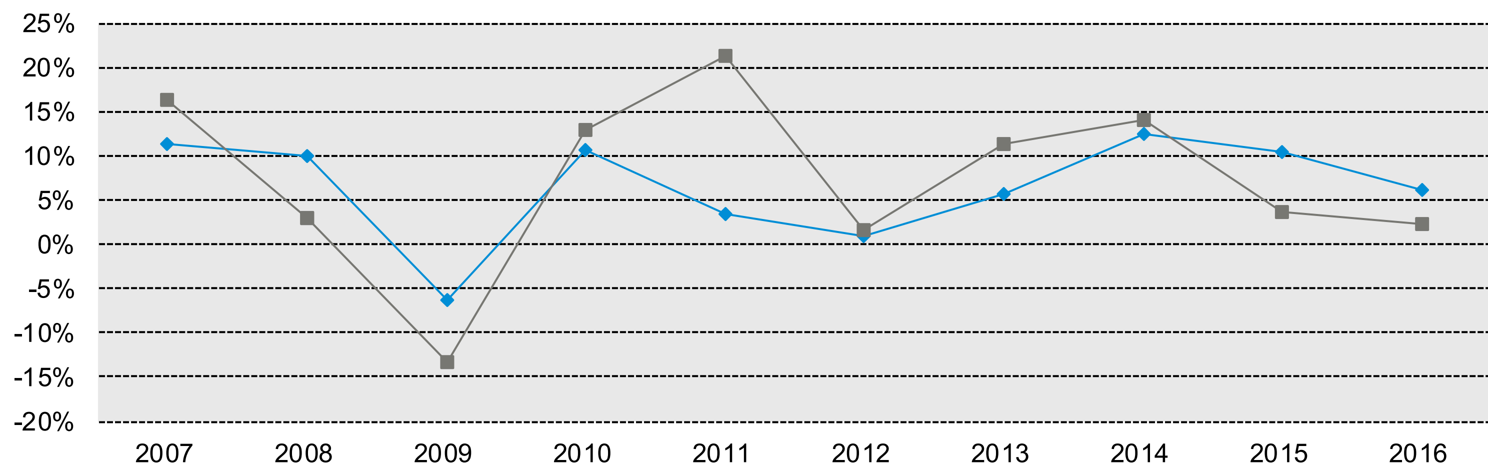
*Note: Each year's yield is weighted by the average asset value in that year.*

Subsection B described the actuarial asset valuation method that gradually takes into account fluctuations in the market value rate of return. The effect of this is to stabilize the actuarial rate of return, which contributes to leveling pension plan costs.

*This chart illustrates how this leveling effect has actually worked over the years 2007 - 2016. Note: investment returns are net of investment expenses.*

**CHART 12**

**Market and Actuarial Rates of Return for Years Ended June 30, 2007 - 2016**



**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 the participants,
- retirement experience (earlier or later than expected),
- mortality (more or fewer deaths than expected),
- the number of disability retirements, and
- salary increases different than assumed.

The net loss from this other experience for the year ended June 30, 2016 amounted to $9,086,167, which is 0.7% of the actuarial accrued liability.

A brief summary of the demographic gain/(loss) experience of the System for the year ended June 30, 2016 is shown in the chart below.

*The chart shows elements of the experience gain/(loss) for the most recent year.*

**CHART 13**

**Experience Due to Changes in Demographics for Year Ended June 30, 2016**

| | |
|---|---|
| 1. Loss due to fewer deaths than expected amongst retirees and beneficiaries | -$7,704,691 |
| 2. Gain due to salary increase for continuing actives less than expected | 4,983,877 |
| 3. Miscellaneous loss including previously unreported participants and other changes | -6,365,353 |
| 4. Net loss from demographic experience | -$9,086,167 |

The unfunded liability has increased by $29.4 million from $951.8 million as of July 1, 2015 to $981.2 million as of July 1, 2016. The unfunded liability was expected to increase to $965.9 million. The difference between the expected unfunded liability of $965.9 million and the actual unfunded liability of $981.2 million is attributable to an investment loss on an actuarial basis of $6.2 million and an experience loss of $9.1 million.

**CHART 14**

**Development of Unfunded Actuarial Accrued Liability and (Gain)/Loss for Year Ended June 30, 2016**

| | | |
|---|---|---|
| 1. Unfunded actuarial accrued liability at beginning of year | | $951,817,542 |
| 2. Normal cost at beginning of year | | 19,533,554 |
| 3. Employer contributions | | -70,704,000 |
| 4. Employee contributions | | -12,043,000 |
| 5. Interest | | |
| (a) For whole year on (1) + (2) | $77,708,087 | |
| (b) For half year on (4) | -435,441 | |
| (c) Total interest | | 77,272,646 |
| 6. Expected unfunded actuarial accrued liability | | $965,876,742 |
| 7. Changes due to: | | |
| (a) Investment loss | $6,243,924 | |
| (b) Other experience loss | 9,086,167 | |
| (c) Total changes | | 15,330,091 |
| 8. Unfunded actuarial accrued liability at end of year | | $981,206,833 |

## D. CONTRIBUTION FOR FISCAL YEAR BEGINNING JULY 1, 2017

The annual contribution required to fund the System is comprised of an employer normal cost payment and a payment on the unfunded actuarial accrued liability.

The contribution requirements as of July 1, 2017 are based on all of the data described in the previous sections, the actuarial assumptions described in Section 4, and the Plan provisions adopted at the time of preparation of the Actuarial Valuation. They include all changes affecting future costs, adopted benefit changes, actuarial gains and losses and changes in the actuarial assumptions.

To determine the unfunded liability as of July 1, 2017, the liabilities are rolled forward using standard actuarial techniques and the actuarial value of assets are projected based on an anticipated employer contribution of $73,217,543 for fiscal 2017 and assuming that the market value of assets return 8.00% net of investment expenses.

Because the fiscal 2017, 2018 and 2019 appropriations have been budgeted based on prior valuations, the results of this valuation will first be reflected in the fiscal 2020 appropriation.

*The chart compares this valuation's recommended contribution with the prior valuation.*

**CHART 15**

**Recommended Contribution**

| | Year Beginning July 1 | | | |
|---|---|---|---|---|
| | 2016 | | 2015 | |
| | Amount | % of Pay | Amount | % of Pay |
| 1. Total normal cost | $18,973,208 | 13.24% | $19,533,554 | 13.39% |
| 2. Expected employee contributions | -11,354,985 | -7.92% | -11,501,902 | -7.88% |
| 3. Employer normal cost: (1) + (2) | $7,618,223 | 5.32% | $8,031,652 | 5.51% |
| 4. Actuarial accrued liability | 1,330,301,262 | | 1,305,338,091 | |
| 5. Actuarial value of assets | 349,094,429 | | 353,520,549 | |
| 6. Unfunded actuarial accrued liability (UAAL): (4) - (5) | $981,206,833 | | $951,817,542 | |
| The actuarial factors projected to the following fiscal year are: | | | | |
| 7. Employer normal cost as of July 1, 2017 and July 1, 2016, adjusted for timing | 8,547,462 | 5.76% | 9,010,533 | 5.97% |
| 8. Unfunded actuarial accrued liability as of July 1, 2017 and July 1, 2016 | 997,871,907 | | 968,610,593 | |
| 9. Amortization of 1995 Deferral, adjusted for timing | 464,222 | 0.31% | 464,222 | 0.31% |
| 10. Payment on remaining unfunded actuarial accrued liability as of July 1, 2017 and July 1, 2016, adjusted for timing | 69,111,434 | 46.59% | 63,742,788 | 42.22% |
| 11. Total fiscal 2018 and 2017 contribution: (7) + (9) + (10) | $78,123,118 | 52.67% | $73,217,543 | 48.49% |
| 12. Projected compensation as of July 1, 2017 and July 1, 2016 | $148,327,141 | | $150,980,061 | |

*Notes: Recommended contributions are assumed to be paid on June 30. If the contribution is made before or after June 30, Segal will calculate the change in interest charge based on the date of payment.*

The unfunded liability, less the liability associated with the 1995 Deferral, is amortized through June 30, 2040. The amortization payments are initially calculated to increase 3.5% per year beginning with the fiscal 2020 appropriation. The 1995 deferral liability is amortized through June 30, 2031 in level payments.

Chart 16 shows the details of a funding schedule that fully funds the System by June 30, 2040. In developing the funding schedule, assets and liabilities were projected from the valuation date. The market value of assets are assumed to earn 8% per year and the deferred investment gains and losses are recognized in the actuarial value of assets in accordance with the methodology adopted by the Board. As a result of recognizing these deferred gains and losses, the actual increase in the amortization payment may be more or less than 3.5%.

Recommended contributions are assumed to be paid on June 30. If the contribution is made before or after June 30, Segal will calculate the change in interest charge based on the date of payment.

## Chart 16

### Funding Schedule

| (1) Fiscal Year Ended June 30: | (2) Employer Normal Cost | (3) Amortization of Deferral Liability | (4) Amortization of Remaining Unfunded Liability | (5) Total Plan Cost (2)+(3)+(4) | (6) Increase | (7) Payroll | (8) Contributions as a % of Payroll | (9) Actuarial Accrued Liability | (10) Actuarial Value of Assets | (11) Total Unfunded Actuarial Accrued Liability | (12) Funded Ratio |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2017 | $8,227,681 | $464,222 | $64,525,640 | $73,217,543 | - - | $143,311,247 | 51.09% | $1,330,301,262 | $349,094,429 | $981,206,833 | 26.24% |
| 2018 | 8,547,462 | 464,222 | 69,111,434 | 78,123,118 | 6.70% | 148,327,141 | 52.67% | 1,348,918,484 | 351,046,577 | 997,871,907 | 26.02% |
| 2019 | 8,879,598 | 464,222 | 74,013,547 | 83,357,367 | 6.70% | 153,518,591 | 54.30% | 1,374,898,780 | 361,770,831 | 1,013,127,948 | 26.31% |
| 2020 | 9,224,565 | 464,222 | 78,038,532 | 87,727,319 | 5.24% | 158,891,741 | 55.21% | 1,402,309,978 | 374,109,969 | 1,028,200,009 | 26.68% |
| 2021 | 9,582,854 | 464,222 | 81,139,262 | 91,186,338 | 3.94% | 164,452,952 | 55.45% | 1,431,291,348 | 394,633,864 | 1,036,657,484 | 27.57% |
| 2022 | 9,954,980 | 464,222 | 83,979,136 | 94,398,338 | 3.52% | 170,208,806 | 55.46% | 1,461,430,903 | 423,444,305 | 1,037,986,598 | 28.97% |
| 2023 | 10,341,471 | 464,222 | 86,918,406 | 97,724,099 | 3.52% | 176,166,114 | 55.47% | 1,493,449,855 | 456,867,687 | 1,036,582,168 | 30.59% |
| 2024 | 10,742,881 | 464,222 | 89,960,550 | 101,167,653 | 3.52% | 182,331,928 | 55.49% | 1,526,687,509 | 494,561,395 | 1,032,126,114 | 32.39% |
| 2025 | 11,159,784 | 464,222 | 93,109,170 | 104,733,175 | 3.52% | 188,713,545 | 55.50% | 1,560,472,969 | 536,201,537 | 1,024,271,432 | 34.36% |
| 2026 | 11,592,772 | 464,222 | 96,367,991 | 108,424,984 | 3.52% | 195,318,519 | 55.51% | 1,595,026,138 | 582,386,383 | 1,012,639,755 | 36.51% |
| 2027 | 12,042,464 | 464,222 | 99,740,870 | 112,247,556 | 3.53% | 202,154,667 | 55.53% | 1,630,439,002 | 633,620,278 | 996,818,724 | 38.86% |
| 2028 | 12,509,503 | 464,222 | 103,231,801 | 116,205,525 | 3.53% | 209,230,081 | 55.54% | 1,666,862,660 | 690,503,529 | 976,359,131 | 41.43% |
| 2029 | 12,994,554 | 464,222 | 106,844,914 | 120,303,689 | 3.53% | 216,553,134 | 55.55% | 1,704,375,468 | 753,603,628 | 950,771,840 | 44.22% |
| 2030 | 13,498,305 | 464,222 | 110,584,486 | 124,547,013 | 3.53% | 224,132,493 | 55.57% | 1,743,357,720 | 823,833,268 | 919,524,452 | 47.26% |
| 2031 | 14,021,478 | 464,222 | 114,454,943 | 128,940,643 | 3.53% | 231,977,131 | 55.58% | 1,783,909,168 | 901,871,467 | 882,037,701 | 50.56% |
| 2032 | 14,564,816 | 0 | 118,460,866 | 133,025,682 | 3.17% | 240,096,330 | 55.41% | 1,826,426,960 | 988,745,409 | 837,681,551 | 54.14% |
| 2033 | 15,129,094 | 0 | 122,606,996 | 137,736,090 | 3.54% | 248,499,702 | 55.43% | 1,871,596,461 | 1,085,361,252 | 786,235,209 | 57.99% |
| 2034 | 15,715,113 | 0 | 126,898,241 | 142,613,354 | 3.54% | 257,197,191 | 55.45% | 1,919,840,374 | 1,193,313,344 | 726,527,030 | 62.16% |
| 2035 | 16,323,709 | 0 | 131,339,679 | 147,663,388 | 3.54% | 266,199,093 | 55.47% | 1,971,852,573 | 1,314,101,621 | 657,750,952 | 66.64% |
| 2036 | 16,955,745 | 0 | 135,936,568 | 152,892,313 | 3.54% | 275,516,061 | 55.49% | 2,028,168,389 | 1,449,137,040 | 579,031,349 | 71.45% |
| 2037 | 17,612,123 | 0 | 140,694,348 | 158,306,471 | 3.54% | 285,159,123 | 55.52% | 2,089,475,492 | 1,600,058,203 | 489,417,289 | 76.58% |
| 2038 | 18,293,773 | 0 | 145,618,650 | 163,912,423 | 3.54% | 295,139,693 | 55.54% | 2,156,299,321 | 1,768,422,997 | 387,876,324 | 82.01% |
| 2039 | 19,001,666 | 0 | 150,715,303 | 169,716,969 | 3.54% | 305,469,582 | 55.56% | 2,229,557,848 | 1,956,270,068 | 273,287,780 | 87.74% |
| 2040 | 19,736,806 | 0 | 155,990,338 | 175,727,144 | 3.54% | 316,161,017 | 55.58% | 2,309,620,982 | 2,165,185,482 | 144,435,500 | 93.75% |
| 2041 | 20,500,237 | 0 | 0 | 20,500,237 | -88.33% | 327,226,653 | 6.26% | 2,397,279,288 | 2,397,279,288 | 0 | 100.00% |

*Notes: Fiscal 2017, 2018 and 2019 contributions set at budgeted amounts.*
*Recommended contributions are assumed to paid on June 30. If the contribution is made after June 30, Segal will calculate the additional interest charge based on the date of payment.*
*Item (2) reflects 3.5% growth in payroll as well as a 0.15% adjustment to total normal cost to reflect the effects of mortality improvements due to the generational mortality assumption.*
*Amortization payments of remaining unfunded liability increase at 3.5% per year beginning with fiscal year 2020.*
*Projected unfunded actuarial accrued liability reflects deferred investment losses. Recognizing deferred investment losses means the System is anticipating investment losses on an actuarial basis.*
*Normal cost is projected based on plan of benefits of current employees and does not reflect different benefits for new hires, if applicable.*

Chart 17 shows the contribution for the fiscal year beginning July 1, 2017 for Class A and Class B.

**CHART 17**

**Contribution by Class and Department**

| | Class A | | Class B – Police | | Class B – Fire | | Class B – Total | |
|---|---|---|---|---|---|---|---|---|
| | Amount | % of Pay | Amount | % of Pay | Amount | % of Pay | Amount | % of Pay |
| 1. Total normal cost | $9,191,521 | 10.14% | $5,320,011 | 18.88% | $4,461,676 | 18.20% | $9,781,687 | 18.57% |
| 2. Expected employee contributions | -7,232,686 | -7.98% | -2,177,408 | -7.73% | -1,944,891 | -7.94% | -4,122,299 | -7.83% |
| 3. Employer normal cost: (1) + (2) | $1,958,835 | 2.16% | $3,142,603 | 11.16% | $2,516,785 | 10.27% | $5,659,388 | 10.74% |
| 4. Actuarial accrued liability | 469,240,077 | | 404,975,318 | | 456,085,867 | | 861,061,185 | |
| 5. Actuarial value of assets | 123,136,842 | | 106,272,640 | | 119,684,947 | | 225,957,587 | |
| 6. Unfunded actuarial accrued liability (UAAL): (4) - (5) | $346,103,235 | | $298,702,678 | | $336,400,920 | | $635,103,598 | |
| The actuarial factors projected to the following fiscal year are: | | | | | | | | |
| 7. Employer normal cost as of July 1, 2017, adjusted for timing | 2,204,997 | 2.35% | 3,521,722 | 12.08% | 2,820,743 | 11.12% | 6,342,465 | 11.63% |
| 8. Unfunded actuarial accrued liability as of July 1, 2017 | 351,981,543 | | 303,775,923 | | 342,114,441 | | 645,890,364 | |
| 9. Amortization of 1995 Deferral, adjusted for timing | 143,532 | 0.15% | 150,029 | 0.51% | 170,661 | 0.67% | 320,690 | 0.59% |
| 10. Payment on remaining unfunded actuarial accrued liability as of July 1, 2017, adjusted for timing | 24,377,827 | 25.99% | 21,039,164 | 72.16% | 23,694,443 | 93.41% | 44,733,607 | 82.04% |
| 11. Total fiscal 2018 contribution: (7) + (9) + (10) | $26,726,356 | 28.49% | $24,710,915 | 84.75% | $26,685,847 | 105.20% | $51,396,762 | 94.26% |
| 12. Projected compensation as of July 1, 2017 | $93,803,032 | | $29,157,405 | | $25,366,704 | | 54,524,109 | |

*Notes: Recommended contributions are assumed to be paid on June 30. If the contribution is made before or after June 30, Segal will calculate the change in interest charge based on the date of payment.*
*July 1, 2016 actuarial value of assets allocated in proportion to July 1, 2016 actuarial accrued liability.*
*July 1, 2017 unfunded actuarial accrued liability allocated in proportion to July 1, 2016 unfunded actuarial accrued liability.*
*Class A includes Elected Officials.*

Chart 18 shows the contribution for the fiscal year beginning July 1, 2017 for the departments of Class A.

**CHART 18**

**Class A Contribution by Department**

| | Total Contribution | Projected Compensation |
|---|---|---|
| General | $10,322,505 | $36,229,491 |
| School | 10,391,011 | 36,469,929 |
| School Crossing Guards | 267,839 | 940,051 |
| Water | 3,827,755 | 13,434,493 |
| Workforce Development (JTPA) | 316,997 | 1,112,582 |
| Fire Civilians | 353,127 | 1,239,390 |
| Police Civilians | 1,247,122 | 4,377,096 |
| Total | $26,726,356 | $93,803,032 |

*Note: Contribution is allocated in proportion to projected compensation.*

## EXHIBIT A

### Table of Plan Coverage – Class A

| Category | Year Ended June 30 2016 | Year Ended June 30 2015 | Change From Prior Year |
|---|---|---|---|
| **Active participants in valuation:** | | | |
| Number | 2,121 | 2,158 | -1.7% |
| Average age | 48.8 | 48.3 | N/A |
| Average years of service | 12.1 | 11.7 | N/A |
| Total compensation | $87,486,700 | $85,583,048 | 2.2% |
| Average compensation | 41,248 | 39,659 | 4.0% |
| Participant contributions | 97,873,558 | 92,506,889 | 5.8% |
| **Inactive participants entitled to a refund of employee contributions** | 393 | 364 | 8.0% |
| **Inactive participants with a vested right to a deferred or immediate benefit** | 48 | 40 | 20.0% |
| **Retired participants:** | | | |
| Number in pay status | 1,483 | 1,461 | 1.5% |
| Average age | 72.4 | 72.2 | N/A |
| Average monthly benefit | $1,535 | $1,540 | -0.3% |
| Number in suspended status | 3 | 3 | 0.0% |
| **Disabled participants:** | | | |
| Number in pay status | 85 | 86 | -1.2% |
| Average age | 68.7 | 68.0 | N/A |
| Average monthly benefit | $1,630 | $1,619 | 0.7% |
| **Beneficiaries in pay status:** | | | |
| Number in pay status | 196 | 195 | 0.5% |
| Average age | 78.4 | 78.8 | N/A |
| Average monthly benefit | $1,258 | $1,182 | 6.4% |

*Note: Includes elected officials.*

## EXHIBIT B

### Table of Plan Coverage – Class B

| Category | Year Ended June 30 2016 | Year Ended June 30 2015 | Change From Prior Year |
|---|---|---|---|
| **Active participants in valuation:** | | | |
| Number | 768 | 854 | -10.1% |
| Average age | 43.3 | 43.0 | N/A |
| Average years of service | 15.8 | 15.5 | N/A |
| Total compensation | $50,750,128 | $55,325,831 | -8.3% |
| Average compensation | 66,081 | 64,784 | 2.0% |
| Participant contributions | 83,441,077 | 88,296,591 | -5.5% |
| **Inactive participants entitled to a refund of employee contributions** | 28 | 26 | 7.7% |
| **Inactive participants with a vested right to a deferred or immediate benefit** | 4 | 2 | 100.0% |
| **Retired participants:** | | | |
| Number in pay status | 670 | 617 | 8.6% |
| Average age | 64.9 | 65.3 | N/A |
| Average monthly benefit | $3,316 | $3,373 | -1.7% |
| **Disabled participants:** | | | |
| Number in pay status | 399 | 399 | 0.0% |
| Average age | 66.0 | 65.5 | N/A |
| Average monthly benefit | $4,781 | $4,834 | -1.1% |
| **Beneficiaries in pay status:** | | | |
| Number in pay status | 352 | 336 | 4.8% |
| Average age | 75.1 | 74.7 | N/A |
| Average monthly benefit | $2,693 | $2,679 | 0.5% |

## EXHIBIT C

### Participants in Active Service as of June 30, 2016 – Class A
### By Age, Years of Service, and Average Compensation

| | | Years of Service | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| **Age** | **Total** | **0-4** | **5-9** | **10-14** | **15 - 19** | **20 - 24** | **25 - 29** | **30 - 34** | **35 - 39** | **40 & over** |
| Under 25 | 26 | 26 | - - | - - | - - | - - | - - | - - | - - | - - |
| | $31,044 | $31,044 | - - | - - | - - | - - | - - | - - | - - | - - |
| 25 - 29 | 118 | 98 | 19 | 1 | - - | - - | - - | - - | - - | - - |
| | $33,374 | $33,702 | $31,203 | $42,481 | - - | - - | - - | - - | - - | - - |
| 30 - 34 | 155 | 73 | 66 | 15 | 1 | - - | - - | - - | - - | - - |
| | $38,909 | $38,764 | $36,824 | $46,923 | $66,924 | - - | - - | - - | - - | - - |
| 35 - 39 | 192 | 60 | 47 | 45 | 39 | 1 | - - | - - | - - | - - |
| | $41,337 | $46,542 | $36,310 | $40,214 | $41,180 | $21,865 | - - | - - | - - | - - |
| 40 - 44 | 253 | 54 | 50 | 54 | 72 | 21 | 2 | - - | - - | - - |
| | $41,425 | $41,976 | $37,148 | $41,044 | $42,597 | $47,849 | $34,068 | - - | - - | - - |
| 45 - 49 | 352 | 87 | 58 | 52 | 72 | 55 | 26 | 2 | - - | - - |
| | $43,922 | $38,617 | $38,740 | $45,044 | $46,236 | $48,542 | $53,307 | $63,467 | - - | - - |
| 50 - 54 | 375 | 68 | 69 | 64 | 76 | 55 | 39 | 3 | 1 | - - |
| | $42,161 | $34,751 | $36,007 | $39,085 | $41,745 | $49,175 | $59,330 | $69,890 | $60,530 | - - |
| 55 - 59 | 301 | 41 | 59 | 45 | 74 | 46 | 29 | 5 | 2 | - - |
| | $41,952 | $35,138 | $34,012 | $41,266 | $39,560 | $49,559 | $57,973 | $64,174 | $56,988 | - - |
| 60 - 64 | 222 | 25 | 40 | 34 | 55 | 34 | 23 | 3 | 5 | 3 |
| | $42,313 | $35,178 | $38,604 | $45,129 | $38,794 | $42,568 | $48,005 | $47,880 | $78,694 | $71,098 |
| 65 - 69 | 88 | 9 | 15 | 19 | 14 | 9 | 15 | 1 | 4 | 2 |
| | $41,084 | $38,054 | $32,370 | $43,478 | $41,368 | $45,731 | $46,574 | $49,455 | $37,423 | $36,403 |
| 70 & over | 39 | 2 | 4 | 10 | 13 | 6 | 2 | 1 | - - | 1 |
| | $35,537 | $17,804 | $41,205 | $36,966 | $32,808 | $43,948 | $15,430 | $52,767 | - - | $42,020 |
| Total | 2,121 | 543 | 427 | 339 | 416 | 227 | 136 | 15 | 12 | 6 |
| | $41,248 | $37,606 | $36,346 | $41,897 | $41,607 | $47,592 | $53,550 | $60,222 | $59,806 | $54,686 |

## EXHIBIT D

### Participants in Active Service as of June 30, 2016 – Class B
### By Age, Years of Service, and Average Compensation

| | | Years of Service | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| **Age** | **Total** | **0-4** | **5-9** | **10-14** | **15 - 19** | **20 - 24** | **25 - 29** | **30 - 34** | **35 - 39** |
| Under 25 | 19 | 19 | - - | - - | - - | - - | - - | - - | - - |
| | $47,809 | $47,809 | - - | - - | - - | - - | - - | - - | - - |
| 25 - 29 | 66 | 60 | 6 | - - | - - | - - | - - | - - | - - |
| | $50,931 | $49,491 | $65,334 | - - | - - | - - | - - | - - | - - |
| 30 - 34 | 92 | 39 | 47 | 5 | 1 | - - | - - | - - | - - |
| | $60,629 | $54,092 | $65,425 | $64,370 | $71,446 | - - | - - | - - | - - |
| 35 - 39 | 104 | 15 | 36 | 44 | 9 | - - | - - | - - | - - |
| | $63,446 | $49,566 | $65,007 | $65,779 | $68,927 | - - | - - | - - | - - |
| 40 - 44 | 98 | 4 | 17 | 38 | 35 | 4 | - - | - - | - - |
| | $65,565 | $44,739 | $65,521 | $65,154 | $68,279 | $66,739 | - - | - - | - - |
| 45 - 49 | 176 | 4 | 7 | 37 | 30 | 79 | 19 | - - | - - |
| | $69,699 | $55,859 | $65,910 | $65,690 | 469,671 | $71,827 | $73,014 | - - | - - |
| 50 - 54 | 129 | - - | 2 | 10 | 9 | 43 | 57 | 7 | 1 |
| | $72,020 | - - | $64,371 | $65,467 | $70,700 | $70,936 | $72,666 | $85,494 | $80,260 |
| 55 - 59 | 69 | - - | - - | 3 | 4 | 15 | 28 | 15 | 4 |
| | $74,745 | - - | - - | $63,748 | $64,657 | $69,407 | $74,048 | $84,992 | $79,553 |
| 60 - 64 | 15 | - - | - - | - - | 1 | 3 | 4 | 2 | 5 |
| | $77,580 | - - | - - | - - | $60,733 | $67,055 | 474,101 | $67,867 | 493,935 |
| Total | 768 | 141 | 115 | 137 | 89 | 144 | 108 | 24 | 10 |
| | $66,081 | $50,591 | $65,315 | $65,463 | $68,847 | $71,068 | $73,138 | $83,711 | $86,815 |

## EXHIBIT E

### Service Retirees as of June 30, 2016

| | Class A | | Class B | | Total | |
|---|---|---|---|---|---|---|
| Age | Number | Amount | Number | Amount | Number | Amount |
| 40-44 | 0 | $0 | 1 | $24,740 | 1 | $24,740 |
| 45-49 | 1 | 22,889 | 23 | 662,993 | 24 | 685,881 |
| 50-54 | 15 | 447,950 | 101 | 3,187,045 | 116 | 3,634,995 |
| 55-59 | 110 | 2,461,888 | 114 | 4,223,990 | 224 | 6,685,878 |
| 60-64 | 245 | 5,541,776 | 124 | 5,148,852 | 369 | 10,690,628 |
| 65-69 | 276 | 5,539,588 | 112 | 4,921,398 | 388 | 10,460,986 |
| 70-74 | 246 | 4,158,081 | 70 | 3,398,443 | 316 | 7,556,525 |
| 75-79 | 216 | 3,201,026 | 39 | 1,637,348 | 255 | 4,838,374 |
| 80-84 | 165 | 2,536,739 | 40 | 1,755,363 | 205 | 4,292,102 |
| 85-89 | 129 | 2,250,628 | 30 | 1,147,180 | 159 | 3,397,809 |
| 90-94 | 61 | 914,880 | 12 | 474,012 | 73 | 1,388,893 |
| 95-99 | 16 | 192,401 | 4 | 76,889 | 20 | 269,291 |
| 100 & over | 3 | 41,675 | 0 | 0 | 3 | 41,675 |
| Total | 1,483 | $27,309,524 | 670 | $26,658,253 | 2,153 | $53,967,777 |

**EXHIBIT F**

**Class A Disabled Retirees as of June 30, 2016**

| | Ordinary | | Accidental | | Total | |
|---|---|---|---|---|---|---|
| Age | Number | Amount | Number | Amount | Number | Amount |
| 40-44 | 0 | $0 | 1 | $33,665 | 1 | $33,665 |
| 45-49 | 1 | 28,595 | 0 | 0 | 1 | 28,595 |
| 50-54 | 2 | 18,742 | 4 | 109,463 | 6 | 128,204 |
| 55-59 | 7 | 85,073 | 3 | 75,082 | 10 | 160,155 |
| 60-64 | 4 | 43,608 | 9 | 224,296 | 13 | 267,904 |
| 65-69 | 1 | 4,087 | 10 | 211,651 | 11 | 215,739 |
| 70-74 | 1 | 21,352 | 12 | 262,948 | 13 | 284,300 |
| 75-79 | 1 | 10,720 | 16 | 271,650 | 17 | 282,370 |
| 80-84 | 0 | 0 | 7 | 122,706 | 7 | 122,706 |
| 85-89 | 0 | 0 | 5 | 115,810 | 5 | 115,810 |
| 90-94 | 0 | 0 | 1 | 23,234 | 1 | 23,234 |
| 95-99 | 0 | 0 | 0 | 0 | 0 | 0 |
| 100 & over | 0 | 0 | 0 | 0 | 0 | 0 |
| Total | 17 | $212,177 | 68 | $1,450,505 | 85 | $1,662,682 |

## EXHIBIT G

### Class B Disabled Retirees as of June 30, 2016

| | Ordinary | | Accidental | | Total | |
|---|---|---|---|---|---|---|
| Age | Number | Amount | Number | Amount | Number | Amount |
| 25-29 | 0 | $0 | 0 | $0 | 0 | $0 |
| 30-34 | 0 | 0 | 1 | 36,028 | 1 | 36,028 |
| 35-39 | 0 | 0 | 0 | 0 | 0 | 0 |
| 40-44 | 2 | 35,228 | 5 | 199,381 | 7 | 234,608 |
| 45-49 | 4 | 84,953 | 17 | 704,810 | 21 | 789,763 |
| 50-54 | 4 | 87,431 | 32 | 1,260,865 | 36 | 1,348,296 |
| 55-59 | 3 | 74,325 | 51 | 2,489,826 | 54 | 2,564,151 |
| 60-64 | 2 | 30,333 | 47 | 2,444,376 | 49 | 2,474,709 |
| 65-69 | 0 | 0 | 80 | 4,807,291 | 80 | 4,807,291 |
| 70-74 | 0 | 0 | 64 | 4,214,380 | 64 | 4,214,380 |
| 75-79 | 0 | 0 | 42 | 3,034,671 | 42 | 3,034,671 |
| 80-84 | 0 | 0 | 27 | 2,203,711 | 27 | 2,203,711 |
| 85-89 | 1 | 19,104 | 12 | 827,757 | 13 | 846,861 |
| 90-94 | 0 | 0 | 3 | 278,793 | 3 | 278,793 |
| 95-99 | 0 | 0 | 1 | 18,194 | 1 | 18,194 |
| 100 & over | 0 | 0 | 1 | 38,951 | 1 | 38,951 |
| Total | 16 | $331,373 | 383 | $22,559,033 | 399 | $22,890,406 |

## EXHIBIT H

### Beneficiaries as of June 30, 2016

| | Class A | | Class B | | Total | |
|---|---|---|---|---|---|---|
| **Age** | **Number** | **Amount** | **Number** | **Amount** | **Number** | **Amount** |
| Under 20 | 0 | $0 | 0 | $0 | 0 | $0 |
| 20-24 | 0 | 0 | 0 | 0 | 0 | 0 |
| 25-29 | 0 | 0 | 0 | 0 | 0 | 0 |
| 30-34 | 0 | 0 | 0 | 0 | 0 | 0 |
| 35-39 | 0 | 0 | 0 | 0 | 0 | 0 |
| 40-44 | 2 | 17,928 | 0 | 0 | 2 | 17,928 |
| 45-49 | 1 | 52,776 | 3 | 92,148 | 4 | 144,924 |
| 50-54 | 3 | 17,868 | 10 | 230,256 | 13 | 248,124 |
| 55-59 | 10 | 153,648 | 21 | 481,680 | 31 | 635,328 |
| 60-64 | 18 | 348,624 | 36 | 1,108,380 | 54 | 1,457,004 |
| 65-69 | 19 | 340,656 | 45 | 1,413,156 | 64 | 1,753,812 |
| 70-74 | 17 | 208,020 | 50 | 1,777,464 | 67 | 1,985,484 |
| 75-79 | 21 | 322,392 | 41 | 1,782,108 | 62 | 2,104,500 |
| 80-84 | 30 | 428,808 | 56 | 2,076,480 | 86 | 2,505,288 |
| 85-89 | 42 | 704,544 | 50 | 1,529,952 | 92 | 2,234,496 |
| 90-94 | 19 | 202,080 | 33 | 745,188 | 52 | 947,268 |
| 95-99 | 8 | 105,228 | 3 | 71,232 | 11 | 176,460 |
| 100 & over | 6 | 55,428 | 2 | 34,368 | 8 | 89,796 |
| Certain Only | 0 | 0 | 2 | 31,704 | 2 | 31,704 |
| Total | 196 | $2,958,000 | 352 | $11,374,116 | 548 | $14,332,116 |

## EXHIBIT I

## Summary Statement of Income and Expenses on an Actuarial Value Basis

| | Year Ended June 30, 2016 | | Year Ended June 30, 2015 | |
|---|---|---|---|---|
| **Actuarial value of assets at the beginning of the year** | | $353,520,549 | | $338,253,329 |
| **Contribution income:** | | | | |
| Employer contributions | $70,704,000 | | $66,876,000 | |
| Employee contributions | 12,043,000 | | 11,624,000 | |
| Net contribution income | | 82,747,000 | | 78,500,000 |
| **Net investment income** | | 21,019,880 | | 34,418,220 |
| **Total income available for benefits** | | $103,766,880 | | $112,918,220 |
| **Less benefit payments** | | -$108,193,000 | | -$97,651,000 |
| **Change in reserve for future benefits** | | -$4,426,120 | | $15,267,220 |
| **Actuarial value of assets at the end of the year** | | $349,094,429 | | $353,520,549 |

*Note: Investment income is net of investment expenses.*

## EXHIBIT J

### Development of the Fund Through June 30, 2016

| Year Ended June 30 | Employer Contributions | Employee Contributions | Net Investment Return | Benefit Payments | Actuarial Value of Assets at End of Year |
|---|---|---|---|---|---|
| 2011 | $56,654,000 | $10,708,000 | $17,222,288 | $89,636,000 | $422,839,189 |
| 2012 | 48,583,000 | 10,291,000 | 3,391,253 | 99,273,000 | 385,106,813 |
| 2013 | 58,145,000 | 10,940,000 | 18,231,552 | 95,402,000 | 380,484,015 |
| 2014 | 62,140,000 | 10,873,000 | 38,601,141 | 96,570,000 | 338,253,329 |
| 2015 | 66,876,000 | 11,624,000 | 34,418,220 | 97,651,000 | 353,520,549 |
| 2016 | 70,704,000 | 12,043,000 | 21,019,880 | 108,193,000 | 349,094,429 |

*Notes: Net investment return is net of investment expenses.*
*Assets as of July 1, 2013 and earlier years include the discounted contribution expected to be paid by the City for the fiscal year following the valuation date.*
*Figures do not add due to the inclusion of discounted contributions in 2013 and earlier years.*

## EXHIBIT K
## Definitions of Pension Terms

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

| | |
|---|---|
| **Assumptions or actuarial assumptions:** | The estimates on which the cost of the Plan is calculated including:<br>(a) Investment return — the rate of investment yield that the Plan will earn over the long-term future;<br>(b) Mortality rates — the death rates of employees and pensioners; life expectancy is based on these rates;<br>(c) Retirement rates — the rate or probability of retirement at a given age;<br>(d) Turnover rates — the rates at which employees of various ages are expected to leave employment for reasons other than death, disability, or retirement. |
| **Normal cost:** | The amount of contributions required to fund the benefit allocated to the current year of service. |
| **Actuarial accrued liability for actives:** | The equivalent of the accumulated normal costs allocated to the years before the valuation date. |
| **Actuarial accrued liability for pensioners:** | The single sum value of lifetime benefits to existing pensioners. This sum takes account of life expectancies appropriate to the ages of the pensioners and the interest that the sum is expected to earn before it is entirely paid out in benefits. |
| **Unfunded actuarial accrued liability:** | The extent to which the actuarial accrued liability of the Plan exceeds the assets of the Plan. There are many approaches to paying off the unfunded actuarial accrued liability, from meeting the interest accrual only to amortizing it over a specific period of time. |

| | |
|---|---|
| **Amortization of the unfunded actuarial accrued liability:** | Payments made over a period of years equal in value to the Plan's unfunded actuarial accrued liability. |
| **Investment return:** | The rate of earnings of the Plan 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. |

**EXHIBIT I**

**Summary of Actuarial Valuation Results**

The valuation was made with respect to the following data supplied to us:

| | | | |
|---|---|---|---|
| 1. | Retired participants as of the valuation date (including 548 beneficiaries in pay status and 3 retired participants in suspended status) | | 3,188 |
| 2. | Participants active during the year ended June 30, 2016, with projected fiscal 2017 payroll of $143,311,247 | | 2,889 |
| 3. | Inactive participants with a right to a return of their employee contributions as of June 30, 2016 | | 421 |
| 4. | Inactive participants with a vested right to a deferred or immediate benefit as of June 30, 2016 | | 52 |

The actuarial factors as of the valuation date are as follows:

| | | | |
|---|---|---|---|
| 1. | Total normal cost | | $18,973,208 |
| 2. | Expected employee contributions | | -11,354,985 |
| 3. | Employer normal cost: (1) + (2) | | $7,618,223 |
| 4. | Actuarial accrued liability | | 1,330,301,262 |
| | Retired participants and beneficiaries | $904,791,805 | |
| | Inactive participants | 13,306,418 | |
| | Active participants | 412,203,039 | |
| 5. | Actuarial value of assets ($333,287,000 at market value) | | 349,094,429 |
| 6. | Unfunded actuarial accrued liability: (4) – (5) | | 981,206,833 |

**EXHIBIT I (continued)**

**Summary of Actuarial Valuation Results**

The actuarial factors projected to July 1, 2017 are as follows:

| | | |
|---|---|---|
| 1. | Employer normal cost, adjusted for timing | $8,547,462 |
| 2. | Unfunded actuarial accrued liability | 997,871,907 |
| 3. | Payment on 1995 deferral, adjusted for timing | 464,222 |
| 4. | Payment on remaining unfunded actuarial accrued liability, adjusted for timing | 69,111,434 |
| 5. | Total recommended fiscal 2017 contribution: (1) + (3) + (4) | $78,123,118 |
| 6. | Projected compensation | $148,327,141 |
| 7. | Total recommended contribution as a percentage of projected compensation: (5) ÷ (6) | 52.67% |

*Notes: Fiscal 2017, 2018 and 2019 contributions set at budgeted amounts.*
*Recommended contributions are assumed to paid on June 30. If the contribution is made after June 30, Segal will calculate the additional interest charge based on the date of payment.*

**EXHIBIT II**

**Funded Ratio**

A critical piece of information regarding the Plan's financial status is the funded ratio. This ratio compares the actuarial value of assets to the actuarial accrued liabilities of the Plan as calculated. High ratios indicate a well-funded plan with assets sufficient to cover the plan's actuarial accrued liabilities. Lower ratios may indicate recent changes to benefit structures, funding of the plan below actuarial requirements, poor asset performance, or a variety of other factors.

These measurements are 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.

On a market value basis, the funded ratio has decreased from 26.9% as of July 1, 2015 to 25.1% as of July 1, 2016. On an actuarial value basis, the funded ratio has decreased from 27.1% as of July 1, 2015 to 26.2% as of July 1, 2016.

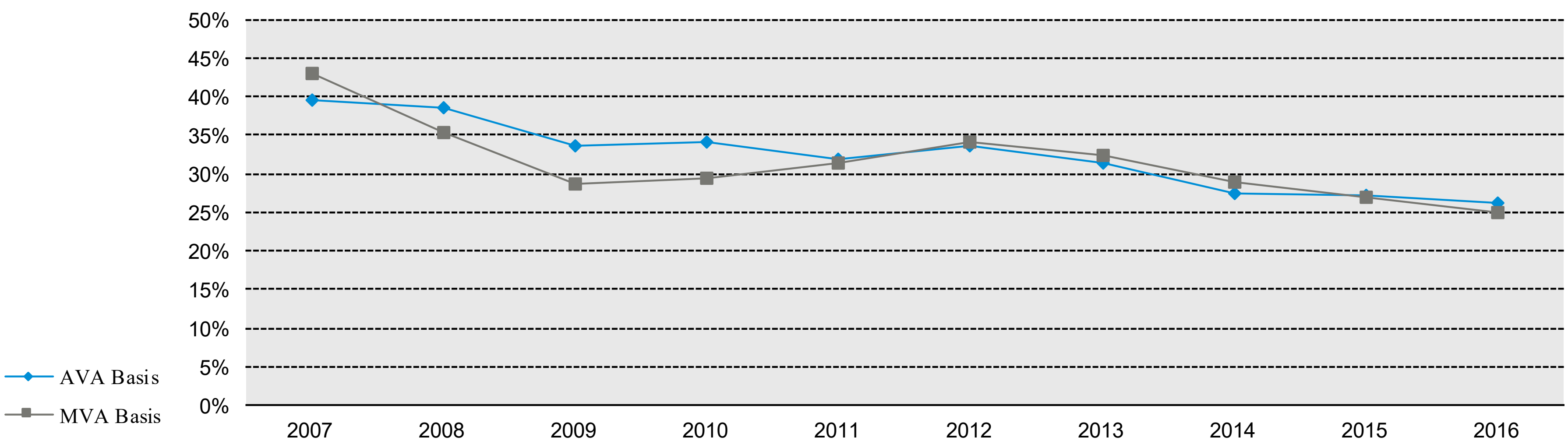


**EXHIBIT III**

**Actuarial Assumptions and Actuarial Cost Method**

| | |
|---|---|
| **Rationale for Demographic and Noneconomic Assumptions:** | The information and analysis used in selecting each assumption that has a significant effect on this actuarial valuation is shown in the Actuarial Experience Review as of June 30, 2015, dated March 25, 2016. |
| **Mortality Rates:** | |
| **Pre-Retirement** | |
| *Class A Healthy:* | RP-2014 Employee Mortality Table with MP-2014 improvement projections backed out to a base year of 2006 and projected generationally with Scale BB2D |
| *Class B Healthy:* | RP 2014 Blue Collar Employee Mortality Table with MP-2014 improvement projections backed out to a base year of 2006 and projected generationally with Scale BB2D |
| **Postretirement** | |
| *Class A Healthy:* | RP-2014 Healthy Annuitant Mortality Table with MP-2014 improvement projections backed out to a base year of 2006 and projected generationally with Scale BB2D, set forward one year |
| *Class B Healthy:* | RP-2014 Blue Collar Healthy Annuitant Mortality Table with MP-2014 improvement projections backed out to a base year of 2006 and projected generationally with Scale BB2D, set forward one year |
| *Class A and B Disabled Retirees:* | RP 2014 Blue Collar Healthy Annuitant Mortality Table with MP-2014 improvement projections backed out to a base year of 2006 and projected generationally with Scale BB2D, set forward three years |

## Annutant Mortality Rates*

| | Rate per year (%) | | | |
|---|---|---|---|---|
| | Class A | | | |
| | Healthy | | Disabled | |
| Age | Male | Female | Male | Female |
| 55 | 0.64 | 0.41 | 0.77 | 0.54 |
| 60 | 0.89 | 0.66 | 1.18 | 0.88 |
| 65 | 1.39 | 1.07 | 1.96 | 1.40 |
| 70 | 2.23 | 1.72 | 3.19 | 2.26 |
| 75 | 3.66 | 2.76 | 5.23 | 3.70 |
| 80 | 6.11 | 4.62 | 8.60 | 6.26 |
| 85 | 10.45 | 8.15 | 14.19 | 10.82 |
| 90 | 17.77 | 14.26 | 22.40 | 17.84 |
| | Class B | | | |
| | Healthy | | Disabled | |
| Age | Male | Female | Male | Female |
| 55 | 0.68 | 0.45 | 0.77 | 0.54 |
| 60 | 0.98 | 0.72 | 1.18 | 0.88 |
| 65 | 1.60 | 1.16 | 1.96 | 1.40 |
| 70 | 2.63 | 1.87 | 3.19 | 2.26 |
| 75 | 4.29 | 3.03 | 5.23 | 3.70 |
| 80 | 7.05 | 5.05 | 8.60 | 6.26 |
| 85 | 11.61 | 8.71 | 14.19 | 10.82 |
| 90 | 19.01 | 14.81 | 22.40 | 17.84 |

** Mortality rates shown do not reflect generational projection.*

**Termination Rates before Retirement:**

**Class A – Rate (%)**

| Age | Mortality Male | Mortality Female | Disability |
|---|---|---|---|
| 20 | 0.05 | 0.02 | 0.02 |
| 25 | 0.05 | 0.02 | 0.03 |
| 30 | 0.05 | 0.02 | 0.05 |
| 35 | 0.06 | 0.03 | 0.08 |
| 40 | 0.08 | 0.05 | 0.10 |
| 45 | 0.12 | 0.08 | 0.18 |
| 50 | 0.20 | 0.12 | 0.22 |
| 55 | 0.30 | 0.17 | 0.28 |
| 60 | 0.50 | 0.28 | 0.36 |

*Notes: Mortality rates do not reflect generational projection.*
*33.33% of the disability rates shown represent accidental disability.*
*40.00% of the death rates shown represent accidental death.*

**Class B – Rate (%)**

| Age | Mortality Male | Mortality Female | Disability |
|---|---|---|---|
| 20 | 0.07 | 0.02 | 0.08 |
| 25 | 0.07 | 0.02 | 0.13 |
| 30 | 0.06 | 0.02 | 0.19 |
| 35 | 0.07 | 0.03 | 0.25 |
| 40 | 0.10 | 0.05 | 0.37 |
| 45 | 0.16 | 0.09 | 0.66 |
| 50 | 0.26 | 0.13 | 1.14 |
| 55 | 0.38 | 0.19 | 1.64 |
| 60 | 0.64 | 0.31 | 2.28 |

*Notes: Mortality rates do not reflect generational projection.*
*90% of the disability rates shown represent accidental disability.*
*50% of the death rates shown represent accidental death.*

**Withdrawal Rates:**

| Age | Class A | Age | Class B |
|---|---|---|---|
| | Rate per year (%) | | |
| 20 | 14.00 | 20 | 2.50 |
| 25 | 11.50 | 25 | 1.90 |
| 30 | 9.00 | 30 | 1.40 |
| 35 | 6.50 | 35 | 0.90 |
| 40 | 5.00 | 40 | 0.55 |
| 45 | 3.75 | 45 | 0.35 |
| 50 | 2.50 | 50 | 0.15 |
| 55 | 1.25 | 55 | 0.00 |
| 60 | 0.00 | 60 | 0.00 |

**Retirement Rates:**

| Age | Rate per year (%) Class A: Fewer than 10 Years of Service | Class A: 10 Years of Service or More | Class B |
|---|---|---|---|
| 40 | 2.00 | 4.50 | 5.50 |
| 41 | 2.25 | 5.00 | 5.50 |
| 42 | 2.50 | 5.50 | 5.50 |
| 43 | 2.75 | 6.00 | 5.50 |
| 44 | 3.00 | 6.50 | 5.50 |
| 45 | 3.25 | 7.00 | 5.75 |
| 46 | 3.50 | 7.50 | 6.00 |
| 47 | 3.75 | 8.00 | 6.25 |
| 48 | 4.00 | 8.50 | 6.50 |
| 49 | 4.25 | 9.00 | 6.75 |
| 50 | 4.50 | 9.50 | 7.00 |
| 51 | 5.00 | 10.00 | 7.25 |
| 52 | 5.50 | 10.50 | 7.50 |
| 53 | 6.00 | 11.00 | 7.75 |
| 54 | 6.50 | 11.50 | 8.00 |
| 55 | 7.00 | 12.00 | 10.00 |
| 56 | 7.00 | 12.00 | 12.50 |
| 57 | 7.00 | 12.00 | 15.00 |
| 58 | 7.00 | 12.00 | 17.50 |
| 59 | 7.00 | 12.00 | 25.00 |
| 60 | 10.00 | 12.50 | 100.00 |
| 61 | 11.00 | 13.50 | - - |
| 62 | 12.00 | 14.50 | - - |

**Retirement Rates (continued):**

| Age | Class A: Fewer than 10 Years of Service | Class A: 10 Years of Service or More | Class B |
|---|---|---|---|
| | **Rate per year (%)** | | |
| 63 | 13.00 | 16.00 | - - |
| 64 | 14.00 | 17.50 | - - |
| 65 | 15.00 | 20.00 | - - |
| 66 – 74 | 15.00 | 20.00 | - - |
| 75 | 100.00 | 100.00 | - - |

**Retirement Age for Vested Former Participants:**

*Vested former participants who terminated after June 30, 2013*
Assumed to retire at minimum age for a Normal Service Retirement.

*Vested participants who terminated prior to June 30, 2013*
Assumed to take an immediate refund of their employee contributions.

*Current active participants who terminate after valuation date*
Participants in the Fire department who terminate with 20 or more years of service are assumed to retire on their 25th anniversary of employment. Other participants who terminate at age 45 or older and are vested are assumed to retire at their minimum age for a Normal Service Retirement and who terminate prior to age 45 or without vesting are assumed to take an immediate refund of their employee contributions.

The retirement age for inactive vested participants was based on historical and current demographic data, adjusted to reflect economic conditions of the area and estimated future experience and professional judgment.

**Unknown Data for Participants:** Same as those exhibited by participants with similar known characteristics. For retirees missing beneficiary information, Class A members who elected Option 2 or 3 are assumed to have a beneficiary of the opposite sex with males three years older than females. Class B members who did not elect Option 1 are assumed to be married to someone the same age.

**Percent Married:** 80%.

**Age of Spouse:** Females three years younger than males for Class A. Females and males the same age for Class B.

**Benefit Election:** All participants are assumed to elect the Maximum Retirement Option.

**Net Investment Return:** 8.00%

**Interest on Employee Contributions:** 4.00%, compounded weekly. No interest for inactive members after five years.

**Salary Increases:** 3.5% per year, before reflecting longevity.

Base wages are increased by the following percentages to reflect longevity compensation:

| | Rate of base wage increase (%) |
|---|---|
| **Class A** | |
| **Years of Service** | **Hired on or before October 23, 1999** |
| 5 – 10 | 4% |
| 10 – 15 | 5% |
| 15 – 20 | 6% |
| 20+ | 7% |
| **Years of Service** | **Hired after October 23, 1999** |
| 7 – 12 | 3% |
| 12 – 17 | 4% |
| 17 – 20 | 5% |
| 20+ | 6% |

| | Rate of base wage increase (%) |
|---|---|
| **Class B – Fire** | |
| **Years of Service** | **Hired on or before June 30, 1996** |
| 5 – 10 | 8% |
| 10 – 15 | 9% |
| 15 – 20 | 10% |
| 20+ | 11% |
| **Years of Service** | **Hired after June 30, 1996** |
| 5 – 10 | 7% |
| 10 – 15 | 8% |
| 15 – 20 | 9% |
| 20+ | 10% |

| | Rate of base wage increase (%) |
|---|---|
| **Class B – Police** | |
| **Years of Service** | **Hired on or before June 30, 1998** |
| 6 – 11 | 8% |
| 11 – 16 | 9% |
| 16 – 21 | 10% |
| 21+ | 11% |
| **Years of Service** | **Hired after June 30, 1998** |
| 6 – 11 | 7% |
| 11 – 16 | 8% |
| 16 – 21 | 9% |
| 21+ | 10% |

**Total Service:** Total service is based on date of hire provided in the data. In addition, 1.0 and 0.5 years of service were added to the service totals for participants of the Police and Fire departments, respectively, to estimate the impact of Purchased Service.

**2016 Salary:** Salaries for the year ending June 30, 2016 are equal to the total of pensionable wages earned during the plan year as provided in the data, except for participants who were hired during the plan year, those who were in transition from active to retiree status as of July 1, 2016 and participants receiving worker's compensation, for whom current rate of pay was provided.

**COLA:** COLAs commence on January 1, 2023, except for widows of accidental death participants who receive an immediate COLA and participants identified by the City who opted out of the Consent Judgments agreed to by the City.

For participants who opted out of the Consent Judgements, COLA's will commence on January 1, 2036, when the Plan was projected to be greater than 70% funded with the prior valuation. Any Class B retired participant whose total benefit is greater than the base of compensation of a current employee holding the same rank that the retiree held at the time of retirement will not receive a COLA in any year until this is no longer true. We have assumed that Class B average compensation for all ranks will increase by 3.5% per year. Future COLAs will not exceed 3% per year.

| | |
|---|---|
| **Actuarial Value of Assets:** | Market value of assets as reported in the City's Financial Statement less unrecognized returns in each of the last five years. Unrecognized return is equal to the difference between the actual market return and the expected market return, and is recognized over a five-year period, further adjusted, if necessary, to be within 20% of the market value. |
| **Actuarial Cost Method:** | Entry Age Normal Actuarial Cost Method. Entry Age is the age of the participant at date of hire. Normal Cost and Actuarial Accrued Liability are calculated on an individual basis and are allocated by salary. Normal Cost is determined by using the plan of benefits applicable to each participant. |
| **Changes in Assumptions:** | None. |

**EXHIBIT IV**

**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.

**Plan Year:** July 1 through June 30

**Normal Service Retirement**

*Age and Service Requirements:* The minimum age for normal service retirement is:

Class A members hired prior to July 1, 1995:

Age 55 or the age at which 25 years of service are completed, if earlier.

Class A members hired between July 1, 1995 and June 30, 2004:

Age 55 or the age at which 30 years of service are completed, if earlier.

Class A members hired between July 1, 2004 and June 30, 2009:

Age 60 or the age at which 30 years of service are completed, if earlier.

Class A members hired on or after July 1, 2009:

Age 62 with 10 years of service or the age at which 30 years of service are completed, if earlier.

Class B members hired prior to July 1, 2004:

Age 55 or the age at which 20 years of service are completed, if earlier.

Class B members of the Police Department hired between July 1, 2004 and June 30, 2011 and Class B members of the Fire Department hired between July 1, 2004 and June 30, 2012:

Age 55 or the age at which 23 years of service are completed, if earlier.

Class B members of the Police Department hired on or after July 1, 2011 and Class B members of the Fire Department hired on or after July 1, 2012:

Age 55 or the age at which 25 years of service are completed, if earlier.

*Amount:*

Annuity Based on Member Contributions: An annuity which is the actuarial equivalent of his or her accumulated contributions at the time of his or her retirement.

Pension Based on City Contributions:

Class A members hired prior to July 1, 1996:

A pension which, when added to the annuity, exclusive of any excess annuity, will give a total retirement allowance of 2.5% of final compensation for each year of total service credited not in excess of 20 years, plus 2% of final compensation for each year of total service credited in excess of 20 years, limited to 100% of final compensation.

Class A members hired on or after July 1, 1996:

A pension which, when added to the annuity, exclusive of any excess annuity, will give a total retirement allowance of 2% of final compensation for each year of total service credited, limited to 100% of final compensation.

Fire:

A pension which, when added to the annuity, exclusive of any excess annuity, will give a total retirement allowance of 2.5% of final compensation for each year of total service credited not in excess of 20 years, plus 2% of final compensation for each year of total service credited in excess of 20 years, limited to 75% of final compensation.

Police:

A pension which, when added to the annuity, exclusive of any excess annuity, equals:

Members hired prior to September 1, 2001:

| Years of Service | Percentage of Final Compensation | Years of Service | Percentage of Final Compensation |
|---|---|---|---|
| Prior to 20 | 2.5% per year | 26 | 62% |
| 20 | 50% | 27 | 64% |
| 21 | 52% | 28 | 66% |
| 22 | 54% | 29 | 68% |
| 23 | 56% | 30 | 75% |
| 24 | 58% | 31 | 72% |
| 25 | 65% | 32 | 80% |

Members hired on or after September 1, 2001 and prior to July 1, 2011:

| Years of Service | Percentage of Final Compensation | Years of Service | Percentage of Final Compensation |
|---|---|---|---|
| Prior to 20 | 2.5% per year | 26 | 62% |
| 20 | 50% | 27 | 64% |
| 21 | 52% | 28 | 66% |
| 22 | 54% | 29 | 68% |
| 23 | 56% | 30 | 70% |
| 24 | 58% | 31 | 72% |
| 25 | 60% | 32 | 75% |

Members hired on or after July 1, 2011:

| Years of Service | Percentage of Final Compensation | Years of Service | Percentage of Final Compensation |
|---|---|---|---|
| Prior to 25 | 2.0% per year | 30 | 62.5% |
| 25 | 50.0% | 31 | 65.0% |
| 26 | 52.5% | 32 | 67.5% |
| 27 | 55.0% | 33 | 70.0% |
| 28 | 57.5% | 34 | 72.5% |
| 29 | 60.0% | 35 | 75.0% |

| | |
|---|---|
| | For Non-Union members of the Police Department, the same benefits as described above, but with a maximum benefit of 75% of compensation.<br>Final compensation is the average of the highest four years of base compensation including longevity pay earned by a member during his total service as an employee. |
| **Early Retirement:** | |
| *Age Requirement:* | Age 55 for Class A members hired on or after July 1, 2004. Other members will not receive early retirement benefits. |
| *Service Requirement:* | 10 years of service. |
| *Amount:* | |
| | <u>Class A members hired between July 1, 2004 and June 30, 2009:</u><br>The member's Normal Service Retirement benefit reduced by 5/12% per month for each month between retirement commencement and age 60.<br><u>Class A members hired on or after July 1, 2009:</u><br>The member's Normal Service Retirement benefit reduced by 5/12% per month for each month between retirement commencement and age 62. |
| **Deferred Retirement:** | |
| *Age Requirement:* | Minimum age for Normal Service Retirement. |
| *Service Requirement:* | 10 years of service. |
| *Amount:* | Same as Normal Service Retirement.<br>Any member who withdraws from employment is eligible to receive a refund of his or her accumulated contributions at withdrawal, in lieu of a Deferred Retirement benefit. |

**Ordinary Disability Retirement:**

*Age Requirement:* None.

*Service Requirement:* For members of the Police Department, 10 years of service, but fewer than 20. For all others, 10 years of service.

*Amount:*

Annuity Based on Member Contributions: An annuity which is the actuarial equivalent of his or her accumulated contributions at the time of his retirement.

Pension Based on City Contributions:

Class A members:

A pension which, when added to the annuity, exclusive of any excess annuity, will give a total retirement allowance of 90% of 2% of final compensation for each year of total service which would have been credited had the member continued in service to the minimum age for a Normal Service Retirement. Such retirement allowance, exclusive of any excess annuity, is not to exceed 45% of final compensation.

Police:

A pension which, when added to the annuity, will give a total retirement allowance equal to a percentage of final compensation, as described in the following table:

| Years of Service | Percentage of Final Compensation | Years of Service | Percentage of Final Compensation |
|---|---|---|---|
| 10 | 22.50% | 15 | 33.75% |
| 11 | 24.75% | 16 | 36.00% |
| 12 | 27.00% | 17 | 38.25% |
| 13 | 29.25% | 18 | 40.50% |
| 14 | 31.50% | 19 | 42.75% |

Fire:

A pension which, when added to the annuity, exclusive of any excess annuity, will give a total retirement allowance of 90% of 2.5% of final compensation for each year of total service which would have been credited had the member continued in service to the minimum age for a Normal Service Retirement. Such retirement allowance, exclusive of any excess annuity, is not to exceed 45% of the member's final compensation.

**Accidental Disability Retirement:**

*Age Requirement:* None.

*Service Requirement:* None.

*Amount:*

Annuity Based on Member Contributions:

An annuity that is the actuarial equivalent of his or her accumulated contributions at the time of his or her retirement.

Pension Based on City Contributions:

A pension of 66-2/3% of final compensation, but not less than the Normal Service Retirement allowance. Upon the death of a member within 5 years after accidental disability retirement as a result of an accident while in the performance of duty, a pension of one-half of the member's final compensation is paid to his or her widow until he or she dies or remarries, at which point the pension is paid to his or her child or children until they attain age 19. Upon the death of a Class B member beyond 5 years, 67.5% of his or her monthly benefit will be paid to his or her surviving spouse.

| | |
|---|---|
| **Accidental Death Benefit:** | |
| *Age Requirement:* | None. |
| *Service Requirement:* | None. |
| *Amount:* | If a member dies due to an accident in the performance of duty, a pension of one-half of the member's final compensation is paid to his or her surviving spouse until he or she dies or remarries, at which point the pension is payable to his or her child or children until they attain age 19. If there are no other dependents, the pension is payable to his or her dependent parents. In addition, a lump sum payment of the member's accumulated contributions is made. |
| **Ordinary Death Benefit:** | Should a member die before retirement, his or her estate or beneficiary is entitled to a refund of the member's accumulated contributions. If the member has attained minimum retirement age, has not made an optional election as described below and is survived by a spouse, such spouse is entitled, in lieu of the return of the member's accumulated contributions, to a benefit equal to that which would have been payable to such spouse upon the death of the member had the member retired on the day of his or her death and elected to receive a benefit under the provisions of Option 2, as described below, and nominated such spouse as his or her designated beneficiary. For a Class B member, the benefit to the spouse shall not be less than 67½% of the benefit that would have been paid to such retired member without reduction. |
| **Benefit upon Death after Retirement:** | |
| *Class A:* | Benefits under any option as described below. |
| *Class B:* | Upon the death of a Class B pensioner, 67½% of his or her retirement allowance is paid to his or her surviving spouse until he or she dies or remarries, at which point the benefit is paid to any dependent children until they attain age 18. |
| **Options at Retirement:** | |
| *Maximum Retirement Option:* | An unreduced retirement allowance payable during the retired member's life, where no monthly payments will continue to the member's beneficiary, but where, upon the member's death, any unpaid portion of his or her accumulated contributions will be paid to his or her beneficiary. |

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| *Option 1:* | A reduced retirement allowance payable during the retired member's life, where no monthly payments will continue to the member's beneficiary, but where, upon the member's death, any amount that payments made are less than the present value of his or her retirement allowance at his or her date of retirement will be paid to his or her beneficiary. |
| *Option 2:* | A reduced retirement allowance payable during the retired member's life, where upon the member's death, the entire monthly benefit will continue to be paid to his or her beneficiary for the remainder of his or her life. |
| *Option 3:* | A reduced retirement allowance payable during the retired member's life, where upon the member's death, 50% of the monthly benefit will continue to be paid to his or her beneficiary for the remainder of his or her life. |
| *Option 4:* | An unreduced retirement allowance payable during the retired member's life, where the member's accumulated contributions are paid immediately as a lump sum payment, with the pension portion of his or her benefit payable during the retired member's life, where no monthly payments will continue to the member's beneficiary. |
| | Class B members who retire on an Accidental Disability Retirement may not elect Option 4. |
| | Class B members may not elect Options 2 or 3. |
| | Married Class B members may not elect Option 1. |
| **Cost of Living Adjustment** | A ten-year freeze period was implemented effective January 1, 2013 and no COLAs will be granted during this period. COLAs will resume on January 1, 2023. Once COLAs resume, they will be paid in the amount of the lesser of 3% compounded or the percentage the member received prior to the freeze, provided that their total benefit is lower than 150% of the Rhode Island state median income and is lower than the base compensation of a current employee holding the same rank that the retiree held at the time of retirement. If the member's benefit is above either of these amounts, no COLA will be granted. 150% of the state median income as reported by the City was approximately $80,000 as of the valuation date. It is assumed that the median income will increase by 3.5% per year. |

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| *Class A:* | 3% compounded for certain eligible members who retired prior to December 18, 1991 and were not members of Local 1033. 3% simple on first $12,000 of annual benefit for members of Local 1033 who retired prior to December 18, 1991. None for members who retired after December 18, 1991. |
| *Police:* | 5% compounded for members who retired prior to January 1, 1990; 6% compounded for members who retired between January 1, 1990 and December 18, 1991; 5% compounded for members who retired between December 19, 1991 and December 31, 1992; 3% simple on first $12,000 of annual benefit for Non-Union Police who retired January 1, 1993 and later; 3% compounded for other retired members who retired January 1, 1993 and later; 5% compounded for special court awarded members; for all members hired on or after July 1, 2012, the COLA will be based on the Consumer Price Index for the Northeast Region but shall not be less than 1% and shall not exceed 3% simple and 150% of the Rhode Island state median income. |
| *Fire:* | 5% compounded for members who retired prior to January 1, 1990; 6% compounded for members who retired between January 1, 1990 and December 18, 1991; 5% compounded for members who retired between December 19, 1991 and June 30, 1992; 6% compounded for members who retired between July 1, 1992 and June 30, 1995; 3% simple on first $12,000 of annual benefit for members who retired between July 1, 1995 and March 16, 2006; 3% compounded for members who retired March 17, 2006 or later; 5% compounded for special court awarded members; for all members hired on or after July 1, 2012, the COLA will be based on the Consumer Price Index for the Northeast Region but shall not exceed 3% simple.<br><br>The initial COLA payment is deferred until the January 1 that occurs three years after the member's retirement date. |
| **Provisions for Elected Officials** | Any person who has served as Mayor or City Councilman for at least eight full legislative years is entitled to an additional retirement allowance on the basis of such service as an elected official upon attainment of age 52 or the completion of 20 consecutive years as an elected official, whichever is earlier, or the occurrence of total and permanent disability prior thereto.<br><br>Such retirement allowance is currently $350 for each year of service, provided that no more than 20 years of such service are to be used in determining the allowance. |

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| | Upon the death of any such elected official, benefits are payable in accordance with the Class A provisions of the act.<br>An elected official may elect to withdraw his accumulated contributions in lieu of his rights to the allowance based on service as an elected official. |
| **Contributions:** | |
| *Class A:* | 8% of compensation. |
| *Police:* | 8% of compensation |
| *Firefighters hired before July 1, 2011:* | 8% of compensation. |
| *Firefighters hired on or after July 1, 2011:* | 9% of compensation. |
| *Elected Officials:* | $350 per year. |
| | Class B member contributions may cease after 32.5 years of service. |
| **Changes in Plan Provisions** | There have been no changes in the plan of benefits since our prior valuation. |