



# ***Town of Warren***

*GASB 45 Actuarial Valuation*

*Alternate Measurement Method*

*Fiscal Year Ending June 30, 2015*

***Prepared by:***

***Nyhart Actuary & Employee Benefits***

*8415 Allison Pointe Blvd., Suite 300*

*Indianapolis, IN 46250*

*Ph: (317) 845-3500*

*www.nyhart.com*

## Table of Contents

	<b>Page</b>
Certification	1
Executive Summary	3
GASB Disclosures	
Development of Annual Required Contribution (ARC)	5
Development of Annual OPEB Cost and Net OPEB Obligation	6
Schedule of Funding Progress	7
Schedule of Employer Contributions	7
Historical Annual OPEB Cost	7
Substantive Plan Provisions	8
Actuarial Methods and Assumptions	10
Summary of Plan Participants	14
Appendix	16
Comparison of Participant Demographic Information	17
Detailed Actuary's Notes	18
Glossary	19
Decrements Exhibit	20
Retirement Rates Exhibit	21
Illustrations of GASB Calculations	22
Definitions	24



July 22, 2015

**Town of Warren**  
**Michael Abbruzzi**  
**514 Main Street**  
**Warren, RI 2885**

This report summarizes the GASB 45 actuarial valuation for the Town of Warren 2014/15 fiscal year. To the best of our knowledge, the report presents a fair position of the funded status of the plan in accordance with GASB Statement No. 45 (Accounting and Financial Reporting by Employers for Post-Employment Benefits Other Than Pensions).

The information presented herein is based on the actuarial assumptions and substantive plan provisions summarized in this report and participant information furnished to us by the Plan Sponsor. We have reviewed the employee census provided by the Plan Sponsor for reasonableness when compared to the prior information provided but have not audited the information at the source, and therefore do not accept responsibility for the accuracy or the completeness of the data on which the information is based. When relevant data may be missing, we may have made assumptions we feel are neutral or conservative to the purpose of the measurement. We are not aware of any significant issues with and have relied on the data provided.

The actuarial assumptions were as prescribed in GASB 45 under Alternate Measurement Method. All computations have been made in accordance with generally accepted actuarial principles and practice.

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.

We did not perform an analysis of the potential range of future measurements due to the limited scope of our engagement.

To our knowledge, there have been no significant events prior to the current year's measurement date or as of the date of this report that could materially affect the results contained herein.

July 22, 2015

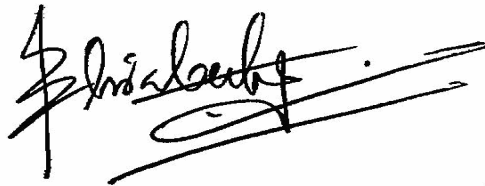
Neither Nyhart nor any of its employees has any relationship with the plan or its sponsor that could impair or appear to impair the objectivity of this report. Our professional work is in full compliance with the American Academy of Actuaries "Code of Professional Conduct" Precept 7 regarding conflict of interest. The undersigned meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinion contained herein.

Should you have any questions please do not hesitate to contact us.



---

Randy Gomez, FSA, MAAA  
Consulting Actuary



---

Evi Laksana, ASA, MAAA  
Valuation Actuary

## Summary of Results

Presented below is the summary of GASB 45 results for the fiscal year ending June 30, 2015 compared to the prior fiscal year.

	<i>As of July 1, 2013</i>		<i>As of July 1, 2014</i>	
<b>Actuarial Accrued Liability</b>	\$	4,332,008	\$	4,369,521
<b>Actuarial Value of Assets</b>	\$	739,870	\$	745,277
<b>Unfunded Actuarial Accrued Liability</b>	\$	3,592,138	\$	3,624,244
<b>Funded Ratio</b>		17.1%		17.1%

	<i>FY 2013/14</i>		<i>FY 2014/15</i>	
<b>Annual Required Contribution</b>	\$	420,724	\$	315,847
<b>Annual OPEB Cost</b>	\$	425,578	\$	321,514
<b>Annual Employer Contribution</b>	\$	140,903	\$	139,938

	<i>As of June 30, 2014</i>		<i>As of June 30, 2015</i>	
<b>Net OPEB Obligation</b>	\$	1,983,840	\$	2,165,416

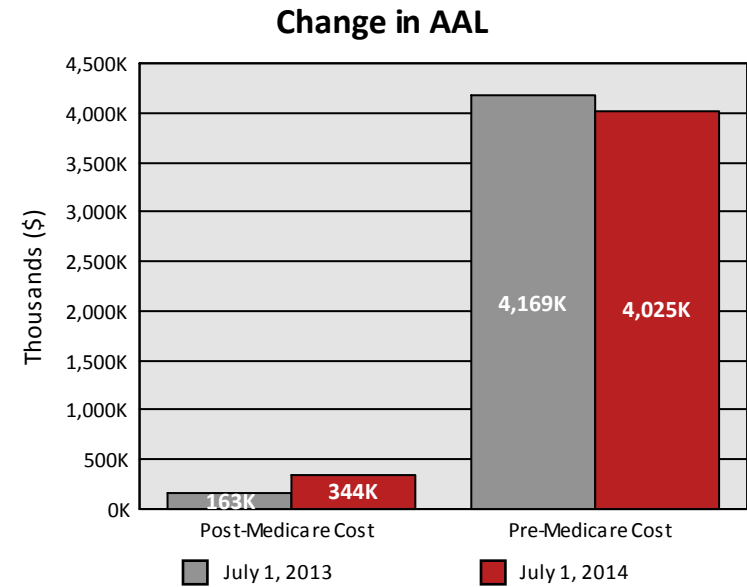
	<i>As of June 30, 2015</i>	
<b>Total Active Participants</b>		66
<b>Total Retiree Participants</b>		6

The active participants number above may include active employees who currently have no health care coverage. Refer to the Summary of Participants section for an accurate breakdown of active employees with and without coverage.

\*Interim reports were not prepared for FYE June 30, 2013 and 2014. The Town opted to repeat GASB results as shown in the FYE June 30, 2012 GASB 45 report for FY 2012/13 and 2013/14 financial disclosures as permitted by GASB.

Below is a breakdown of total GASB 45 liabilities allocated for pre and post Medicare eligibility. The liability shown below includes explicit (if any) and implicit subsidies. Refer to the Substantive Plan Provisions section for complete information on the Plan Sponsor's GASB subsidies.

Actuarial Accrued Liability (AAL)	As of July 1, 2013		As of July 1, 2014	
<b>Total Active AAL</b>	\$	<b>3,657,759</b>	\$	<b>3,123,872</b>
Active Pre-Medicare		3,560,450		2,951,538
Active Post-Medicare		97,309		172,334
<b>Total Retirees AAL</b>	\$	<b>674,249</b>	\$	<b>1,245,649</b>
Retirees Pre-Medicare		608,091		1,073,530
Retirees Post-Medicare		66,158		172,119
<b>Total AAL</b>	\$	<b>4,332,008</b>	\$	<b>4,369,521</b>



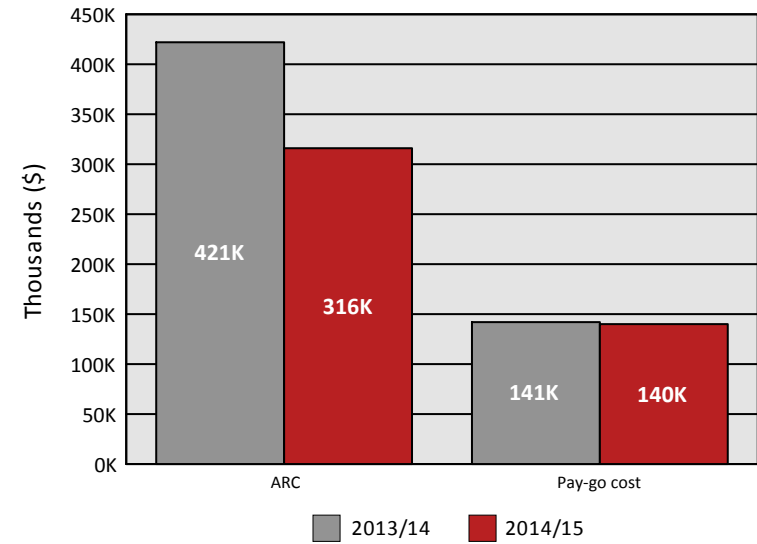
\*Prior year information is as shown in the FYE June 30, 2012 GASB 45 report.

**Development of Annual Required Contribution (ARC)**

Required Supplementary Information	FY 2013/14	FY 2014/15
Actuarial Accrued Liability as of beginning of year	\$ 4,332,008	\$ 4,369,521
Actuarial Value of Assets as of beginning of year	739,870	745,277
<b>Unfunded Actuarial Accrued Liability (UAAL)</b>	<b>\$ 3,592,138</b>	<b>\$ 3,624,244</b>
Covered payroll	\$ 2,935,090	\$ 3,302,667
UAAL as a % of covered payroll	122.4%	109.7%

Annual Required Contribution	FY 2013/14	FY 2014/15
Normal cost as of beginning of year	\$ 276,249	\$ 174,260
Amortization of the UAAL	128,293	129,439
Total normal cost and amortization payment	\$ 404,542	\$ 303,699
Interest to end of year	16,182	12,148
<b>Total Annual Required Contribution (ARC)</b>	<b>\$ 420,724</b>	<b>\$ 315,847</b>

**Cash vs. Accrual Accounting**



**Annual Required Contribution (ARC)** is the annual expense recorded in the income statement under GASB 45 accrual accounting. It replaces the cash basis method of accounting recognition with an accrual method. The GASB 45 ARC is higher than the pay-as-you-go cost because it includes recognition of employer costs expected to be paid in future

\*The Town opted to repeat GASB results as shown in the FYE June 30, 2012 GASB 45 report for FY 2013/14 financial disclosures as permitted by GASB.

## Development of Annual OPEB Cost and Net OPEB Obligation

Net OPEB Obligation	FY 2013/14		FY 2014/15	
ARC as of end of year	\$	420,724	\$	315,847
Interest on Net OPEB Obligation (NOO) to end of year		67,967		79,354
NOO amortization adjustment to the ARC		(63,113)		(73,687)
Annual OPEB cost	\$	425,578	\$	321,514
Annual employer contribution for pay-go cost		(140,903)		(139,938)
Annual employer contribution for pre-funding		0		0
Change in NOO	\$	284,675	\$	181,576
NOO as of beginning of year		1,699,165		1,983,840
<b>NOO as of end of year</b>	<b>\$</b>	<b>1,983,840</b>	<b>\$</b>	<b>2,165,416</b>

**Pay-as-you-go Cost** is the expected total employer cash cost for the coming period based on all explicit and implicit subsidies. It is also the amount recognized as expense on the Income Statement under pay-as-you-go accounting.

**Net OPEB Obligation** is the cumulative difference between the annual OPEB cost and employer contributions. This obligation will be created if cash contributions are less than the current year expense under GASB 45 accrual rules.

The net obligation is recorded as a liability on the employer's balance sheet which will reduce the net fund balance.

The value of implicit subsidies is considered as part of cash contributions for the current period. Other cash expenditures that meet certain conditions are also considered as contributions for GASB 45 purposes.



## Summary of GASB 45 Financial Results

Presented below is the summary of GASB 45 results for the fiscal year ending June 30, 2015 compared to the prior fiscal years. Prior years fiscal information is as shown in the Town's Notes to Financial Statement for fiscal year ending June 30, 2014.

### Schedule of Funding Progress

<i>As of</i>	<i>Actuarial Accrued Liability (AAL)</i>	<i>Actuarial Value of Assets (AVA)</i>	<i>Unfunded Actuarial Accrued Liability (UAAL)</i>	<i>Funded Ratio</i>	<i>Covered Payroll</i>	<i>UAAL as % of Covered Payroll</i>
	<i>A</i>	<i>B</i>	<i>C = A - B</i>	<i>D = B / A</i>	<i>E</i>	<i>F = C / E</i>
July 1, 2014	\$ 4,369,521	\$ 745,277	\$ 3,624,244	17.1%	\$ 3,302,667	109.7%
July 1, 2013	\$ 4,332,008	\$ 739,870	\$ 3,592,138	17.1%	\$ 2,935,090	122.4%
July 1, 2012	\$ 4,332,008	\$ 739,870	\$ 3,592,138	17.1%	\$ 2,935,090	122.4%

### Schedule of Employer Contributions

<i>FYE</i>	<i>Employer Contributions</i>	<i>Annual Required Contribution (ARC)</i>	<i>% of ARC Contributed</i>
	<i>A</i>	<i>B</i>	<i>C = A / B</i>
June 30, 2015	\$ 139,938	\$ 315,847	44.3%
June 30, 2014	\$ 140,903	\$ 420,724	33.5%
June 30, 2013	\$ 135,814	\$ 420,724	32.3%

### Historical Annual OPEB Cost

<i>As of</i>	<i>Annual OPEB Cost</i>	<i>% of Annual OPEB Cost Contributed</i>	<i>Net OPEB Obligation</i>
June 30, 2015	\$ 321,514	43.5%	\$ 2,165,416
June 30, 2014	\$ 425,578	33.1%	\$ 1,983,840
June 30, 2013	\$ 424,752	32.0%	\$ 1,699,165

**Eligibility**

All employees are eligible for retiree health benefits once they meet the Rhode Island Municipal Employees Retirement System (MERS) retirement eligibility requirements as described below.

Employees eligible to retire as of 7/1/2012 are not impacted by the new eligibility requirements described below. Prior to 7/1/2012, employees were eligible to retire at the earlier of: (i) age 58 with 10 years of service credit or (ii) 30 years of service (no age requirement).

For employees who are not eligible to retire as of 7/1/2012:

- a) Members with less than five years of contributing service credit on 6/30/2012 may retire at their Social Security normal retirement age.
- b) Members with at least five years of contributing service credit on 6/30/2012 may retire at an individually determined age, which is the result of interpolating the member's prior Retirement Date (described in previous paragraph) and the retirement age applicable to members hired after 6/30/2012 (described in item (a) above).
- c) Members with at least ten years of contributing service credit on 6/30/2012 may retire at their prior Retirement Date (described in previous paragraph) if they continue to work and contribute until that date.

All members who are within five years of reaching their retirement eligibility date (described in the paragraphs above) may retire at any time if they have at least 20 years of service.

**Spouse Benefit**

Surviving spouse is eligible for COBRA coverage upon death of the retiree.

**Explicit Subsidy**

Retirees are eligible for subsidized coverage as noted below:

- Police officers (IBPO) – 4 years of free coverage that can extend past Medicare eligibility
- Non-union Supervisory Personnel:
  - Hired prior to April 26, 2006 – 3 years of free coverage or until Medicare eligibility, whichever is earlier
  - Hired on/after April 26, 2006 – 3 years subsidized coverage or until Medicare eligibility, whichever is earlier. During the subsidy period, the Town will contribute 80% of the premium.
- Town (USW) employees:
  - Hired prior to July 1, 1994 – 3 years of free coverage that can extend past Medicare eligibility
  - Hired on/after July 1, 1994 – 2 years of free coverage that can extend past Medicare eligibility.
  - Any USW employees who retire at age 65 with 10 years of service are eligible for free lifetime coverage under Plan 65.

**Retiree Cost Sharing**

Retirees contribute the cost of coverage not covered by the Town’s explicit subsidy.

**Medical Benefit**

Same benefit options are available to retirees as active employees. Town of Warren purchases their health insurance through BCBS of Rhode Island, and their health plans are operated on a fully-insured arrangement. Their premium rates are determined based on an 80/20 split of the pool-wide and their own claims experience.

BCBS of Rhode Island maintains fund reserves that are held in common. At year end, reserves are evaluated and at times, distributions could be made out to members.

The monthly premiums effective July 1, 2015 are as shown below:

<b>Plan</b>	<b>EE</b>	<b>EE / Spouse</b>
Plan A (Police)	\$ 765.61	\$ 1,764.66
Plan B (Town)	\$ 695.70	\$ 1,706.29
Plan C (Fire)	\$ 817.89	\$ 1,828.48
Plan D with Vision (Town)*	\$ 699.81	\$ 1,716.57
Plan 65	\$ 169.31	N/A
Dental	\$ 31.25	\$ 94.17

\* Plan D is only available to USW employees, and they are required to pay any differential costs from Plan B.

The actuarial assumptions used in this report represent a reasonable long-term expectation of future OPEB outcomes. As national economic and Town experience change over time, the assumptions will be tested for ongoing reasonableness and, if necessary, updated.

There are changes to the plan provisions and actuarial methods and assumptions since the last GASB valuation, which was for the fiscal year ending June 30, 2012. Refer to the Actuary’s Notes section for complete information on these changes. For the current year GASB valuation, we have also updated the per capita costs. We expect to update health care trend rates and per capita costs again in the next full GASB valuation, which will be for the fiscal year ending June 30, 2018.

<b>Measurement Date</b>	June 30, 2015 with results actuarial rolled-back to July 1, 2014 on a “no loss/no gain” basis.
<b>Discount Rate</b>	4.0%
<b>Payroll Growth</b>	3.5% (for amortization purposes only)
<b>Inflation Rate</b>	3.0%
<b>Cost Method</b>	Projected Unit Credit with linear proration to decrement
<b>Amortization</b>	Level % of pay over thirty years based on an open group
<b>Employer Funding Policy</b>	Pay-as-you-go cash basis  The Town has established an OPEB Trust, but the annual pre-funding decision is made arbitrarily annually depending on budgetary constraints. The last pre-funding contribution made into this Trust was in the 2007/08 fiscal year. The Town plans to make pre-funding contributions to the Trust in future years contingent on any budgetary constraints.
<b>Census Data</b>	Census information was provided by the Plan Sponsor as of May 2015. We have reviewed it for reasonableness, and no material modifications were made.
<b>Health Care Coverage Election Rate</b>	Active employees with current coverage: 100% Active employees with no coverage: 0%  Inactive employees with current coverage: 100%

**Spousal Coverage**

Based on actual data for future and current retirees.

Husbands are assumed to be three years older than wives for future retirees. Actual spouse’s age is used for current retirees.

**Mortality**

SOA RPH-2014 Total Dataset Mortality Table fully generational using Scale MP-2014

**Disability**

None

**Turnover Rate**

Assumption used to project terminations (voluntary and involuntary) prior to meeting minimum retirement eligibility for retiree health coverage. The rates represent the probability of termination in the next 12 months.

Age	Male
25	6.8%
35	3.2%
45	1.6%

**Retirement Rate**

Each general employee is assumed to retire at age 61 or upon meeting the minimum age/service requirement, whichever is later. If the employee is currently over the age of 61 and has met the minimum age/service requirement, he is assumed to retire immediately.

Each public safety employee is assumed to retire at age 58 or upon meeting the minimum age/service requirement, whichever is later. If the employee is currently over the age of 58 and has met the minimum age/service requirement, he is assumed to retire immediately.

**Medical Trend Rates**

FYE	Medical / Rx	Dental
2016	9.0%	5.0%
2017	8.5%	4.5%
2018	8.0%	4.0%
2019	7.5%	3.5%
2020	7.0%	3.0%
2021	6.5%	3.0%
2022	6.0%	3.0%
2023	5.5%	3.0%
2024+	5.0%	3.0%

The initial trend rate was based on a combination of employer history, national trend surveys, and professional judgment.

The ultimate trend rate was selected based on historical medical CPI information.

**Retiree Contributions**

Retiree contributions are assumed to increase according to health care trend rates.

**Per Capita Costs**

Annual per capita costs were calculated based on the Town’s monthly premium rates effective on July 1, 2015 actuarially increased using health index factors and current enrollment. The costs are assumed to increase with health care trend rates. Annual per capita costs are as shown below:

Age	Plan	Per Capita
< 65	Plan A	\$ 16,807
< 65	Plan B / D	\$ 15,273
< 65	Plan C	\$ 17,955
65+	Plan 65	\$ 2,031

The per capita costs represent the cost of coverage for a retiree-only population.

Actuarial standards require the recognition of higher inherent costs for a retired population versus an active population.

The annual dental per capita cost is assumed to be \$375. It is assumed to increase with dental trend rates.

**Explicit Subsidy**

The difference between (a) the premium rate and (b) the retiree contribution. Below is an example of the monthly explicit subsidies for a future retiree enrolled in Plan B.

	Premium Rate	Retiree Contribution	Explicit Subsidy
	A	B	C = A – B
Retiree	\$ 695.70	\$ 0.00	\$ 695.70
Spouse	\$ 1,010.59	\$ 0.00	\$ 1,010.59

**Implicit Subsidy**

The difference between (a) the per capita cost and (b) the premium rate. Below is an example of the monthly implicit subsidies for a future retiree age 60 enrolled in Plan B with spouse of the same age.

	Per Capita Cost	Premium Rate	Implicit Subsidy
	A	B	C = A – B
Retiree	\$ 1,272.75	\$ 695.70	\$ 577.05
Spouse	\$ 1,272.75	\$ 1,010.59	\$ 262.16

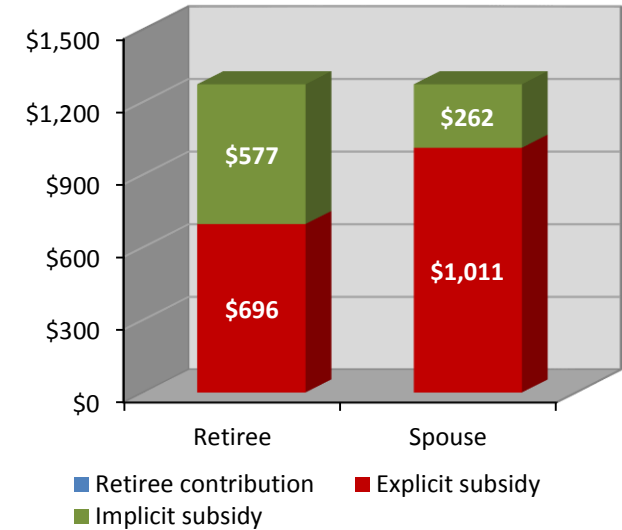
All employers that utilize premium rates based on blended active/retiree claims experience will have an implicit subsidy. There is an exception for plans using a true community-rated premium rate.

**GASB Subsidy Breakdown**

Below is a breakdown of the GASB 45 monthly total cost for a future retiree age 60 enrolled in Plan B with spouse of the same age.

	Retiree	Spouse
Retiree contribution	\$ 0.00	\$ 0.00
Explicit subsidy	\$ 695.70	\$ 1,010.59
Implicit subsidy	\$ 577.05	\$ 262.16
<b>Total monthly cost</b>	<b>\$ 1,272.75</b>	<b>\$ 1,272.75</b>

**GASB Subsidy Breakdown**



<i>Actives with coverage</i>	<i>Single</i>	<i>Family</i>	<i>Total</i>	<i>Avg. Age</i>	<i>Avg. Svc</i>	<i>Salary</i>
Plan A (Police)	2	17	19	44.1	16.0	\$1,153,055
Plan B (Town)	6	32	38	47.4	12.9	\$1,678,363
Plan C (Fire)		1	1	68.4	20.0	\$66,530
Plan D (Town with Vision)	1		1	75.7	35.9	\$41,891
<b>Total actives with coverage</b>	<b>9</b>	<b>50</b>	<b>59</b>	<b>47.2</b>	<b>14.4</b>	<b>\$2,939,839</b>

<i>Actives without coverage</i>	<i>Total</i>	<i>Avg. Age</i>	<i>Avg. Svc</i>	<i>Salary</i>
No coverage	7	45.3	15.7	\$362,828
<b>Total actives without coverage</b>	<b>7</b>	<b>45.3</b>	<b>15.7</b>	<b>\$362,828</b>

Active employees who currently have no coverage are assumed not to elect coverage at retirement. They have been excluded from the GASB valuation.

<i>Retirees with coverage</i>	<i>Single</i>	<i>Family</i>	<i>Total</i>	<i>Avg. Age</i>
Plan 65	2		2	84.2
Plan A (Police)		3	3	55.3
Plan B (Town)	1		1	56.6
<b>Total retirees with coverage</b>	<b>3</b>	<b>3</b>	<b>6</b>	<b>65.2</b>



Active Age-Service Distribution

Age	Years of Service										Total
	< 1	1 to 4	5 to 9	10 to 14	15 to 19	20 to 24	25 to 29	30 to 34	35 to 39	40 & up	
Under 25											0
25 to 29		1									1
30 to 34	1	1	3	2							7
35 to 39			5	5	1						11
40 to 44		2	1	4	6						13
45 to 49				4		3	1				8
50 to 54		1		1	2	2	4				10
55 to 59		2	1	1	1	2	1				8
60 to 64			1	1	1	2					5
65 to 69						1					1
70 & up	1								1		2
<b>Total</b>	<b>2</b>	<b>7</b>	<b>11</b>	<b>18</b>	<b>11</b>	<b>10</b>	<b>6</b>	<b>0</b>	<b>1</b>	<b>0</b>	<b>66</b>

## Appendix

**Appendix A - Comparison of Participant Demographic Information**

The active participants number below may include active employees who currently have no health care coverage. Refer to the Summary of Participants section for an accurate breakdown of active employees with and without coverage.

	<i>As of June 30, 2013</i>	<i>As of June 30, 2015</i>
Active Participants	63	66
Inactive Participants	7	6
Averages for Actives		
Age	44.2	47.0
Service	13.3	14.5
Averages for Inactives		
Age	66.5	65.2

**Appendix B – Detailed Actuary’s Notes**

Since the last full valuation, which was for the fiscal year ending June 30, 2012, the Rhode Island Municipal Employees Retirement System eligibility requirements have changed. In general, the new eligibility requirements will delay the earliest date an employee can retire. This change caused a decrease in the Town’s liabilities.

Several actuarial assumptions have been updated since the last full valuation:

1. Mortality assumption has been updated from RP-2000 Combined Mortality Table fully generational using scale AA to RPH-2014 Total Dataset Combined Mortality Table fully generational using scale MP-2014. This change caused a slight decrease in liabilities.
2. Health Care Trend Rates have been updated to an initial rate of 9.0% decreasing by 0.5% annually to an ultimate rate of 5.0% for medical benefit and an initial rate of 5.0% decreasing by 0.5% annually to an ultimate rate of 3.0% for dental benefit, which caused an increase to the Town’s liabilities. Comparison of actual to expected trend rates are as shown below.

Medical / Rx			Dental		
FYE	Prior Expected	Current Actual	FYE	Prior Expected	Current Actual
2016	8.5%	9.0%	2016	3.5%	5.0%
2017	8.0%	8.5%	2017	3.0%	4.5%
2018	7.5%	8.0%	2018	3.0%	4.0%
2019	7.0%	7.5%	2019	3.0%	3.5%
2020	6.5%	7.0%	2020+	3.0%	3.0%
			2021	6.0%	6.5%
			2022	5.5%	6.0%
			2023	5.0%	5.5%
			2024+	5.0%	5.0%

## Glossary

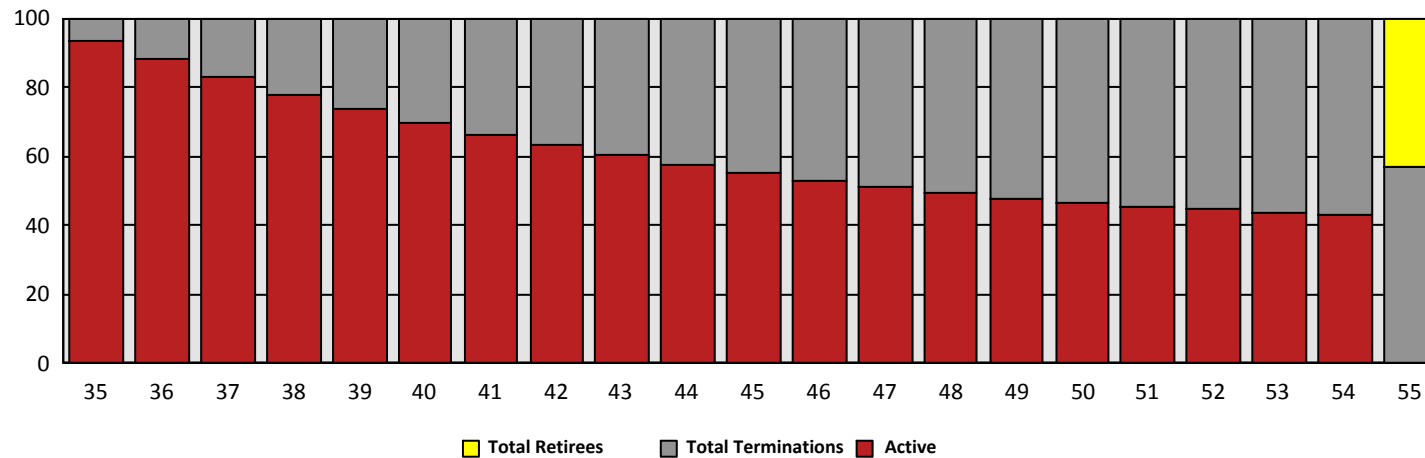
### Decrements Exhibit

The table below illustrates how actuarial assumptions can affect a long-term projection of future liabilities. Starting with 100 employees at age 35, the illustrated actuarial assumptions show that 44.430 employees out of the original 100 are expected to retire and could elect retiree health benefits at age 55.

Age	# Remaining Employees	# of Terminations per Year *	# of Retirements per Year *	Total Decrements
35	100.000	6.353	0.000	6.353
36	93.647	5.751	0.000	5.751
37	87.896	5.206	0.000	5.206
38	82.690	4.716	0.000	4.716
39	77.974	4.274	0.000	4.274
40	73.700	3.876	0.000	3.876
41	69.824	3.516	0.000	3.516
42	66.308	3.190	0.000	3.190
43	63.118	2.893	0.000	2.893
44	60.225	2.623	0.000	2.623
45	57.602	2.377	0.000	2.377

Age	# Remaining Employees	# of Terminations per Year *	# of Retirements per Year *	Total Decrements
46	55.225	2.147	0.000	2.147
47	53.078	1.931	0.000	1.931
48	51.147	1.724	0.000	1.724
49	49.423	1.524	0.000	1.524
50	47.899	1.329	0.000	1.329
51	46.570	1.151	0.000	1.151
52	45.419	0.977	0.000	0.977
53	44.442	0.818	0.000	0.818
54	43.624	0.675	0.000	0.675
55	42.949	0.000	42.949	42.949

### Decrements Exhibit

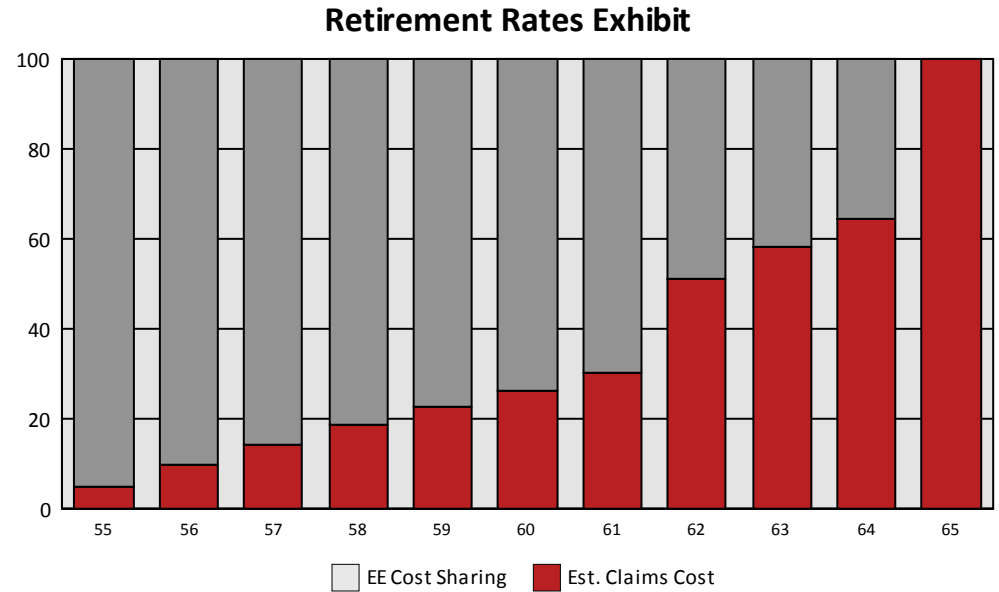


\* The above rates are illustrative and are not used in our GASB calculations.

**Retirement Rates Exhibit**

The table below illustrates how actuarial assumptions can affect a long-term projection of future liabilities. The illustrated retirement rates show the number of employees who are assumed to retire annually based on 100 employees age 55 who are eligible for retiree health care coverage. The average age at retirement is 62.0.

Age	Active Employees BOY	Annual Retirement Rates *	# Retirements per year	Active Employees EOY
55	100.000	5.00%	5.000	95.000
56	95.000	5.00%	4.750	90.250
57	90.250	5.00%	4.513	85.738
58	85.738	5.00%	4.287	81.451
59	81.451	5.00%	4.073	77.378
60	77.378	5.00%	3.869	73.509
61	73.509	5.00%	3.675	69.834
62	69.834	30.00%	20.950	48.884
63	48.884	15.00%	7.333	41.551
64	41.551	15.00%	6.233	35.318
65	35.318	100.00%	35.318	0.000



\* The above rates are illustrative and are not used in our GASB calculations.

## Illustration of GASB Calculations

### I. Facts

- A. The employer provides subsidized retiree health coverage worth \$100,000 to employees retiring at age 55 with 25 years of service. The employer funds the retiree health coverage on a pay-as-you-go basis.
- B. Employee X is age 50 and has worked 20 years with the employer.
- C. Retiree health subsidies are paid from the general fund assets which are expected to earn 4.5% per year on a long-term basis.
- D. Based on Employee X's age and sex he has a 98.0% probability of living to age 55 and a 95.0% of continuing to work to age 55.

### II. Calculation of Present Value of Future Benefits

**Present Value of Future Benefits** represents the cost of finance benefits payable in the future to current and future retirees and beneficiaries, discounted to reflect the expected effects of the time value (present value) of money and the probabilities of payment.

	Value	Description
A.	\$100,000	Projected benefit at retirement
B.	80.2%	Interest discount for five years = $(1 / 1.045)^5$
C.	98.0%	Probability of living to retirement age
D.	95.0%	Probability of continuing to work to retirement age
E.	\$74,666	Present value of projected retirement benefit measured at employee's current age = $A \times B \times C \times D$



**Illustration of GASB Calculations (continued)****III. Calculation of Actuarial Accrued Liability**

**Actuarial Accrued Liability** represents the portion of the Present Value of Future Benefits which has been accrued recognizing the employee's past service with the employer. The Actuarial Accrued Liability is a required disclosure in the Required Supplementary Information section of the employer's financial

	Value	Description
A.	\$74,666	Present value of projected retirement benefit measured at employee's current age
B.	20	Current years of service with employer
C.	25	Projected years of service with employer at retirement
D.	\$59,733	Actuarial accrued liability measured at employee's current age = $A \times B / C$

**IV. Calculation of Normal Cost**

**Normal Cost** represents the portion of the Present Value of Future Benefits allocated to the current year.

	Value	Description
A.	\$74,666	Present value of projected retirement benefit measured at employee's current age
B.	25	Projected years of service with employer at retirement
C.	\$2,987	Normal cost measured at employee's current age = $A / B$

**V. Calculation of Annual Required Contribution**

**Annual Required Contribution** is the total expense for the current year to be shown in the employer's income statement.

	Value	Description
A.	\$2,987	Normal Cost for the current year
B.	\$3,509	30-year amortization (level dollar method) of Unfunded Actuarial Accrued Liability using a 4.5% interest rate discount factor
C.	\$292	Interest adjustment = $4.5\% \times (A + B)$
D.	\$6,788	Annual Required Contribution = $A + B + C$

## Definitions

GASB 45 defines several unique terms not commonly employed in the funding of pension and retiree health plans. The definitions of the terms used in the GASB actuarial valuations are noted below.

1. **Actuarial Accrued Liability** - That portion, as determined by a particular Actuarial Cost Method, of the Actuarial Present Value of plan benefits and expenses which is not provided for by the future Normal Costs.
2. **Actuarial Assumptions** - Assumptions as to the occurrence of future events affecting health care costs, such as: mortality, withdrawal, disablement and retirement; changes in compensation and Government provided health care benefits; rates of investment earnings and asset appreciation or depreciation; procedures used to determine the Actuarial Value of Assets; characteristics of future entrants for Open Group Actuarial Cost Methods; and other relevant items.
3. **Actuarial Cost Method** - A procedure for determining the Actuarial Present Value of future benefits and expenses and for developing an actuarially equivalent allocation of such value to time periods, usually in the form of a Normal Cost and an Actuarial Accrued Liability.
4. **Actuarial Present Value** - 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. For purposes of this standard, each such amount or series of amounts is:
  - a) adjusted for the probable financial effect of certain intervening events (such as changes in compensation levels, Social Security, marital status, etc.);
  - b) multiplied by the probability of the occurrence of an event (such as survival, death, disability, termination of employment, etc.) on which the payment is conditioned; and
  - c) discounted according to an assumed rate (or rates) of return to reflect the time value of money.
5. **Annual OPEB Cost** - An accrual-basis measure of the periodic cost of an employer's participation in a defined benefit OPEB plan.
6. **Annual Required Contribution (ARC)** - The employer's periodic required contributions to a defined benefit OPEB plan, calculated in accordance with the parameters.
7. **Explicit Subsidy** - The difference between (a) the amounts required to be contributed by the retirees based on the premium rates and (b) actual cash contribution made by the employer.
8. **Funded Ratio** - The actuarial value of assets expressed as a percentage of the actuarial accrued liability.
9. **Healthcare Cost Trend Rate** - The rate of change in the per capita health claims costs over time as a result of factors such as medical inflation, utilization

**Definitions (continued)**

10. **Implicit Subsidy** - In an experience-rated healthcare plan that includes both active employees and retirees with blended premium rates for all plan members, the difference between (a) the age-adjusted premiums approximating claim costs for retirees in the group (which, because of the effect of age on claim costs, generally will be higher than the blended premium rates for all group members) and (b) the amounts required to be contributed by the retirees.
11. **Net OPEB Obligation** - The cumulative difference since the effective date of this Statement between annual OPEB cost and the employer's contributions to the plan, including the OPEB liability (asset) at transition, if any, and excluding (a) short-term differences and (b) unpaid contributions that have been converted to OPEB-related debt.
12. **Normal Cost** - The portion of the Actuarial Present Value of plan benefits and expenses which is allocated to a valuation year by the Actuarial Cost Method.
13. **Pay-as-you-go** - A method of financing a benefit plan under which the contributions to the plan are generally made at about the same time and in about the same amount as benefit payments and expenses becoming due.
14. **Per Capita Costs** - The current cost of providing postretirement health care benefits for one year at each age from the youngest age to the oldest age at which plan participants are expected to receive benefits under the plan.
15. **Present Value of Future Benefits** - Total projected benefits include all benefits estimated to be payable to plan members (retirees and beneficiaries, terminated employees entitled to benefits but not yet receiving them, and current active members) as a result of their service through the valuation date and their expected future service. The actuarial present value of total projected benefits as of the valuation date is the present value of the cost to finance benefits payable in the future, discounted to reflect the expected effects of the time value (present value) of money and the probabilities of payment. Expressed another way, it is the amount that would have to be invested on the valuation date so that the amount invested plus investment earnings will provide sufficient assets to pay total projected benefits when due.
16. **Select and Ultimate Rates** - Actuarial assumptions that contemplate different rates for successive years. Instead of a single assumed rate with respect to, for example, the investment return assumption, the actuary may apply different rates for the early years of a projection and a single rate for all subsequent years. For example, if an actuary applies an assumed investment return of 8% for year 20W0, then 7.5% for 20W1, and 7% for 20W2 and thereafter, then 8% and 7.5% select rates, and 7% is the ultimate rate.
17. **Substantive Plan** - The terms of an OPEB plan as understood by the employer(s) and plan members.