The Retirement Plan for Employees of the Town of Portsmouth, Rhode Island

Actuarial Valuation and Review as of July 1, 2018

Segal Consulting

This report has been prepared at the request of the Town of Portsmouth, RI to assist in administering The Retirement Plan for Employees of the Town of Portsmouth, RI. This valuation report may not otherwise be copied or reproduced in any form without the consent of the Town of Portsmouth, RI and may only be provided to other parties in its entirety, unless expressly authorized by Segal. The measurements shown in this actuarial valuation may not be applicable for other purposes.

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December 4, 2018

Ms. Lisa Mills, Finance Director
Town of Portsmouth, Rhode Island
2200 East Main Road
Portsmouth, RI 02871

Dear Ms. Mills:

We are pleased to submit this Actuarial Valuation and Review as of July 1, 2018. It summarizes the actuarial data used in the valuation, analyzes the preceding year's experience, and establishes the funding requirements for fiscal 2019 and later years.

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

The actuarial calculations were directed under my supervision. I am a member of the American Academy of Actuaries and I meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinion herein. To the best of my knowledge, the information supplied in this actuarial valuation is complete and accurate. Further, in my opinion, the assumptions as approved by the Town of Portsmouth, RI are reasonable 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: Bridget P. Orr

Bridget P. Orr, ASA, MAAA, EA
Consulting Actuary

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The Retirement Plan for Employees of the Town of Portsmouth, Rhode Island Actuarial Valuation and Review as of July 1, 2018

Section 1: Actuarial Valuation Summary

Purpose and Basis

This report was prepared by Segal Consulting to present a valuation of The Retirement Plan for Employees of the Town of Portsmouth, Rhode Island as of July 1, 2018. 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 Governmental Accounting Standards Board Statements (GASB) No. 67 and 68 as of July 1, 2018 for the Plan is provided in a separate report.

The contribution requirements presented in this report are based on:

- The benefit provisions of the Retirement Plan, as administered by the Town of Portsmouth, RI;
- The characteristics of covered active employees, inactive vested employees, and retired employees and beneficiaries as of July 1, 2018, provided by the Town of Portsmouth, RI;
- The assets of the Plan as of June 30, 2018 as provided by the Town of Portsmouth, RI;
- 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 of Portsmouth, RI.

Significant Issues

1. 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 of Portsmouth, RI meets this standard and funds the unfunded actuarial accrued liability of the Plan by June 30, 2040 in level amortization payments.
2. The funded ratio (the ratio of the actuarial value of assets to actuarial accrued liability) is 58.1%, compared to the prior year funded ratio of 57.2%. This ratio is one measure of funding status, and its history is a measure of funding progress. Using the market value of assets, the funded ratio is 57.8%, compared to 56.5% as of the prior valuation date. These measurements are not necessarily appropriate for assessing the sufficiency of Plan assets to cover the estimated cost of settling the Plan's benefit obligation or the need for or the amount of future contributions.
3. The recommended contribution for the fiscal year ended June 30, 2019 is the previously budgeted amount of $4,324,430. The results of this valuation are used to determine the Actuarially Determined Contribution for the fiscal year ending June 30, 2020 of $4,484,385. In the prior valuation, the fiscal 2020 contribution was projected to be $4,381,460. The increase is primarily due to the experience loss detailed in Section 2, partially offset by the investment gain on a market value basis.
4. The unfunded actuarial accrued liability is $41,077,928, which is an increase of $1,035,149 since the prior valuation.
5. The actuarial loss from investment and other experience is $1,500,154, or 1.53% of actuarial accrued liability.
6. The net experience loss from sources other than investment experience was 1.46% of the actuarial accrued liability prior to reflection of assumption and plan changes. This loss was primarily due to Police retirements earlier than projected, more disability retirements than projected, and fewer deaths than projected amongst retired employees and beneficiaries, partially offset by salary increases lower than projected.
7. The rate of return on the market value of assets was 7.37% for the July 1, 2017 to June 30, 2018 plan year. The return on the actuarial value of assets was 6.61% for the same period due to the recognition of prior years' investment gains and losses. This resulted in an actuarial loss when measured against the assumed rate of return of 6.75%. Given the low fixed income interest rate environment, target asset allocation and expectations of future investment returns for various classes, we advise the Town of Portsmouth, RI to continue to monitor actual and anticipated investment returns relative to the assumed long-term rate of return on investments of 6.75%.
8. The actuarial value of assets is 100.5% of the market value of assets. The investment experience in the past years has only been partially recognized in the actuarial value of assets. As the deferred net loss is recognized in future years, the cost of the Plan is likely to increase unless the net loss is offset by future experience.

9. The following actuarial assumptions were changed with this valuation:
   - The retirement rate for employees of the Police department with 20 years of service was increased from 35% to 50%.
   - The administrative expense assumption was increased from $35,000 to $40,000.

   As a result of these assumption changes, the employer normal cost increased by $14,838 and the actuarial accrued liability increased by $255,211.
10. The following Plan changes are included for the first time in this valuation:
    - For Public Works employees, the early retirement benefit was eliminated.
    - A Fire Deputy who retires on or after July 1, 2017 will receive a COLA of 1.7% commencing on the January 1st following the fifth year of retirement. Previously, the COLA increase was 3.0%.

    As a result of these plan changes, the employer normal cost decreased by $731 and the actuarial accrued liability decreased by $15,093.
11. This report constitutes an actuarial valuation for the purpose of determining the actuarially determined contribution under the Plan'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, 2018, will be provided separately. The accounting disclosures utilize different methodologies from those employed in the funding valuation, as required by the GASB. However, the actuarially determined contribution in this valuation is expected to be used as the actuarially determined contribution (ADC) for GASB financial reporting.
12. This actuarial report as of July 1, 2018 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 plan.
13. Since the actuarial valuation results are dependent on a given set of assumptions, there is a risk that emerging results may differ significantly as actual experience proves to be different from the assumptions. We have included a discussion of various risks that may affect the plan in Section 2.

Summary of Key Valuation Results

		2018	2017
Contributions for plan year beginning July 1:	• Actuarially Determined Contributions for fiscal 2019 and fiscal 2018	$4,324,430	$4,322,591
	• Actuarially Determined Contributions for fiscal 2019 and fiscal 2018 as a percent of compensation	53.43%	50.90%
	• Actuarially Determined Contributions for fiscal 2020 and fiscal 2019	$4,484,385	$4,324,430
	• Actuarially Determined Contributions for fiscal 2020 and fiscal 2019 as a percent of compensation	56.04%	52.15%
Actuarial accrued liability for plan year beginning July 1:	• Retired employees and beneficiaries	$74,924,712	$68,852,102
	• Inactive employees with a vested right to a deferred or immediate benefit	1,692,253	1,384,779
	• Active employees	21,443,161	23,359,730
	• Inactive employees due a refund of employee contributions	12,120	- -
	• Total	98,072,246	93,596,611
	• Normal cost including administrative expenses for plan year beginning July 1	1,193,715	1,282,893
Assets for plan year beginning July 1:	• Market value of assets (MVA)	$56,716,068	$52,916,280
	• Actuarial value of assets (AVA)	56,994,318	53,553,832
	• Actuarial value of assets as a percentage of market value of assets	100.49%	101.20%
Funded status for plan year beginning July 1:	• Unfunded actuarial accrued liability on market value of assets	$41,356,178	$40,680,331
	• Funded percentage on MVA basis	57.83%	56.54%
	• Unfunded actuarial accrued liability on actuarial value of assets	$41,077,928	$40,042,779
	• Funded percentage on AVA basis	58.11%	57.22%
	• Amortization period on an AVA basis	22	23
Key assumptions:	• Net investment return	6.75%	6.75%
	• Inflation rate	2.75%	2.75%
	• Salary increases	3.50%	3.50%
Demographic data for plan year beginning July 1	• Number of retired employees and beneficiaries	179	169
	• Number of inactive employees with a vested right to a deferred or immediate benefit	9	8
	• Number of inactive employees due a refund of employee contributions	1	0
	• Number of active employees	143	151
	• Total compensation	$7,820,129	$8,205,872
	• Average compensation	54,686	54,344

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.
Employee data	An actuarial valuation for a plan is based on data provided to the actuary by the Town of Portsmouth, RI. 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 Town of Portsmouth, RI. The Town of Portsmouth, RI 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 Town of Portsmouth, RI. 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 of Portsmouth, RI 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 of Portsmouth, RI 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.

Section 2: Actuarial Valuation Results

Employee Data

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

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

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

EMPLOYEE POPULATION: 2011 – 2018

Year Ended June 30	Active Employees	Inactive Employees	Retired Employees and Beneficiaries	Total Non-Actives	Ratio of Non-Actives to Actives
2011	189	14	109	123	0.65
2012	178	13	121	134	0.75
2013	165	14	137	151	0.92
2014	164	11	144	155	0.95
2015	160	7	153	160	1.00
2016	153	7	161	168	1.10
2017	151	8	169	177	1.17
2018	143	10	179	189	1.32

Note: Employee counts prior to 2014 are from the prior actuary's reports.

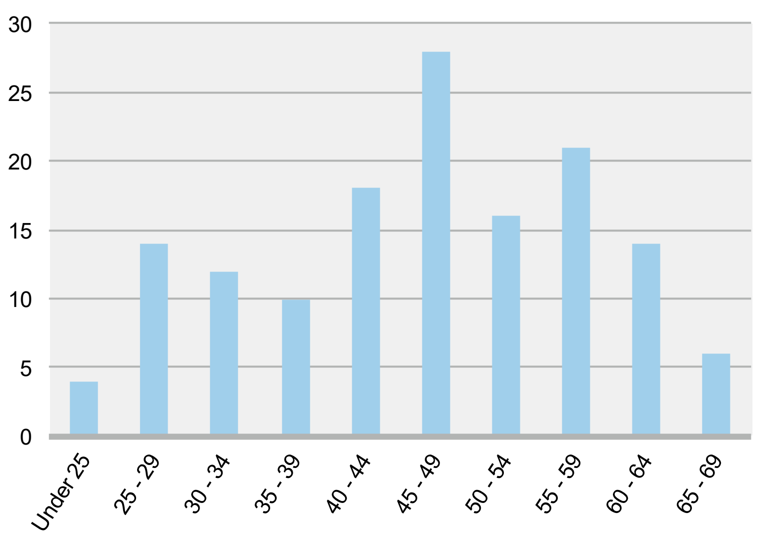
Active Employees

Plan costs are affected by the age, years of service and compensation of active employees. In this year's valuation, there were 143 active employees with an average age of 46.5, average years of service of 11.0 years and average compensation of $54,686. The 151 active employees in the prior valuation had an average age of 46.9, average service of 11.0 years and average compensation of $54,344.

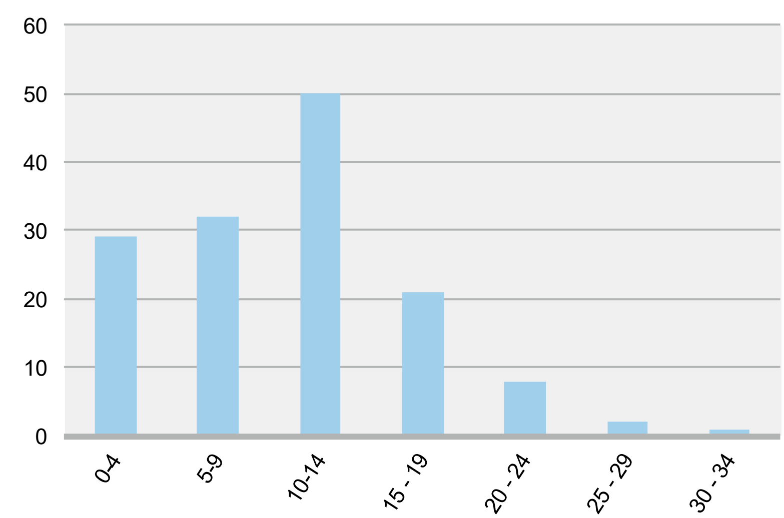
Among the active employees, there were none with unknown age and/or service information.

Distribution of Active Employees as of June 30, 2018

ACTIVES BY AGE



ACTIVES BY YEARS OF SERVICE



Inactive Employees

In this year's valuation, there were 9 employees with a vested right to a deferred or immediate vested benefit and 1 employee entitled to a return of their employee contributions.

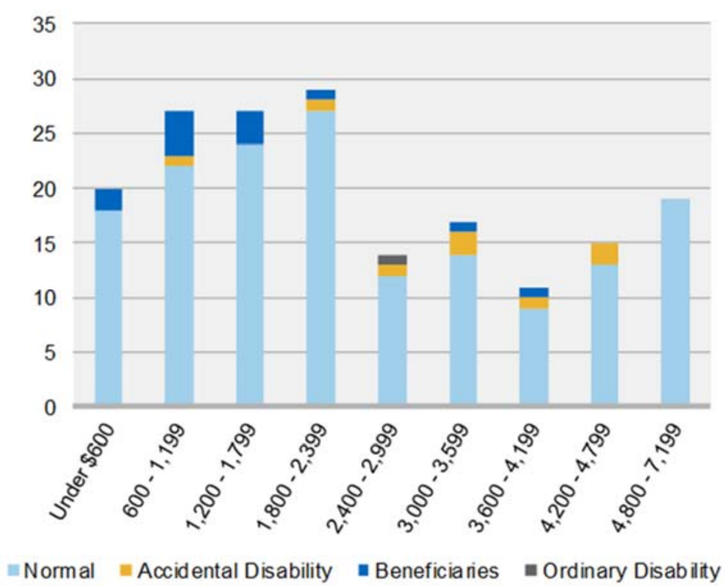
Retired Employees and Beneficiaries

As of June 30, 2018, 167 retired employees and 12 beneficiaries were receiving total monthly benefits of $448,224. For comparison, in the previous valuation, there were 158 retired employees and 11 beneficiaries receiving monthly benefits of $410,691. These figures include the total benefits of retired employees and beneficiaries for whom the Town only pays the COLA portion of the benefit.

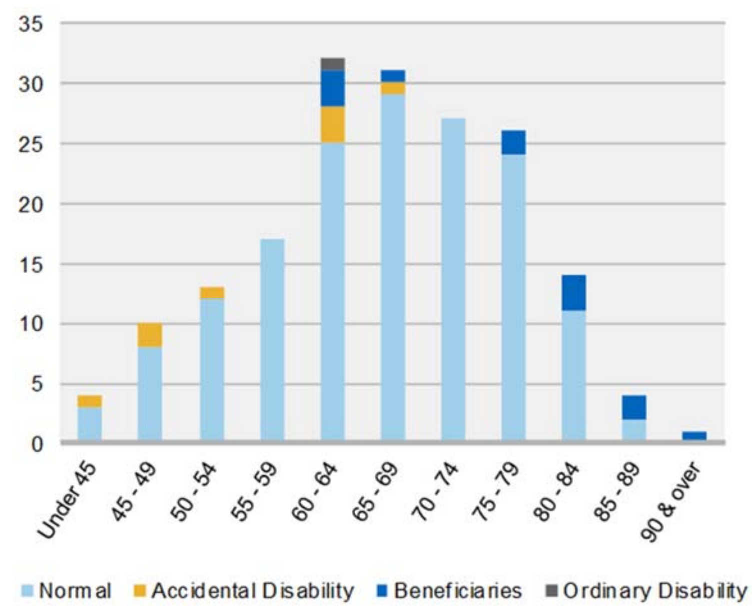
As of June 30, 2018, the average monthly benefit for retired employees and beneficiaries is $2,504, compared to $2,430 in the previous valuation. The average age for retired employees and beneficiaries is 66.2 in the current valuation, compared with 65.6 in the prior valuation.

Distribution of Retired Employees and Beneficiaries as of June 30, 2018

TYPE AND MONTHLY AMOUNT



BY TYPE AND AGE



Historical Plan Population

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

EMPLOYEE DATA STATISTICS: 2011 – 2018

	Active Employees			Retired Employees and Beneficiaries		
Year Ended June 30	Count	Average Age	Average Service	Count	Average Age	Average Monthly Amount
2011	189	46.8	10.5	109	64.4	2,076
2012	178	45.3	9.7	121	64.4	2,155
2013	165	45.5	9.2	137	58.9	2,251
2014	164	46.9	10.5	144	64.5	2,273
2015	160	47.1	10.9	153	64.6	2,289
2016	153	46.9	11.2	161	65.5	2,329
2017	151	46.9	11.0	169	65.6	2,430
2018	143	46.5	11.0	179	66.2	2,504

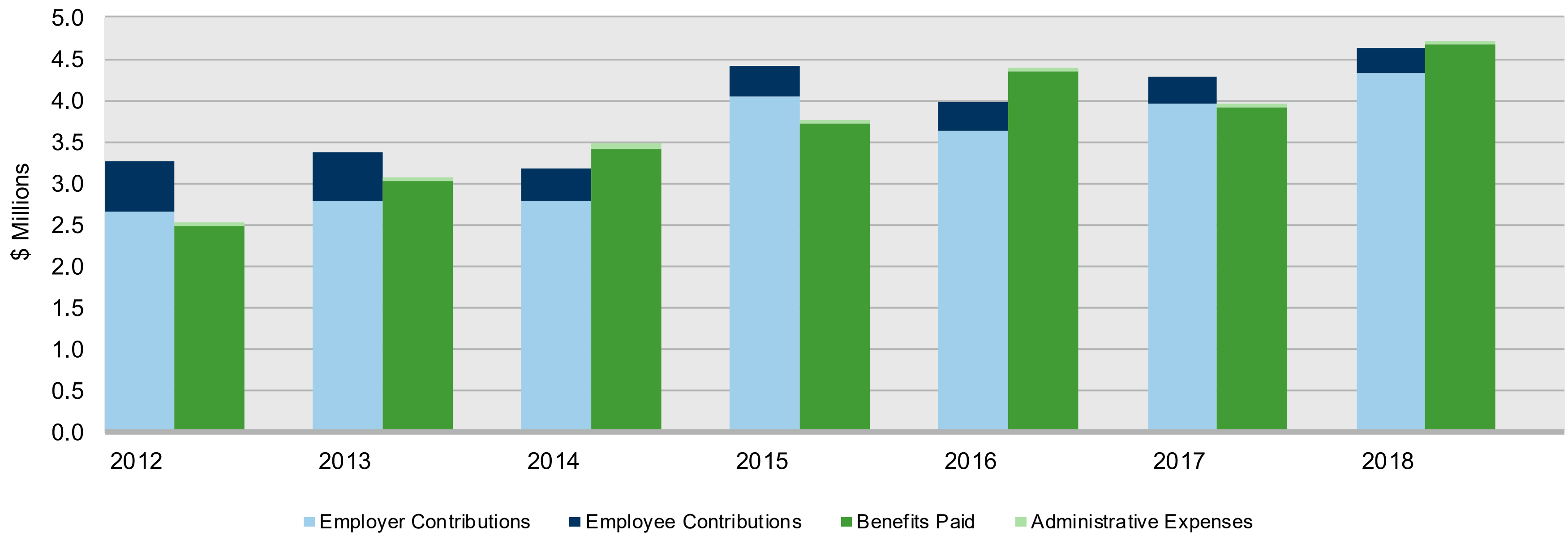
Note: Employee counts prior to 2014 are from the prior actuary's reports.

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, Exhibit C*.

COMPARISON OF CONTRIBUTIONS MADE WITH BENEFITS AND EXPENSES PAID FOR YEARS ENDED JUNE 30, 2012 – 2018



It is desirable to have level and predictable plan costs from one year to the next. For this reason, the Town 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.

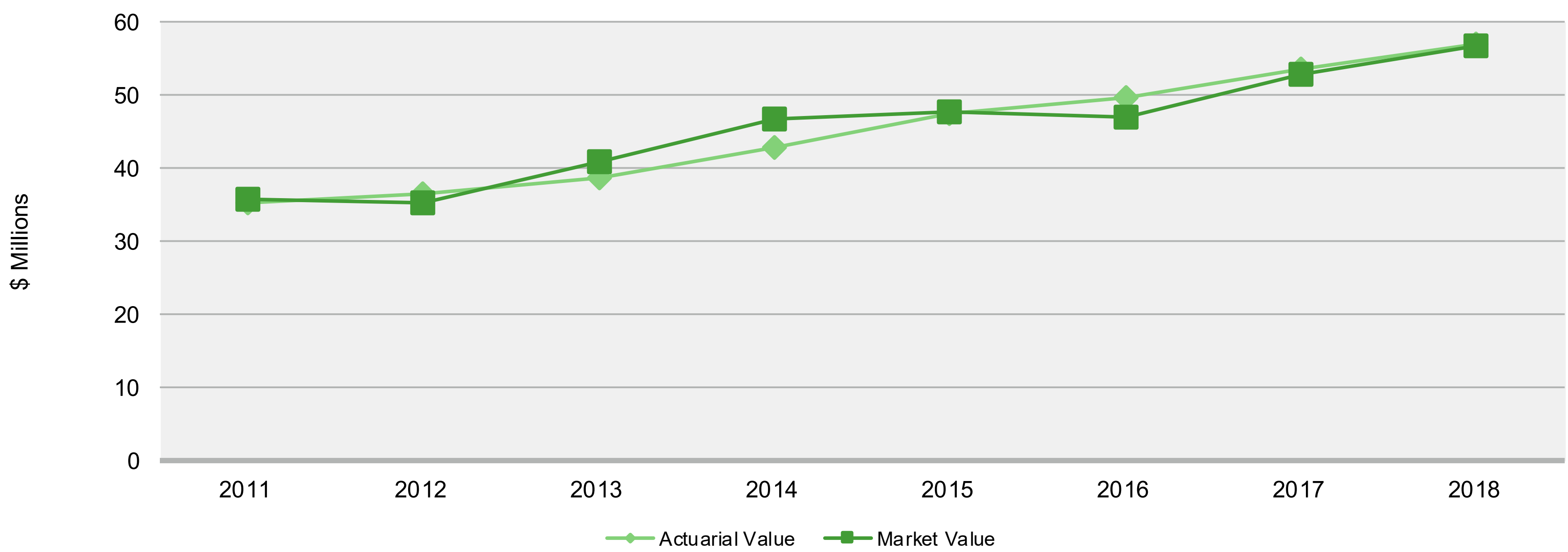
DETERMINATION OF ACTUARIAL VALUE OF ASSETS FOR YEAR ENDED JUNE 30, 2018

	Original Amount[1]	Percent Deferred	Unrecognized Amount[2]	
1. Market value of assets, June 30, 2018				$56,716,068
2. Calculation of unrecognized return				
(a) Year ended June 30, 2018	$329,198	80%	$263,358	
(b) Year ended June 30, 2017	2,468,728	60	1,481,238	
(c) Year ended June 30, 2016	-3,604,596	40	-1,441,838	
(d) Year ended June 30, 2015	-2,905,039	20	-581,008	
(e) Year ended June 30, 2014	3,561,195	0	0	
(f) Total unrecognized return				-278,250
3. Preliminary actuarial value: (1) - (2f)				$56,994,318
4. Adjustment to be within 20% corridor				0
5. Final actuarial value of assets as of June 30, 2018: (3) + (4)				56,994,318
6. Actuarial value as a percentage of market value: (5) ÷ (1)				100.5%
7. Amount deferred for future recognition: (1) - (5)				-$278,250

1 Total return minus expected return on a market value basis.
2 Recognition at 20% per year over five years.

Both the actuarial value and market value of assets are representations of the Plan'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 Plan'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 VS. MARKET VALUE OF ASSETS AS OF JUNE 30, 2011 – 2018



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 loss for the year ended June 30, 2018 is $1,500,154. A discussion of the major components of the actuarial experience is on the following pages.

ACTUARIAL EXPERIENCE FOR YEAR ENDED JUNE 30, 2018

1	Net loss from investments	-$73,139
2	Net loss from administrative expenses	-10,151
3	Net loss from other experience	-1,416,864
4	Net experience loss: 1 + 2 + 3	-$1,500,154

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 Portsmouth, Rhode Island's investment policy. The rate of return on the market value of assets was 7.37% for the year ended June 30, 2018.

For valuation purposes, the assumed rate of return on the actuarial value of assets is 6.75%. The actual rate of return on an actuarial basis for the 2018 plan year was 6.61%. Since the actual return for the year was less than the assumed return, the Plan experienced an actuarial loss during the year ended June 30, 2018 with regard to its investments.

INVESTMENT EXPERIENCE

		Year Ended June 30, 2018	
		Market Value	Actuarial Value
1	Net investment income	$3,897,741	$3,538,439
2	Average value of assets	52,867,304	53,504,856
3	Rate of return: 1 ÷ 2	7.37%	6.61%
4	Assumed rate of return	6.75%	6.75%
5	Expected investment income: 2 x 4	$3,568,543	$3,611,578
6	Actuarial gain/(loss): 1 – 5	$329,198	-$73,139

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 actual market value investment return for the last seven years, including a five-year average.

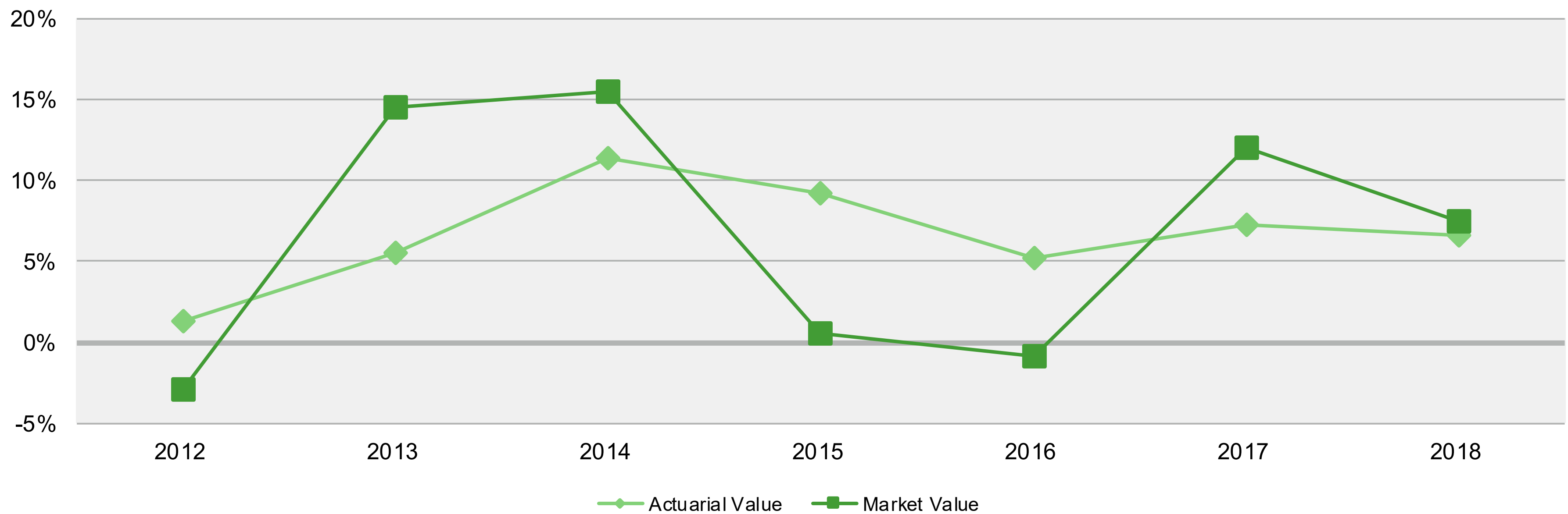
INVESTMENT RETURN – ACTUARIAL VALUE VS. MARKET VALUE: 2012 - 2018

Year Ended June 30	Actuarial Value Investment Return		Market Value Investment Return	
	Amount	Percent	Amount	Percent
2012	$476,263	1.34%	-$1,043,944	-2.90%
2013	2,031,630	5.54	5,140,734	14.47
2014	4,410,989	11.41	6,306,511	15.51
2015	3,961,266	9.16	277,740	0.59
2016	2,472,978	5.23	-395,702	-0.83
2017	3,631,777	7.30	5,647,914	11.99
2018	3,538,439	6.61	3,897,741	7.37
Total	$20,523,342		$19,830,994	
Most recent five-year average return		7.75%		6.69%

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

As described earlier in this section, the actuarial asset valuation method gradually recognizes fluctuations in the market value rate of return. The goal of this is to stabilize the actuarial rate of return and to produce more level pension plan costs.

MARKET AND ACTUARIAL RATES OF RETURN FOR YEARS ENDED JUNE 30, 2012 - 2018



Administrative Expenses

Administrative expenses for the year ended June 30, 2018 totaled $46,104 compared to the assumption of $35,000. This resulted in a loss of $10,151 for the year including an adjustment for interest. We have increased the assumption of $35,000 to $40,000 for the current 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 employees,
- 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 loss from this other experience for the year ended June 30, 2018 amounted to $1,416,864, which is 1.4% of the actuarial accrued liability.

LIABILITY CHANGES DUE TO DEMOGRAPHIC EXPERIENCE FOR YEAR ENDED JUNE 30, 2018

Loss due to active retirements earlier than projected	-$706,471
Loss due to more disability retirements than projected	-484,292
Gain due to salary increases less than projected	122,276
Loss due to fewer deaths than projected amongst retired employees and beneficiaries	-656,611
Miscellaneous gain	308,234
Total	**-$1,416,864**

Changes in the Actuarial Accrued Liability

The actuarial accrued liability as of July 1, 2018 is $98,072,246, an increase of $4,475,635, or 4.8%, from the actuarial accrued liability as of the prior valuation date. The liability is expected to grow each year with normal cost and interest, and to decline due to benefit payments made. Additional fluctuations can occur due to actual experience that differs from expected (as discussed in the previous subsection) and changes in assumptions (described below).

Actuarial Assumptions

- Based on recent experience and historical and current demographic data, the retirement rate for employees of the Police department with 20 years of service was increased from 35% to 50%.
- The administrative expense assumption was increased from $35,000 to $40,000 for the year beginning July 1, 2018.
- These changes increased the actuarial accrued liability by 0.26% and increased the employer normal cost by 1.65%.
- Details on actuarial assumptions and methods are in *Section 4, Exhibit I*.

Plan Provisions

- For Public Works employees, the early retirement benefit was eliminated.
- A Fire Deputy who retires on or after July 1, 2017 will receive a COLA of 1.7% commencing on the January 1st following the fifth year of retirement (previously, 3.0%).
- These changes decreased the actuarial accrued liability by 0.02% and decreased the employer normal cost by 0.08%.
- A summary of plan provisions is in *Section 4, Exhibit II*.

Development of Unfunded Actuarial Accrued Liability

DEVELOPMENT FOR YEAR ENDED JUNE 30, 2018

1	Unfunded actuarial accrued liability at beginning of year		$40,042,779
2	Normal cost at beginning of year		1,282,893
3	Total contributions		-4,623,990
4	Interest		
	• For whole year on 1 + 2	$2,789,483	
	• For half year on 3	-153,509	
	Total interest		2,635,974
5	Expected unfunded actuarial accrued liability		$39,337,656
6	Changes due to:		
	• Experience loss	1,500,154	
	• Assumption changes	255,211	
	• Plan provisions	-15,093	
	Total changes		$1,740,272
7	Unfunded actuarial accrued liability at end of year		$41,077,928

Actuarially Determined Contribution

The Town of Portsmouth, RI has a policy to fund the unfunded actuarial accrued liability of The Retirement Plan for Employees of the Town of Portsmouth, Rhode Island by June 30, 2040 in level amortization payments. The projection of the unfunded actuarial accrued liability recognizes any deferred investment gains or losses due to the operation of the actuarial valuation method.

Because the fiscal year ending June 30, 2019 contribution has been previously budgeted at $4,324,430, the results of this valuation are used to determine the actuarially determined contribution for the fiscal year ending June 30, 2020 of $4,484,385. This contribution is comprised of a projected employer normal cost payment and a 21-year level payment on the projected July 1, 2019 unfunded actuarial accrued liability.

The funding schedule shown on the following page shows the actuarially determined contribution for each year until the projected full funding date of June 30, 2040.

The actuarially determined contribution as of July 1, 2018 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.

RECOMMENDED CONTRIBUTION FOR YEAR BEGINNING JULY 1

		2018		2017	
		Amount	% of Projected Compensation	Amount	% of Projected Compensation
1	Total normal cost	$1,153,715	14.25%	$1,247,893	14.69%
2	Administrative expenses	40,000	0.49%	35,000	0.41%
3	Expected employee contributions	-280,955	-3.47%	-305,077	-3.59%
4	Employer normal cost: (1) + (2) - (3)	$912,760	11.27%	$977,816	11.51%
5	Actuarial accrued liability	98,072,246		93,596,611	
6	Actuarial value of assets	56,994,318		53,553,832	
7	Unfunded actuarial accrued liability: (5) - (6)	$41,077,928		$40,042,779	
8	Payment on unfunded actuarial accrued liability	3,307,031	40.85%	3,240,180	38.15%
9	Adjustment for timing	104,639	1.29%	104,595	1.23%
10	Total actuarially determined contribution: (4) + (8) + (9)	4,324,430	53.43%	$4,322,591	50.90%
11	Projected compensation	$8,093,833		$8,493,077	

Notes: Actuarially determined contributions are assumed to be paid at the beginning of every quarter.
Actuarially determined contributions are determined with previous valuations.

Funding Schedule

(1) Fiscal Year Ended June 30	(2) Employer Normal Cost	(3) Amortization of Unfunded Liability	(4) Actuarially Determined Contribution: (2) + (3)	(5) Increase	(6) Payroll	(7) Contributions as a % of Payroll: (4) / (6)	(8) Actuarial Accrued Liability	(9) Actuarial Value of Assets	(10) Total Unfunded Liability: (8) – (9)	(11) Funded Ratio: (9) / (8)
2019	$935,394	$3,389,036	$4,324,430		$8,093,833	53.43%	$98,072,246	$56,994,318	$41,077,928	58.11%
2020	916,643	3,567,742	4,484,385	3.70%	8,001,932	56.04%	100,607,220	59,516,027	41,091,193	59.16%
2021	907,216	3,580,146	4,487,362	0.07%	7,938,494	56.53%	103,111,876	62,823,859	40,288,017	60.93%
2022	881,665	3,526,144	4,407,809	-1.77%	7,792,912	56.56%	105,548,311	66,862,649	38,685,662	63.35%
2023	874,106	3,520,394	4,394,500	-0.30%	7,723,007	56.90%	107,943,735	70,381,213	37,562,522	65.20%
2024	861,872	3,520,394	4,382,266	-0.28%	7,587,369	57.76%	110,296,852	73,865,946	36,430,906	66.97%
2025	843,455	3,520,394	4,363,849	-0.42%	7,449,647	58.58%	112,525,342	77,302,437	35,222,905	68.70%
2026	792,162	3,520,394	4,312,556	-1.18%	7,187,927	60.00%	114,579,017	80,645,653	33,933,364	70.38%
2027	738,736	3,520,394	4,259,130	-1.24%	6,903,453	61.70%	116,373,605	83,816,826	32,556,779	72.02%
2028	690,608	3,520,394	4,211,002	-1.13%	6,625,734	63.56%	117,914,182	86,826,907	31,087,275	73.64%
2029	639,921	3,520,394	4,160,315	-1.20%	6,340,296	65.62%	119,150,432	89,631,853	29,518,579	75.23%
2030	604,506	3,520,394	4,124,900	-0.85%	6,139,053	67.19%	120,139,989	92,295,993	27,843,996	76.82%
2031	547,309	3,520,394	4,067,703	-1.39%	5,818,197	69.91%	120,825,560	94,769,181	26,056,379	78.43%
2032	516,846	3,520,394	4,037,240	-0.75%	5,636,709	71.62%	121,251,282	97,103,184	24,148,098	80.08%
2033	483,692	3,520,394	4,004,086	-0.82%	5,429,919	73.74%	121,442,835	99,331,827	22,111,008	81.79%
2034	433,829	3,520,394	3,954,223	-1.25%	5,125,660	77.15%	121,334,841	101,398,427	19,936,414	83.57%
2035	396,830	3,520,394	3,917,224	-0.94%	4,912,634	79.74%	120,948,707	103,333,672	17,615,035	85.44%
2036	365,917	3,520,394	3,886,311	-0.79%	4,689,829	82.87%	120,270,354	105,133,391	15,136,963	87.41%
2037	335,217	3,520,394	3,855,611	-0.79%	4,510,749	85.48%	119,322,885	106,831,264	12,491,621	89.53%
2038	316,520	3,520,394	3,836,914	-0.48%	4,387,945	87.44%	118,125,511	108,457,792	9,667,719	91.82%
2039	303,976	3,520,394	3,824,370	-0.33%	4,324,352	88.44%	116,723,694	110,070,491	6,653,203	94.30%
2040	298,181	3,520,394	3,818,575	-0.15%	4,321,245	88.37%	115,166,895	111,731,688	3,435,207	97.02%
2041	292,234	-	292,234	-92.35%	4,323,714	6.76%	113,465,701	113,465,701	-	100.00%
2042	292,502	-	292,502	0.09%	4,368,562	6.70%	111,648,699	111,648,699	-	100.00%

Notes: Contribution is assumed to be paid at the beginning of each quarter.
Normal cost and payroll are based on a closed group projection, except for School Management and employees eligible for a disability benefit only, for whom normal cost and payroll are projected to increase 2.75% per year.
Schedule reflects deferred investment gains and losses.
Columns (8) through (11) are as of the beginning of the fiscal year.

Risk

Since the actuarial valuation results are dependent on a given set of assumptions and data as of a specific date, there is a risk that emerging results may differ significantly as actual experience differs from the assumptions.

We have not been engaged to perform a detailed analysis of the potential range of the impact of risk relative to the Plan's future financial condition, but have included a brief discussion of some of the risks that may affect the Plan. This discussion is focused on funding-related risks, but similar concerns may apply to risks regarding the level of expense and liabilities reported for Plan accounting purposes as well.

We recommend a more detailed assessment of the risks to provide the Town with a better understanding of the risks inherent in the Plan. This assessment may include scenario testing, sensitivity testing, and/or stochastic modeling.

- Investment Risk (the risk that returns will be different than expected)

  The market value rate of return over the last seven years has ranged from a low of -2.90% to a high of 15.51%.

- Longevity Risk (the risk that mortality experience will be different than expected)

  The actuarial valuation includes an expectation of future improvement in life expectancy. Emerging plan experience that does not match these expectations will result in either an increase or decrease in the actuarially determined contribution.

- Contribution Risk (the risk that actual contributions will be different from actuarially determined contribution)

  The Plan's funding policy requires payment of the actuarially determined contribution. As long as this policy is adhered to, contribution risk is negligible.

  If contributions remain as projected and future experience matches the current assumptions, we project the unfunded actuarial accrued liability will be paid off in 22 years.

- Demographic Risk (the risk that employee experience will be different than assumed)

  Examples of this risk include:

  - Actual retirements occurring earlier or later than assumed. The value of retirement plan benefits is sensitive to the rate of benefit accruals and any early retirement subsidies that apply.
  - Disability experience greater or less than projected.
  - More or less active employee turnover than assumed.
  - Salary increases greater or less than projected.

- Actual Experience Over the Last 5 Years and Implications for the Future

  Past experience can help demonstrate the sensitivity of key results to the Plan's actual experience.

  - The investment gain(loss) over the past five years has ranged from a loss of $3,604,596 to a gain of $3,561,195. If all investment returns were equal to the assumed return over the last seven years, the market value of assets as of the current valuation date would be approximately $58,113,833 as opposed to the actual value of $56,716,068.
  - The non-investment gain(loss) over the past five years has ranged from a loss of $1,998,917 to a loss of $605,122.
  - The funded percentage on the actuarial value of assets has ranged from a low of 52.1% to a high of 61.5% since 2011.

- Maturity Measures

  As pension plans mature, the cash need to fulfill benefit obligations will increase over time. Therefore, cash flow projections and analysis should be performed to assure that the Plan's asset allocation is aligned to meet emerging pension liabilities.

EXHIBIT A – TABLE OF PLAN COVERAGE

Category	Year Ended June 30		Change From Prior Year
	2018	2017	
Active employees in valuation:			
• Number	143	151	-5.3%
• Average age	46.5	46.9	-0.4
• Average years of service	11.0	11.0	0.0
• Total compensation	$7,820,129	$8,205,872	-4.7%
• Average compensation	54,686	54,344	0.6%
• Employee contributions	4,900,569	5,096,321	-3.8%
Inactive employees with a vested right to a deferred or immediate benefit[1]	9	8	12.5%
Retired employee:			
• Number in pay status	158	150	5.3%
• Average age	66.1	65.4	0.7
• Average monthly benefit	$2,552	$2,487	2.6%
Disabled employees:			
• Number in pay status	9	8	12.5%
• Average age	54.6	54.6	0.0
• Average monthly benefit	$3,107	$3,097	0.3%
Beneficiaries:			
• Number in pay status	12	11	9.1%
• Average age	76.5	77.0	-0.5
• Average monthly benefit	$1,424	$1,173	21.4%

1 In addition, there was one inactive employee due a refund of employee contributions in 2018.

EXHIBIT B – EMPLOYEES IN ACTIVE SERVICE AS OF JUNE 30, 2018
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
Under 25	4	4	- -	- -	- -	- -	- -	- -
	$47,420	$47,420	- -	- -	- -	- -	- -	- -
25 - 29	14	10	4	- -	- -	- -	- -	- -
	$56,835	$51,337	$70,580	- -	- -	- -	- -	- -
30 - 34	12	6	5	1	- -	- -	- -	- -
	$60,711	$53,771	$65,442	$78,693	- -	- -	- -	- -
35 - 39	10	2	3	5	- -	- -	- -	- -
	$66,774	$60,145	$66,481	$69,602	- -	- -	- -	- -
40 - 44	18	2	2	10	4	- -	- -	- -
	$66,157	$57,203	$81,690	$64,691	$66,531	- -	- -	- -
45 - 49	28	2	7	12	5	2	- -	- -
	$58,789	$59,464	$35,178	$70,623	$53,847	$82,101	- -	- -
50 - 54	16	1	6	5	4	- -	- -	- -
	$47,961	$54,201	$44,348	$49,702	$49,647	- -	- -	- -
55 - 59	21	1	4	9	4	3	- -	- -
	$42,910	$52,237	$43,341	$26,602	$49,652	$79,159	- -	- -
60 - 64	14	1	1	4	3	2	2	1
	$46,542	$103,590	$42,240	$33,619	$25,161	$69,624	$56,455	$43,640
65 - 69	6	- -	- -	4	1	1	- -	- -
	$46,917	- -	- -	$52,387	$45,372	$26,584	- -	- -
Total	143	29	32	50	21	8	2	1
	$54,686	$54,805	$53,134	$55,061	$50,162	$70,939	$56,455	$43,640

EXHIBIT C – SUMMARY STATEMENT OF INCOME AND EXPENSES ON A MARKET VALUE BASIS

	Year Ended June 30, 2018		Year Ended June 30, 2017	
Net assets at market value at the beginning of the year		$52,916,280		$46,929,737
Contribution income:				
• Employer contributions	$4,322,591		$3,955,207	
• Employee contributions	301,399		334,211	
• Less administrative expenses	-46,104		-33,000	
Net contribution income		*4,577,886*		*4,256,418*
Net investment income		3,897,741		5,647,914
Total income available for benefits		**$8,475,627**		**$9,904,332**
Less benefit payments		-$4,675,839		-$3,917,789
Change in reserve for future benefits		**$3,799,788**		**$5,986,543**
Net assets at market value at the end of the year		**$56,716,068**		**$52,916,280**

EXHIBIT D – DEPARTMENT RESULTS AS OF JULY 1, 2018

		School	Fire	Police	Public Works	Town	Total
1	Demographics						
	• Active employees in valuation	52	33	34	14	10	143
	• Inactive employees	7	0	1	1	1	10
	• Retired employees and beneficiaries in pay status	57	44	45	13	20	179
	• Total	116	77	80	28	31	332
2	Total normal cost	$213,208	$365,912	$436,250	$31,043	$107,302	1,153,715
3	Administrative expenses	7,392	12,686	15,125	1,076	3,721	40,000
4	Expected employee contributions	-84,312	-64,220	-112,974	0	-19,449	-280,955
5	Employer normal cost: (2) + (3) + (4)	$136,288	$314,378	$338,401	$32,119	$91,574	$912,760
6	Employer normal cost, adjusted for timing	139,668	322,174	346,792	32,915	93,845	935,394
7	Employer normal cost as a percentage of compensation	6.86%	14.07%	14.73%	4.05%	11.71%	11.27%
8	Actuarial accrued liability	$13,706,955	$32,417,399	$35,175,182	$3,779,457	$12,993,253	$98,072,246
9	Actuarial value of assets	7,965,745	18,839,250	20,441,926	2,196,417	7,550,980	56,994,318
10	Unfunded actuarial accrued liability: (8) - (9)	$5,741,210	$13,578,149	$14,733,256	$1,583,040	$5,442,273	$41,077,928
11	Payment on unfunded actuarial accrued liability, adjusted for timing	488,487	1,122,385	1,189,924	146,246	441,994	3,389,036
12	Actuarially determined contribution for fiscal year 2019: (6) + (11)	628,155	1,444,559	1,536,716	179,161	535,839	4,324,430
13	Actuarially determined contribution as a percentage of projected compensation	31.60%	64.67%	66.87%	22.61%	68.52%	53.43%
14	Projected compensation	$1,987,871	$2,233,703	$2,297,921	$792,369	$781,969	$8,093,833
15	Actuarially determined contribution for fiscal year 2020	636,687	1,502,016	1,631,400	171,104	543,178	4,484,385
16	Actuarially determined contribution for fiscal year 2021	632,889	1,506,776	1,632,657	172,384	542,657	4,487,362
17	Actuarially determined contribution for fiscal year 2022	619,372	1,491,124	1,598,305	170,503	528,505	4,407,809

EXHIBIT E – DEFINITIONS OF PENSION TERMS

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

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 and Beneficiaries:	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.
Actuarial Cost Method:	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.
Actuarial Gain or Loss:	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.
Actuarially Equivalent:	Of equal actuarial present value, determined as of a given date and based on a given set of Actuarial Assumptions.
Actuarial Present Value (APV):	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: Adjusted for the probable financial effect of certain intervening events (such as changes in compensation levels, marital status, etc.) Multiplied by the probability of the occurrence of an event (such as survival, death, disability, withdrawal, etc.) on which the payment is conditioned, and Discounted according to an assumed rate (or rates) of return to reflect the time value of money.

Actuarial Present Value of Future Plan Benefits:	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 be provide sufficient assets to pay all projected benefits and expenses when due.
Actuarial Valuation:	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).
Actuarial Value of Assets (AVA):	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.
Actuarially Determined:	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.
Actuarially Determined Contribution (ADC):	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.
Amortization Method:	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.
Amortization Payment:	The portion of the pension plan contribution, or ADC, that is designed to pay interest on and to amortize the Unfunded Actuarial Accrued Liability.

Assumptions or Actuarial Assumptions:	The estimates upon which the cost of the Fund is calculated, including: Investment return - the rate of investment yield that the Fund will earn over the long-term future; Mortality rates - the death rates of employees and pensioners; life expectancy is based on these rates; Retirement rates - the rate or probability of retirement at a given age or service; Disability rates – the probability of disability retirement at a given age; Withdrawal rates - the rates at which employees of various ages are expected to leave employment for reasons other than death, disability, or retirement; Salary increase rates - the rates of salary increase due to inflation and productivity growth.
Closed Amortization Period:	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.
Decrements:	Those causes/events due to which a member's status (active-inactive-retiree-beneficiary) changes, that is: death, retirement, disability, or withdrawal.
Defined Benefit Plan:	A retirement plan in which benefits are defined by a formula applied to the member's compensation and/or years of service.
Defined Contribution Plan:	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.
Employer Normal Cost:	The portion of the Normal Cost to be paid by the employer. This is equal to the Normal Cost less expected member contributions.
Experience Study:	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.
Funded Ratio:	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.

GASB 67 and GASB 68:	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.
Investment Return:	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.
Net Pension Liability (NPL):	The Net Pension Liability is equal to the Total Pension Liability minus the Plan Fiduciary Net Position.
Normal Cost:	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.
Open Amortization Period:	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.
Plan Fiduciary Net Position:	Market value of assets.
Total Pension Liability (TPL):	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.
Unfunded Actuarial Accrued Liability:	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.
Valuation Date or Actuarial Valuation Date:	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.

EXHIBIT I – ACTUARIAL ASSUMPTIONS AND ACTUARIAL COST METHOD

Net Investment Return:	6.75%. 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 provided by Segal Marco Advisors, as well as the Plan's target asset allocation.
Salary Increases:	3.5% per year. The salary increase assumption is a long-term estimate derived from historical data, current and recent market expectations, and professional judgement.
Payroll Growth:	Based on a closed group projection, except for School Management and employees eligible for a disability benefit only, for whom total payroll is projection to increase 2.75% per year.
Interest on Employee Contributions:	5.0%
Administrative Expenses:	$40,000 (previously, $35,000) The administrative expense assumption is based on information provided by the staff of the Town of Portsmouth, RI.
Defined Contribution Account Balance:	Balances as of July 1, 2018 were provided by the Town of Portsmouth, RI and were assumed to earn 6.75% annually. Balances were converted to monthly benefits using valuation interest and mortality assumptions.
Cost-of-Living Adjustments:	Cost-of-living increases for pensioners whose COLAs were based on 50% of the percentage salary increase received the previous July 1 by the active bargaining unit from which the employee retired or whose COLAs were based on the annual CPI adjustment are assumed to be 2% annually. Cost-of-living increases for all other pensioners were provided by the Town of Portsmouth, RI.

Mortality Rates:	*Pre-Retirement:* RP-2006 Employee Mortality Table projected generationally using Scale SSA-2014 2D *Healthy Retiree:* RP-2006 Healthy Annuitant Mortality Table projected generationally using Scale SSA-2014 2D *Disabled Retiree:* RP-2006 Healthy Annuitant Mortality Table set forward 5 years and projected generationally using Scale SSA-2014 2D The underlying tables with generational projection to the ages of employees as of the measurement date reasonably reflect the mortality experience of the Plan as of the measurement date. The mortality rates were based on historical and current demographic data, adjusted to reflect estimated future experience and professional judgment. As part of the analysis, a comparison was made between the actual number of deaths by age and the projected number based on the prior year's assumption over the most recent five years. These mortality tables were then adjusted to future years using the generational projection to reflect future mortality improvement between the measurement date and those years.

Termination Rates before Retirement:

	Fire and Police Rate (%)					
	Mortality[1]		Disability[2]		Withdrawal	
Age	Male	Female	Male	Female	Male	Female
20	0.05	0.02	0.09	0.05	9.87	14.87
25	0.05	0.02	0.13	0.09	6.87	9.87
30	0.05	0.02	0.18	0.15	4.87	6.87
35	0.06	0.03	0.25	0.23	3.87	4.87
40	0.08	0.05	0.35	0.27	2.65	3.65
45	0.12	0.08	0.47	0.44	1.50	2.50
50	0.20	0.12	0.68	0.66	0.16	1.16
55	0.30	0.17	1.14	1.06	- -	- -
60	0.50	0.28	1.72	1.23	- -	- -

	School, Public Works and Town Rate (%)					
	Mortality[1]		Disability		Withdrawal	
Age	Male	Female	Male	Female	Male	Female
20	0.05	0.02	0.01	0.02	9.92	14.92
25	0.05	0.02	0.02	0.02	6.92	9.92
30	0.05	0.02	0.02	0.04	4.92	6.92
35	0.06	0.03	0.03	0.07	3.92	4.92
40	0.08	0.05	0.06	0.11	2.78	3.78
45	0.12	0.08	0.10	0.16	1.69	2.69
50	0.20	0.12	0.18	0.27	0.47	1.47
55	0.30	0.17	0.36	0.48	0.08	0.08
60	0.50	0.28	0.63	0.58	- -	- -

The withdrawal rates and disability rates were based on historical and current demographic data, adjusted to reflect estimated future experience and professional judgment. As part of the analysis, a comparison was made between the actual number of withdrawals and disability retirements by age and the projected number based on the prior year's assumption over the most recent five years.

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1 Mortality rates do not reflect generational projection.

2 100% of the disability rates shown represent accidental disability.

Retirement Rates:

	Rate (%)		
	Police		
Service	Current	Previous	Fire
20	50.0	35.0	30.0
21	15.0	15.0	10.0
22	5.0	5.0	10.0
23	5.0	5.0	10.0
24	5.0	5.0	10.0
25	50.0	50.0	10.0
26	50.0	50.0	10.0
27	50.0	50.0	30.0
28	50.0	50.0	30.0
29	50.0	50.0	30.0
30	100.0	100.0	100.0

	(table below)

Age	Rate (%) School	Rate (%) Town Management/ Public Works	Rate (%) Town Non-Management
55	2.0	5.0	- -
56	2.0	5.0	- -
57	2.0	5.0	- -
58	2.0	5.0	- -
59	2.0	5.0	- -
60	30.0	10.0	10.0
61	5.0	10.0	10.0
62	35.0	15.0	15.0
63	35.0	15.0	15.0
64	10.0	15.0	15.0
65	10.0	50.0	50.0
66	10.0	50.0	50.0
67	10.0	100.0	100.0
68	30.0	- -	- -
69	30.0	- -	- -
70	100.0	- -	- -

The retirement rates were based on historical and current demographic data, adjusted to reflect economic conditions of the area and estimated future experience and professional judgment. As part of the analysis, a comparison was made between the actual number of retirements and the projected number based on the prior year's assumption over the most recent five years.

Retirement Rates for Inactive Vested Participants:	Normal Retirement Age 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 employees with similar known characteristics.
Family Composition:	85% of participants are assumed to be married. None are assumed to have dependent children. Females are assumed to be three years younger than their male spouses.
Benefit Election:	Monthly life annuity for School, Public Works and Town. 67.5% Joint and Survivor annuity for Police and Fire, in accordance with Section 45-21.3-1, General Laws of Rhode Island (1956).

2017 – 2018 Salary:	Salaries for benefits and contributions were provided by the Town of Portsmouth, RI. Salaries for new hires were annualized based on date of hire.
Actuarial Value of Assets:	Market value of assets as reported by the Town of Portsmouth, RI 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 return on the market value, 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 Actuarial Cost Method. Entry Age is the age at date of hire. Normal Cost and Actuarial Accrued Liability are calculated on an individual basis and are allocated by salary, with Normal Cost determined using the plan of benefits applicable to each participant.
Justification for Change in Actuarial Assumptions:	Based on recent experience and historical and current demographic data, the retirement rate for employees of the Police department with 20 years of service was increased from 35% to 50%. Based on recent experience, the administrative expense assumption was increased from $35,000 to $40,000.

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.

Plan Year:	• Effective July 1, 2006: July 1 through June 30 • Prior to July 1, 2006: January 1 through December 31
Plan Status:	• *Police:* Closed (with the exception of disability benefits) • *Fire:* Closed (with the exception of disability benefits) • *School Non-Management:* Closed • *School Management:* Ongoing • *Town:* Closed • *Public Works:* Closed (with the exception of disability benefits)

POLICE

Normal Retirement Benefit:	• *Service Requirement:* 20 years of credited service • *Amount:* 60% of average monthly earnings plus 2% for each year beyond 20 years subject to a maximum of 70%. • An employee's average monthly earnings are defined as the highest gross annual salary during the last three years of employment. Gross annual salary includes base salary and longevity, but excludes overtime, clothing allowance, holiday pay and any other forms of compensation. • Employees hired on or after July 1, 2010 are not entitled to Normal Retirement Benefits.
Accidental Disability:	• *Service Requirement:* None. • *Amount:* 67% of gross annual salary. For employees hired on or after July 1, 2010, this benefit will be offset by the actuarially equivalent benefit provided by the account balance from the defined contribution plan.
Ordinary Disability:	• *Service Requirement:* 10 years of credited service • *Amount:* 50% of highest consecutive two years average salary. For employees hired on or after July 1, 2010, this benefit is payable until Normal Retirement Date at which time the participant would begin taking distributions exclusively from the 401(a) plan.
Deferred Vested Benefit:	• *Service Requirement:* 10 years of credited service • *Amount:* Normal Retirement Benefit payable at Normal Retirement Date, prorated if less than 20 years of service

Spouse's Pre-Retirement Death Benefit:	• *Service Requirement:* 10 years of credited service • *Amount:* 30% of final five-year average earnings payable to the spouse plus 10% of final five-year average earnings payable to each minor child under age 21. The maximum benefit payable is 50% of final five-year average earnings. Employees hired on or after July 1, 2010 are not entitled to pre-retirement death benefits.
Cost of Living Adjustments:	• Employees who retired on or after July 1, 2003 with 20 years of credited service receive a 3% COLA commencing on the January 1st following the first anniversary of retirement. Employees who retired prior to July 1, 2003 receive a COLA based on 50% of the percentage salary increase received the previous July 1 by the active bargaining unit employees in the department from which the employee retired. • Effective July 1, 2010, employees who retire on or after July 1, 2013 with 20 years of credited service receive a 3% COLA commencing on the January 1st following the second year of retirement. • There is no COLA on a Deferred Vested Benefit or a Pre-Retirement Death Benefit.
Employee Contributions:	• 9.0% of gross annual earnings. • No contributions for employees hired on or after July 1, 2010.
Normal Form of Payment:	Benefits will continue to the surviving spouse and dependent children of a deceased retired police officer in accordance with Section 45-21.3-1, General Laws of Rhode Island (1956). The surviving spouse will receive 67.5% of the participant's benefit until death or remarriage in which case dependent children will receive the benefit until age 18. On death, if there is no spousal benefit due, the estate will receive a refund of participant contributions in excess of any retirement payments received.
Credited Service:	Full years plus fractions thereof from date of hire to date of termination.
Changes in Plan Provisions:	There were no changes in plan provisions reflected in this valuation.

FIRE

Normal Retirement Benefit:	• *Service Requirement:* 20 years of credited service • *Amount:* – For service before July 1, 2013: 3% of average monthly earnings per year of credited service to a maximum of 20 years plus 2% for each year beyond 20 years. – For service on or after July 1, 2013 and before June 30, 2016: 1% of average monthly earnings per year of credited service. – For service on or after July 1, 2016: 2% of average monthly earnings per year of credited service. – Fire Deputy and Fire Chief: 3% of average monthly earnings per year of credited service to a maximum of 20 years plus 2% for each year beyond 20 years. – The maximum benefit is 74% of average monthly earnings. – An employee's average monthly earnings are defined as the highest gross annual salary during the last three years of employment. Gross annual salary includes base salary, longevity and EMT bonus, but excludes overtime, clothing allowance, holiday pay and any other forms of compensation. Employees hired on or after July 1, 2013 are not entitled to Normal Retirement Benefits.
Accidental Disability:	• *Service Requirement:* None • *Amount:* 66 ⅔% of gross annual salary. For employees hired on or after July 1, 2013, this benefit will be offset by the actuarially equivalent benefit provided by the account balance from the defined contribution plan.
Ordinary Disability:	• *Service Requirement:* 10 years of credited service • *Amount:* 50% of highest consecutive three years average salary. For employees hired on or after July 1, 2013, this benefit is payable until Normal Retirement Date at which time the participant would begin taking distributions exclusively from the 401(a) plan.
Deferred Vested Benefit:	• *Service Requirement:* 10 years of credited service • *Amount:* Normal Retirement Benefit payable at Normal Retirement Date, prorated if less than 20 years of service.
Spouse's Pre-Retirement Death Benefit:	• *Service Requirement:* 10 years of credited service • *Amount:* 30% of final five-year average earnings payable to the spouse plus 10% of final five-year average earnings payable to each minor child under age 21. The maximum benefit payable is 50% of final five-year average earnings. Employees hired on or after July 1, 2013 are not entitled to pre-retirement death benefits.

Cost of Living Adjustments:	• Employees who retired prior to July 1, 2007 receive a COLA based on 50% of the percentage salary increase received the previous July 1 by the active bargaining unit employees in the department from which the employee retired. • Employees who retired on or after July 1, 2007 and before July 1, 2013 with 20 years of credited service receive a 3% COLA commencing on the January 1st immediately following the participant's retirement. • Employees who retire on or after July 1, 2013 with 20 years of credited service receive a 1.7% COLA commencing on the January 1st following the fifth anniversary of retirement. • Fire Chief (previously, Fire Deputy and Fire Chief) receive a 3% COLA commencing on the January 1st following the fifth year of retirement, regardless of date of retirement. • Employees who retired prior to July 1, 2016 under Accidental Disability receive a 3% compounding COLA commencing on the January 1st immediately following the participant's retirement. • Employees who retire on or after July 1, 2016 under Accidental Disability receive a 3% non-compounding COLA commencing on the January 1st immediately following the participant's retirement. • There is no COLA on a Deferred Vested Benefit or a Pre-Retirement Death Benefit.
Employee Contributions:	• 4.0% of gross annual earnings inclusive of base salary, longevity, EMT bonus and holiday pay. • Fire Deputy and Fire Chief: 10.0% of gross annual earnings inclusive of base salary, longevity, EMT bonus and holiday pay. • No contributions for employees hired on or after July 1, 2013.
Normal Form of Payment:	Benefits will continue to the surviving spouse and dependent children of a deceased retired firefighter in accordance with Section 45-21.3-1, General Laws of Rhode Island (1956). The surviving spouse will receive 67.5% of the participant's benefit until death or remarriage in which case dependent children will receive the benefit until age 18. On death, if there is no spousal benefit due, the estate will receive a refund of participant contributions in excess of any retirement payments received.
Credited Service:	Full years plus fractions thereof from date of hire to date of termination.
Changes in Plan Provisions:	The following plan change was reflected in this valuation: A Fire Deputy who retires on or after July 1, 2017 will receive a COLA of 1.7% commencing on the January 1st following the fifth year of retirement (previously, 3.0%).

SCHOOL

Normal Retirement Benefit:	• *Age and Service Requirement:* Age 60 with 10 years of credited service • *Amount:* – Non-Certified: » For service before October 1, 2013: 2.5% of average monthly earnings per year of credited service. » For service on or after October 1, 2013: 1% of average monthly earnings per year of credited service. » Benefit is reduced prorata if less than 20 years of service. » Non-certified employees hired after July 1, 2012 and before October 1, 2013 were transferred to the defined contribution plan effective October 1, 2013. – Management: 2.5% of average monthly earnings per year of credited service. Benefit is reduced prorata for less than 20 years of service. – An employee's average monthly earnings are defined as base annual salary and longevity pay averaged over the final three years of employment. School Department employees who are not School Management, who are hired on or after October 1, 2013 are not eligible to participate in this Plan.
Early Retirement Benefit:	• *Age and Service Requirement:* Age 55 with 20 years of credited service • *Amount:* Normal Retirement Benefit multiplied by the ratio of credited service as of the Early Retirement Date to the number of years the employee would have completed if he or she remained employed until Normal Retirement Date.
Ordinary Disability:	• *Service Requirement:* 10 years of credited service • *Amount:* Accrued benefit as of the date of disability multiplied by the ratio of credited service as of the date of disability to the number of years the employee would have completed if he or she remained employed until Normal Retirement Date.
Deferred Vested Benefit:	• *Service Requirement:* 10 years of credited service • *Amount:* Normal Retirement Benefit payable at Normal Retirement Date, prorated if less than 20 years of service.
Spouse's Pre-Retirement Death Benefit:	• *Service Requirement:* 10 years of credited service • *Amount:* 100% Joint and Survivor benefit is payable to the spouse upon the death of the employee, prorated if less than 20 years and reduced for early retirement and payable no earlier than when the employee would be eligible to retire.

Cost of Living Adjustments:	• Non-certified: Effective July 1, 2002, employees who retire at age 55 with 20 years of credited service shall receive a 1.7% COLA beginning on the first anniversary of retirement. For retirements on or after October 1, 2013, the COLA commences on the fifth anniversary of retirement. • Management: Effective January 1, 2001 employees who retire at age 55 with 25 years of credited service or age 60 with 20 years of credited service shall receive a 1.7% COLA beginning on the first anniversary of retirement. • There is no COLA on a Deferred Vested Benefit or a Pre-Retirement Death Benefit.
Employee Contributions:	• Non-Certified: 4% of gross annual salary. • Management: 6% of gross annual salary. 2% of gross annual salary for employees hired before July 1, 1991.
Normal Form of Payment:	Life annuity payable monthly.
Credited Service:	Full years plus fractions thereof from date of hire to date of termination.
Changes in Plan Provisions:	There were no changes in plan provisions reflected in this valuation.

TOWN

Normal Retirement Benefit:	• *Age and Service Requirement:* Age 60 with 10 years of credited service • *Amount:* – Non-Management: » For service before July 1, 2013: 2.5% of average monthly earnings per year of credited service to a maximum of 27 years. » For service on or after July 1, 2013 and before July 1, 2016: 1% of average monthly earnings per year of credited service. » For service on or after July 1, 2016: 2% of average monthly earnings per year of credited service. » The maximum benefit is 67.5% of average monthly earnings. » Benefit is reduced prorata if less than 20 years of service. – Management: 3.0% of average monthly earnings per year of credited service for up to 20 years of service, plus 2.0% of average monthly earnings per year of credited service to a maximum of 74%. For benefit accrual purposes, credited service is frozen as of July 1, 2014. – An employee's monthly earnings are defined as the highest annual salary (base salary and longevity) during the final three years of employment. Town Hall employees hired on or after July 1, 2012 are not eligible to participate in this Plan.
Early Retirement Benefit:	• *Age and Service Requirement:* Management: Age 55 with 25 years of credited service • *Amount:* Management: Normal Retirement Benefit multiplied by the ratio of credited service as of the Early Retirement Date to the number of years the employee would have completed if he or she remained employed until Normal Retirement Date. There is no Early Retirement Benefit for Non-Management employees.
Ordinary Disability:	• *Service Requirement:* 10 years of credited service • *Amount:* Accrued benefit as of the date of disability multiplied by the ratio of credited service as of the date of disability to the number of years the employee would have completed if he or she remained employed until Normal Retirement Date.
Deferred Vested Benefit:	• *Service Requirement:* 10 years of credited service • *Amount:* Normal Retirement Benefit payable at Normal Retirement Date, prorated if less than 20 years of service.
Spouse's Pre-Retirement Death Benefit:	• *Service Requirement:* 10 years of credited service • *Amount:* 30% of final five-year average earnings payable to the spouse plus 10% of final five-year average earnings payable to each minor child under 21. The maximum benefit payable is 50% of final five-year average earnings.

Cost of Living Adjustments:	• *Non-Management:* Employees who are members of PMEA and who retire on or after July 1, 1998 at age 60 with 20 years of credited service receive a 2.0% COLA with a two-year waiting period from date of retirement. Effective July 1, 2003, the COLA commences the January 1st immediately following retirement. Effective July 1, 2005 employees retiring at or after age 60 with at least 20 years of credited service shall receive a cost of living adjustment of the annual Consumer Price Index (CPI-U, U.S. city average established on December 31 of the preceding year), but shall be not less than 2% or more than 3%, annually commencing on the first anniversary of retirement. For retirements on or after July 1, 2013, the COLA is 1.7% and commences on the fifth anniversary of retirement. Effective July 1, 2016, for employees retiring at or after age 60 with 25 years of credited service, the COLA commences on the earlier of age 65 or the second anniversary of retirement. • *Management:* Employees who retire on or after July 1, 2002 at age 60 with 20 years of credited service or age 55 with 25 years of service receive a 2.0% COLA with a one-year waiting period from date of retirement. Employees who retire on or after July 1, 2004 receive a 3.0% COLA commencing on the January 1st following the first anniversary of retirement. For retirements on or after July 1, 2013, the COLA is 1.7% commencing on the January 1st following the fifth anniversary of retirement. • There is no COLA on a Deferred Vested Benefit or a Pre-Retirement Death Benefit.
Employee Contributions:	• Non-Management: Effective July 1, 2016, 5% of base salary. • Management: No employee contributions after July 1, 2014.
Normal Form of Payment:	Life annuity payable monthly.
Credited Service:	Full years plus fractions thereof from date of hire to date of termination.
Changes in Plan Provisions:	There were no changes in plan provisions reflected in this valuation.

PUBLIC WORKS

Normal Retirement Benefit:	• *Age and Service Requirement:* Age 60 with 10 years of credited service • *Amount:* – For employees with less than 10 years of credited service at July 1, 2013 who were hired before June 30, 2010: 2.5% of average monthly earnings per year of credited service up to a maximum of 25%. Benefit is reduced prorata if less than 20 years of service. – For employees with 10 or more years of service as of June 30, 2013: 2.5% of average monthly earnings per year of credited service prior to July 1, 2013 to a maximum of 67.5%. Benefit is reduced prorata if less than 20 years of service. – An employee's average monthly earnings are defined as annual salary (base salary and longevity) averaged over the final five years of employment. Employees hired on or after July 1, 2010 are not entitled to Normal Retirement Benefits.
Ordinary Disability:	• *Service Requirement:* 10 years of credited service • *Amount:* Accrued benefit as of the date of disability multiplied by the ratio of credited service as of the date of disability to the number of years the employee would have completed if he or she remained employed until Normal Retirement Date. For employees hired on or after July 1, 2013, this benefit will be offset by the actuarially equivalent benefit provided by the account balance for the defined contribution plan.
Deferred Vested Benefit:	• *Service Requirement:* 10 years of credited service • *Amount:* Normal Retirement Benefit payable at Normal Retirement Date, prorated if less than 20 years of service.
Spouse's Pre-Retirement Death Benefit:	• *Service Requirement:* 10 years of credited service • *Amount:* 30% of final five-year average earnings payable to the spouse plus 10% of final five-year average earnings payable to each minor child under 21. The maximum benefit payable is 50% of final five-year average earnings. Employees hired on or after July 1, 2010 are not entitled to pre-retirement death benefits.
Cost of Living Adjustments:	• Employees who retire on or after July 1, 1987 at age 60 with 20 years of credited service shall receive 50% of the percentage salary increase received the previous July 1 by the active bargaining unit employees in the department from which the employee retired. There is a two-year waiting period commencing on the January 1 following date of retirement. Employees who retire on or after July 1, 2013 at age 60 with 10 years of service receive a 1.7% COLA commencing on the sixth anniversary of retirement. • There is no COLA on a Deferred Vested Benefit or a Pre-Retirement Death Benefit.
Employee Contributions:	• For participants with less than 10 years of service who are eligible for an Option 1 benefit, 4.0% of annual salary, until participant has accrued 10 years of service. • No employee contributions after July 1, 2013 for other employees.

Normal Form of Payment:	Life annuity payable monthly.
Credited Service:	Full years plus fractions thereof from date of hire to date of termination.
Changes in Plan Provisions:	The following plan change is reflected in this valuation: The early retirement benefit was eliminated.