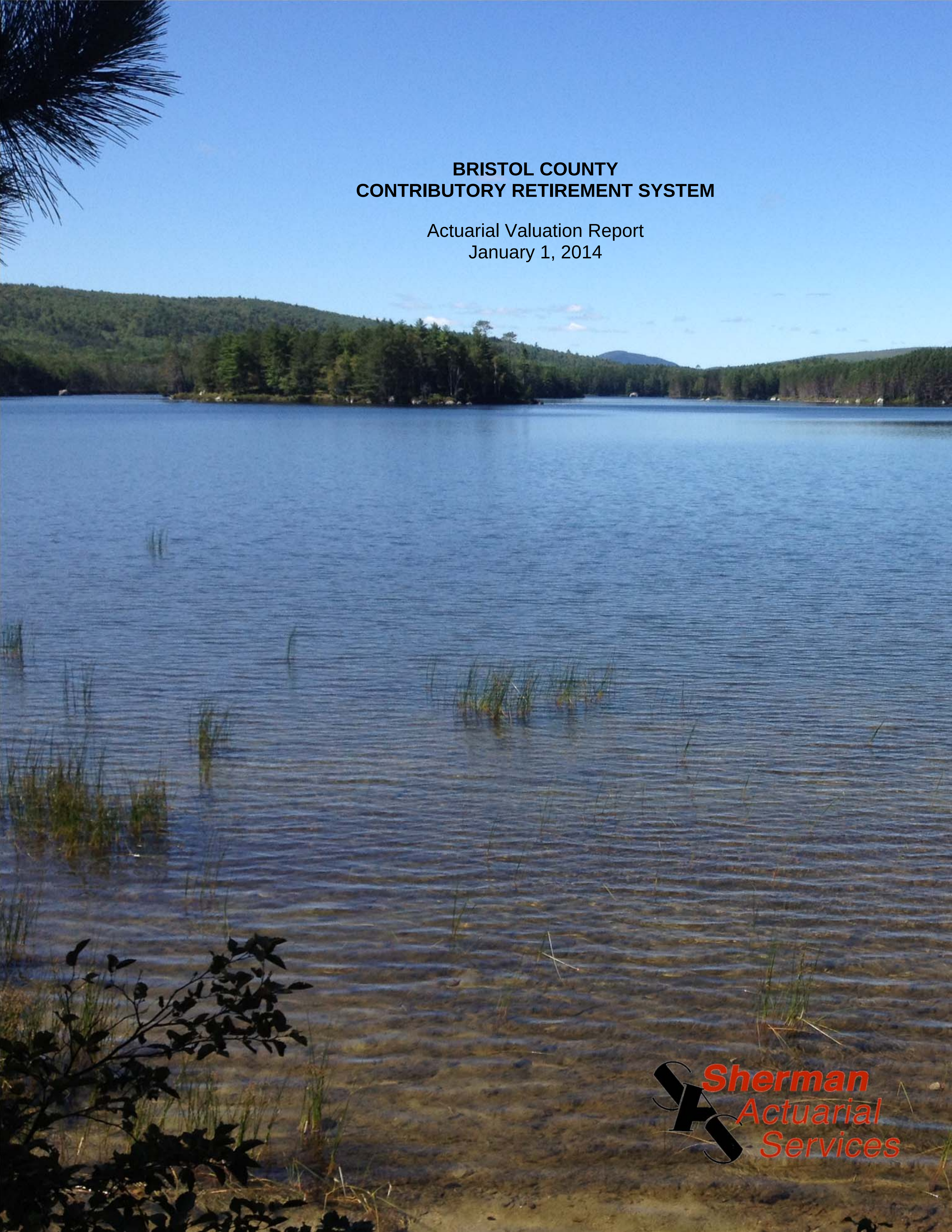
BRISTOL COUNTY
CONTRIBUTORY RETIREMENT SYSTEM

Actuarial Valuation Report
January 1, 2014



Sherman Actuarial Services

TABLE OF CONTENTS

H:\Bristol County\2014\[BristolCounty14_Val v2.xlsm]Amorts

Report Summary:

Highlights	**January 1, 2012**	**January 1, 2014**
Contributions		
Funding Schedule FY 2015	$31,695,727	$31,695,727
Funding Schedule FY 2016	33,590,614	33,755,949
Funded Ratios		
GAS No. 25	59.3%	61.4%
Participants		
Actives	3,246	3,119
Retirees and Beneficiaries	1,957	2,041
Inactives	657	714
Vested	0	0
Disabled	282	277
Total	6,142	6,151
Payroll		
Payroll of Active Members	$137,231,288	$141,877,055
Average Payroll	42,277	45,488
Normal Cost		
Employer	3,622,513	4,164,647
Employee	11,681,905	12,263,065
Administrative Expenses	1,250,000	1,275,000
Total	16,554,418	17,702,712
Actuarial Accrued Liabilities		
Actives	343,750,755	361,162,447
Retirees, Beneficiaries, Disabilities and Inactives	432,983,659	479,139,261
Total	776,734,414	840,301,708
Actuarial Value of Assets	460,572,977	516,075,699
Unfunded Actuarial Accrued Liabilities	$316,161,437	$324,226,009

Introduction

This report presents the findings of an actuarial valuation as of January 1, 2014, of Bristol County Contributory Retirement System.

The actuarial valuation is based on:

- Provisions Chapter 32 of the Massachusetts General Laws, "M.G.L", as of January 1, 2014.
- Employee data provided by the Retirement Board
- Asset information reported to the Public Employee Retirement Administration Commission by the Bristol County Contributory Retirement System
- Actuarial assumptions approved by the Retirement Board

The valuation and appropriation forecast are prepared in accordance with Chapter 32 of the M.G.L. as of January 1, 2014.

The valuation and forecast do not account for:

- Any subsequent changes in the law
- Chapter 32 of the M.G.L., Section 3(8)(c) transfers between systems
- State-mandated benefits
- Cost-of-living increases granted to retired members between 1982 and 1997. The cost of these benefits has been assumed by the State under Proposition Two and One-Half.

Actuarial Experience

In performing the actuarial valuation, various assumptions are made regarding such factors as mortality, retirement, disability, and withdrawal rates as well as both payroll, salary increases, and investment returns. A comparison of the current valuation and the prior valuation is made to determine how closely actual experience corresponded to anticipated occurrences. This analysis of the system provides insight into the overall quality of the actuarial assumptions and helps explain any change in the annual appropriation.

During the last two years, the total unfunded actuarial accrued liability increased by 2.6% to $324,226,009. The increase is the result of net unfavorable actuarial experience during the preceding years. The sources of actuarial (gains) and losses are as follows:

Assets	16,510,811
Salary Increases	1,882,536
New Participants	8,910,808
Active - Retirements	(1,062,161)
Active - Terminations	2,502,816
Active - Mortality	(19,937)
Active - Disabilities	(4,347,089)
Inactive - Mortality and data adjustments	9,229,569
Other, includes data adjustments, buybacks, interest on ASF	(7,258,258)
Total Actuarial (Gain) / Loss	9,838,284

Actuarial Costs and Liabilities:

Normal Costs

The normal cost is the sum of the individual normal costs determined for each member as if the assumptions underlying the cost determinations had been exactly realized. An individual normal cost represents that part of the cost of a member's future benefits which are assigned to the current year as if the costs are to remain level as a percentage of the member's pay. Benefits payable under all circumstances (i.e., retirement, death, disability, and terminations) are included in this calculation. Anticipated employee contributions to be made during the year are subtracted from the total normal cost to determine employer normal cost. The total normal cost is divided by total payroll to determine the normal cost as a percent of pay. The normal cost is shown in Table I.

Table I

	January 1, 2012	January 1, 2014
Superannuation	$10,697,659	$11,000,912
Termination	1,416,566	1,459,892
Death	753,758	777,607
Disability	2,436,435	3,189,301
Administrative Expenses	1,250,000	1,275,000
Total Normal Cost	16,554,418	17,702,712
% of Pay	12.1%	12.5%
Employee Contributions	11,681,905	12,263,065
% of Pay	8.5%	8.6%
Employer Normal Cost	$4,872,513	$5,439,647
% of Pay	3.6%	3.8%

H:\Bristol County\2014\[BristolCounty14_Val v2.xlsm]Amorts

Present Value of Actuarial Accrued Liabilities

The actuarial accrued liabilities (AAL) represents today's value of all benefits based on the past service of the actives and inactives. The AAL can be compared to the assets to determine the funded status of the Plan. The value of these earned benefits is shown in Table II below.

Table II

	January 1, 2012	January 1, 2014
Actives		
Superannuations	$304,756,113	$324,897,974
Termination	6,381,001	5,917,205
Death	9,970,553	10,510,053
Disability	22,643,088	19,837,215
Retirees and Inactives		
Retirees and Beneficiaries	340,358,785	381,095,181
Terminated (Refund)	5,545,319	6,534,991
Vested	0	0
Disabled	87,079,555	91,509,089
Total	$776,734,414	$840,301,708

Present Value of Future Benefits

The present value of future benefits represents today's value of all benefits earned by the inactive participants as well as all benefits earned and expected to be earned in the coming years by the active participants. The difference between the present value of future benefits and the present value of actuarial accrued liabilities is the value of benefits to be earned in the coming years. The value of the total expected benefits is shown in Table III.

Table III

	January 1, 2012	January 1, 2014
Actives		
Superannuation	$385,734,384	$407,710,006
Termination	12,028,452	11,697,225
Death	15,418,631	16,129,364
Disability	44,267,806	47,480,376
Retirees and Inactives		
Retirees and Beneficiaries	340,358,785	381,095,181
Terminated (Refund)	5,545,319	6,534,991
Vested	0	0
Disabled	87,079,555	91,509,089
Total	$890,432,932	$962,156,232

Funded Status and Appropriations:

Market Value of Plan Assets

The trust fund composition on a market value basis is shown in Table IV.

Table IV

	January 1, 2012	January 1, 2014
Cash equivalents	$14,686,993	$10,687,990
Short term investments	1,304,898	0
Fixed income securities	103,800,592	99,062,916
Equities	149,918,691	219,190,493
International	96,482,334	171,675,958
Real Estate	13,858,311	12,224,520
Venture Capital	0	0
Other	44,761,686	49,126,083
Accounts receivable	942,428	2,041,646
Accounts payable	(391,799)	(1,968,496)
Accrued income	569,295	407,735
Total Market Value	$425,933,429	$562,448,845
Total Actuarial Value	$460,572,977	$516,075,699

Actuarial Value of Assets

The actuarial value of assets is determined by projecting the market value of assets as of the beginning of the prior plan year with the assumed rate of return during that year (8%) and accounting for deposits and disbursements with interest at the assumed rate of return. An adjustment is then applied to recognize the difference between the actual investment return and expected return over a five year period. This preliminary actuarial value is not allowed to differ from the market value of assets by more than 20%. The calculation of the actuarial value of assets as of January 1, 2014 is presented in Table V.

Table V

		January 1, 2014
(1)	Market value at January 1, 2013	$483,643,753
(2)	2013 Contributions	$45,864,564
(3)	2013 Payments	($53,089,752)
(4)	Net interest adjustment at 8% on (1), (2), and (3) to December 31, 2013	$38,402,493
(5)	Expected market value on January 1, 2014 (1) + (2) + (3) + (4)	$514,821,058
(6)	Actual market value on January 1, 2014	$562,448,845
(7)	2013 (Gain) / Loss	($47,627,787)
(8)	80% of 2013 (Gain) / Loss	($38,102,230)
(9)	2012 (Gain) / Loss	($29,553,213)
(10)	60% of 2012 (Gain) / Loss	($17,731,928)
(11)	2011 (Gain) / Loss	$43,024,097
(12)	40% of 2011 (Gain) / Loss	$17,209,639
(13)	2010 (Gain) / Loss	($38,743,133)
(14)	20% of 2010 (Gain) / Loss	($7,748,627)
(15)	Actuarial value on January 1, 2014, (6) + (8) + (10) + (12) + (14) but not less than 80% nor greater than 120% of (6)	$516,075,699
(16)	Ratio of actuarial value to market value	91.76%
(17)	Actuarial Value Return for 2012	2.47%
(18)	Actuarial Value Return for 2013	12.35%
(19)	Market Value Return for 2012	14.99%
(20)	Market Value Return for 2013	17.92%

Unfunded Actuarial Accrued Liabilities

Under the Entry Age Normal Actuarial Cost Method, the Actuarial Accrued Liability represents what the accumulated assets would have been as of the valuation date if:

- current plan provisions and assumptions had always been in effect,
- experience conformed exactly to assumptions, and
- the normal cost had been contributed each year since inception.

The actuarial value of the Fund's assets as of the end of the prior year are subtracted from the Actuarial Accrued Liability (AAL) to determine the Unfunded Actuarial Accrued Liability (UAAL) as of the valuation date. Over time, annual pension contributions will accumulate Plan assets equal to the AAL, and the UAAL will be eliminated. Thereafter, annual contributions equal to the normal cost will keep the Plan's assets and liabilities in balance. The UAAL is developed in Table VI.

Table VI

	January 1, 2012	January 1, 2014
Actuarial Accrued Liability	$776,734,414	$840,301,708
Actuarial Assets	460,572,977	516,075,699
Unfunded Actuarial Accrued Liability	$316,161,437	$324,226,009
Funded Status	59.3%	61.4%

Appropriations

The pension appropriation for the upcoming fiscal years have been calculated in accordance with the requirements set forth in Section 22D of Chapter 32 of the Massachusetts General Laws. These amounts were calculated to comply with the June 30, 2040, full funding mandate for all accrued liabilities. The pension appropriation is the sum of the:

- Employer normal cost,
- Increasing amortization of the unfunded actuarial accrued liability by June 30, 2029
  $ 315,884,504 over 15 years with 4.5% increasing payments
- Level amortization of the 2010 Early Retirement Incentive by June 30, 2022
  $ 395,507 over 8 years
- Increasing amortization of the 2002 Early Retirement Incentive by June 30, 2023
  $ 5,540,931 over 9 years with 4.5% increasing payments
- Level amortization of the 2003 Early Retirement Incentive by June 30, 2022
  $ 2,405,068 over 8 years
- Interest adjustment for payments deposited at the beginning of the fiscal year.

The Board decided to limit the increase to 6.5% per year for 3 years. The pension appropriation is shown in Table VII.

Table VII

	January 1, 2012	January 1, 2014
Normal cost	$4,872,513	$5,439,647
Amortization payment of the prior accrued liability	22,261,512	26,254,215
Amortization payment of 2010 ERI liability	63,726	63,726
Amortization payment of 2002 ERI liability	640,866	699,842
Amortization payment of 2003 ERI liability	387,516	387,516
Total cost	$28,226,134	$32,844,946
% of Pay	20.6%	23.2%
Fiscal 2015 cost	$31,695,727	$31,695,727
Fiscal 2016 cost	$33,590,614	$33,755,949

Appropriation Forecast

The following exhibit forecasts employer and employee contributions over the next 32 years under the adopted funding schedule.

Note that the forecast is based upon an "open group" method. This method assumes that sufficient employees will be hired each year to keep the number constant. The total payroll of the system is expected to increase 4.5% per year. The employee contribution rate is expected to increase to 10.5% by 2034 as members contributing base percentages 5%, 7%, and 8% are replaced by new members, whose base contribution is 9%. Payments are assumed to be made at the beginning of the year.

The employer total cost is expected to increase during the next 14 years until the unfunded liabilities are completely paid off, at which time only the normal cost will remain. The total cost represents 23.3% of payroll, decreasing to 23.7% by the time the unfunded liabilities are fully paid off, leaving only a normal cost of 2.8% thereafter. The decrease in the cost as a percentage of payroll is a result of the increase in member deductions.

H:\Bristol County\2014\[BristolCounty14_Val v2.xlsm]Amorts

Appropriation Forecast

Fiscal Year Ending	Payroll*	Employee Contribution	Employer Normal Cost with Interest	Amortization Payments with Interest	Employer Total Cost with Interest	Employer Total Cost % of Payroll	Funded Ratio %**
2015	$141,877,055	$12,263,065	$5,653,047	$26,042,680	$31,695,727	22.3	61.4
2016	$147,552,137	$12,863,163	$5,765,295	$27,990,654	$33,755,949	22.9	63.7
2017	$153,454,223	$13,491,648	$5,877,477	$30,072,609	$35,950,086	23.4	66.0
2018	$159,592,392	$14,149,831	$5,989,410	$32,297,432	$38,286,842	24.0	68.3
2019	$165,976,087	$14,839,082	$6,100,894	$34,674,592	$40,775,486	24.6	70.7
2020	$172,615,131	$15,560,833	$6,211,713	$36,540,320	$42,752,033	24.8	73.1
2021	$179,519,736	$16,316,581	$6,321,636	$38,163,532	$44,485,168	24.8	75.5
2022	$186,700,525	$17,107,892	$6,430,414	$39,859,789	$46,290,203	24.8	78.0
2023	$194,168,546	$17,936,402	$6,537,780	$41,163,432	$47,701,212	24.6	80.6
2024	$201,935,288	$18,803,820	$6,643,447	$41,934,954	$48,578,401	24.1	83.2
2025	$210,012,700	$19,711,933	$6,747,106	$43,822,027	$50,569,133	24.1	85.8
2026	$218,413,208	$20,662,608	$6,848,429	$45,794,018	$52,642,447	24.1	88.5
2027	$227,149,736	$21,657,799	$6,947,062	$47,854,749	$54,801,811	24.1	91.3
2028	$236,235,726	$22,699,545	$7,042,628	$50,008,213	$57,050,841	24.1	94.1
2029	$245,685,155	$23,789,978	$7,134,724	$52,258,582	$59,393,306	24.2	97.0
2030	$255,512,561	$24,931,326	$7,222,920	$0	$7,222,920	2.8	100.0
2031	$265,733,063	$26,125,919	$7,306,756	$0	$7,306,756	2.7	100.0
2032	$276,362,386	$27,376,188	$7,385,742	$0	$7,385,742	2.7	100.0
2033	$287,416,881	$28,684,678	$7,459,356	$0	$7,459,356	2.6	100.0
2034	$298,913,556	$30,054,045	$7,527,042	$0	$7,527,042	2.5	100.0
2035	$310,870,099	$31,487,065	$7,588,208	$0	$7,588,208	2.4	100.0
2036	$323,304,903	$32,986,641	$7,642,224	$0	$7,642,224	2.4	100.0
2037	$336,237,099	$34,555,804	$7,688,420	$0	$7,688,420	2.3	100.0
2038	$349,686,583	$36,197,721	$7,726,084	$0	$7,726,084	2.2	100.0
2039	$363,674,046	$37,915,702	$7,754,460	$0	$7,754,460	2.1	100.0
2040	$378,221,008	$39,713,206	$7,772,745	$0	$7,772,745	2.1	100.0
2041	$393,349,848	$41,301,734	$8,083,654	$0	$8,083,654	2.1	100.0
2042	$409,083,842	$42,953,803	$8,407,001	$0	$8,407,001	2.1	100.0
2043	$425,447,196	$44,671,956	$8,743,281	$0	$8,743,281	2.1	100.0
2044	$442,465,084	$46,458,834	$9,093,012	$0	$9,093,012	2.1	100.0
2045	$460,163,687	$48,317,187	$9,456,732	$0	$9,456,732	2.1	100.0
2046	$478,570,234	$50,249,875	$9,835,002	$0	$9,835,002	2.1	100.0

* Calendar basis

** Beginning of Fiscal Year

GASB Statements No. 25 and No. 27

Effective for periods beginning after June 15, 1997, the Governmental Accounting Standards Board (GASB) requires the disclosure of pension related liabilities for public employer financial statements in accordance with Statements 25 and 27. These statements, which replace GASB Statement No. 5, must be adhered to by any public employee retirement system that follows Generally Accepted Accounting Principles (GAAP).

These disclosures are intended to establish a reporting framework that distinguishes between:

- current financial information about plan assets and financial activities,
- actuarially determined information from a long-term perspective,
- the funded status of the plan, and
- progress being made in accumulating sufficient assets to pay benefits when due.

Footnote disclosures required by GASB Statement No. 25 and 27 include a description of the plan, a summary of significant accounting policies, and information about contributions, legally required reserves, and investment concentrations. As a result of the oversight of the Public Employees Retirement Administration Commission (PERAC) and the conversion of unpaid contributions to pension related debt, the Net Pension Obligation (NPO) as required by Statement No. 27 will effectively always be equal to $0. The required disclosure information is shown in Table VIII.

Table VIII

		January 1, 2012	January 1, 2014
(1)	Actuarial Accrued Liability	$776,734,414	$840,301,708
(2)	Actuarial Value of Assets	460,572,977	516,075,699
(3)	Unfunded Actuarial Accrued Liability	316,161,437	324,226,009
(4)	Funded Ratio (2)/(1)	59.3%	61.4%
(5)	Covered Payroll	$137,231,288	$141,877,055
(6)	UAAL as a percentage of payroll: (3)/(5)	230.4%	228.5%
(7)	Annual Required Contribution (ARC)	$31,302,672	$31,695,727
(8)	Net Pension Obligation	$0	$0

H:\Bristol County\2014\[BristolCounty14_Val.xlsm]PERAC Ann'l Stmt

PERAC Annual Statement
APPENDIX PAGE 3
ACTUARIAL VALUATION AND ASSUMPTIONS

The most recent actuarial valuation of the System was prepared by Sherman Actuarial Services as of January 1, 2014.

The normal cost for employees on that date was:	$12,263,065	8.6% of pay
The normal cost for the employer was:	4,164,647	2.9% of pay

The actuarial liability for active members was:	$361,162,447
The actuarial liability for retired and inactive members was:	479,139,261
Total actuarial accrued liability:	840,301,708
System assets as of that date:	562,448,845
Unfunded actuarial accrued liability:	$277,852,863

The ratio of system's assets to total actuarial liability was 66.9%

The principal actuarial assumptions used in the valuation are as follows:

Investment Return:	8.00%
Rate of Salary Increase:	3.00%

SCHEDULE OF FUNDING PROGRESS

Actuarial Valuation Date	Actuarial Value of Assets (a)	Actuarial Accrued Liability (b)	Unfunded Actuarial Accrued Liability (b-a)	Funded Ratio (a/b)	Covered Payroll (c)	UAAL as a percent of Covered Payroll (b-a)/c
01/01/14	$562,448,845	$840,301,708	$277,852,863	66.9%	$141,877,055	195.8%
01/01/12	460,572,977	776,734,414	316,161,437	59.3%	137,231,288	230.4%
01/01/09	396,683,194	697,604,462	300,921,268	56.9%	158,880,971	189.4%
01/01/07	390,706,111	593,767,462	203,061,051	65.8%	146,988,086	138.1%
01/01/05	334,319,614	535,755,874	201,436,260	62.4%	134,953,427	149.3%
01/01/03	291,903,656	440,692,634	148,788,978	66.2%	122,142,724	121.8%
01/01/01	275,463,114	373,562,277	98,099,163	73.7%	121,345,005	80.8%
01/01/99	226,836,196	311,255,734	84,419,538	72.9%	95,169,522	88.7%
01/01/98	185,852,667	281,492,555	95,639,888	66.0%	90,608,158	105.6%

Attach Copy of Current Approved Funding Schedule

GASB Statements No. 67 and No. 68

Effective for periods beginning after June 15, 2013, the Governmental Accounting Standards Board (GASB) requires the disclosure of pension related liabilities for public employer financial statements in accordance with Statements 25 and 27. These statements, which amend GASB Statements No. 25 and No. 27, must be adhered to by any public employee retirement system that follows Generally Accepted Accounting Principles (GAAP).

These disclosures are intended to establish a reporting framework that distinguishes between:

- current financial information about plan assets and financial activities,
- actuarially determined information from a long-term perspective,
- the funded status of the plan, and
- progress being made in accumulating sufficient assets to pay benefits when due.

The statement requires the system to present two financial statements – a statement of fiduciary net position and a statement of changes in fiduciary net position. The statement of fiduciary net position presents the following items as of the end of the plan's reporting period, as applicable:

- Assets
- Deferred outflows of resources (consumption of net assets by the employers that is applicable to a future reporting period)
- Liabilities
- Deferred inflows of resources (acquisition of net assets by the employers that is applicable to a future reporting period)
- Fiduciary net position (Assets + Deferred outflows – Liabilities – Deferred inflows)

The system is considered a cost-sharing multiple-employer pension plan since pension obligations exist for employees of more than one employer and plan assets can be used to pay the benefits of the employees of any employer.

This report does not include all items required under GASB Statements No. 67 and No. 68. Rather, it provides all items required that are not readily available from other sources such as the Annual Statement of the Financial Condition prepared by the Board, Chapter 32 of the Massachusetts General Laws and investment reports prepared by the plan's investment consultant.

Discount Rate

The discount rate, and all other actuarial assumptions, are the as those described in Exhibit 6. The discount rate was selected based on a projection of employer and employee contributions, benefit payments, expenses and the long term expected rate of return on trust assets. Under Chapter 32 of the Massachusetts Laws, employers are required to make the necessary contributions to the trust such that the plan reaches a full funding status by 2040. In addition, Chapter 32 also gives the Retirement Board the right to go directly to the Assessors of the community and add an additional property tax to bills for amounts not paid by employer.

Based on these laws and assumptions, the pensions plan's Fiduciary Net Position was projected to be available to make all projected future benefit payments of current plan members. Therefore, the long-term expected rate of return on pension plan investments was applied to all periods of projected benefit payments to determine the total pension liability.

The Board selected 8.00% as the long term expectation of investment returns. The average return for the 29 years ending as of December 31, 2013 was 9.24%. The average return for the past 5 years ending December 31, 2013 was 12.85%.

Assets

The Net Position Restricted for Pensions, shown in page 7, is $562,448,845. The 2013 Annual Statement of the Financial Condition contains the values for previous years and the changes in Net Position Restricted for Pensions. Investments are reported at fair value.

Net Pension Liability as of December 31, 2013 – GASB Statement No. 67

The following presents the net pension liability of the system calculated using the discount rate of 8.00%, as well as what the system's net pension liability would be if it were calculated using a discount rate that is 1-percentage-point lower (7.00%) or 1-percentage-point higher (9.00%) than the current rate:

	1% Decrease (7.00%)	**Current Discount Rate (8.00%)**	**1% Increase (9.00%)**
Total Pension Liability	$ 930,079,765	$ 840,301,708	$ 763,582,127
Plan Fiduciary Net Position	$ 562,448,845	$ 562,448,845	$ 562,448,845
Net Pension Liability	$ 367,630,920	$ 277,852,863	$ 201,133,282

The Plan Fiduciary Net Position as a percentage of the Total Pension Liability is 66.9%.

Net Pension Liability as of June 30, 2014 – GASB Statement No. 68

The following presents the net pension liability of the system calculated using the discount rate of 8.00%, as well as what the system's net pension liability would be if it were calculated using a discount rate that is 1-percentage-point lower (7.00%) or 1-percentage-point higher (9.00%) than the current rate:

	1% Decrease (7.00%)	**Current Discount Rate (8.00%)**	**1% Increase (9.00%)**
Total Pension Liability	$ 947,627,216	$ 861,426,597	$ 786,682,894
Plan Fiduciary Net Position*	$ 585,242,041	$ 585,242,041	$ 585,242,041
Net Pension Liability	$ 362,385,175	$ 276,184,556	$ 201,440,853

*Estimated

The Plan Fiduciary Net Position as a percentage of the Total Pension Liability is 67.9%.

Schedules of Required Supplementary Information

	2013
Total Pension Liability – Beginning	n/a
Total Pension Liability – Ending (a)	$ 840,301,708
Plan Fiduciary Net Position – Beginning	n/a
Plan Fiduciary Net Position – Ending (b)	$ 562,448,845
Net Pension Liability – Ending (a) – (b)	$ 277,852,863
Plan Fiduciary Net Positions as a percentage of the Total Pension Liability	66.9%
Covered-employee payroll	$ 141,877,055
Net Pension Liability as a percentage of Covered-employee Payroll	195.8%

EXHIBITS

H:\Bristol County\2014\[ACT1.XLS]Actives

Age/Service Distribution with Salary as of January 1, 2014

Attained Age	Average Salary <5	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40+	Total
< 20	0	0	0	0	0	0	0	0	0	1
	0	0	0	0	0	0	0	0	0	44,766
20-24	46	0	0	0	0	0	0	0	0	46
	30,966	0	0	0	0	0	0	0	0	30,966
25-29	134	35	0	0	0	0	0	0	0	169
	36,643	44,622	0	0	0	0	0	0	0	38,296
30-34	88	96	19	1	0	0	0	0	0	204
	37,276	52,953	53,234	0	0	0	0	0	0	46,353
35-39	73	70	74	29	1	0	0	0	0	247
	33,660	47,074	56,186	66,973	0	0	0	0	0	48,230
40-44	106	101	90	96	35	2	0	0	0	430
	29,585	41,819	48,859	60,877	68,855	0	0	0	0	46,832
45-49	120	129	92	67	47	41	4	0	0	500
	30,863	32,510	41,156	60,060	70,636	71,870	0	0	0	44,557
50-54	95	119	139	98	35	67	31	3	0	587
	29,143	30,608	39,168	44,100	62,846	70,131	73,852	83,252	0	43,637
55-59	47	82	107	91	45	55	36	19	5	487
	34,726	35,519	35,055	37,774	49,889	57,147	75,309	68,760	52,288	43,943
60-64	30	37	52	61	44	45	22	10	5	306
	33,081	41,101	35,858	42,031	41,350	51,053	61,491	66,233	79,893	44,030
65-69	6	12	24	20	14	15	7	1	3	102
	49,114	36,606	39,853	41,512	41,643	46,882	36,958	41,322	51,099	41,767
70+	1	9	6	2	6	7	3	3	4	41
	23,774	0	42,974	23,675	34,326	36,089	34,607	29,413	25,769	32,078
Total Employees	746	690	603	465	227	232	103	36	17	3,120
Average Salary	33,007	38,946	42,499	49,486	56,312	60,525	65,202	65,224	53,958	44,163

Retiree Distribution as of January 1, 2014

	Number of Employees			Total Payments		
Attained Age	Male	Female	Total	Male	Female	Total
< 20	0	0	0	0	0	0
20-24	0	0	0	0	0	0
25-29	0	0	0	0	0	0
30-34	0	1	0	0	7301.64	7,302
35-39	1	0	0	10,601	0	10,601
40-44	2	2	4	20,359	38,272	58,631
45-49	8	2	10	169,175	31,593	200,768
50-54	16	6	22	363,701	102,619	466,320
55-59	78	54	132	2,921,470	604,519	3,525,989
60-64	150	119	269	5,282,456	2,117,823	7,400,279
65-69	210	234	444	6,165,199	3,940,531	10,105,730
70-74	170	195	365	4,283,353	3,094,962	7,378,315
75-79	113	154	267	2,311,721	2,110,938	4,422,659
80-84	90	135	225	1,626,731	1,522,332	3,149,063
85-89	64	105	169	848,665	1,129,182	1,977,847
90-94	31	74	105	295,490	428,443	723,932
95+	11	15	26	69,721	75,359	145,080
Total	944	1096	2038	24,368,643	15,203,873	39,572,516
Average (Age/Payment)	71.35	74.37	72.97	25,814	13,872	19,417
Frequency Percent	46.3	53.7	100.0	61.6	38.4	100.0

H:\Bristol County\2014\[DIS1.XLS]Disabled

Disabled Retiree Distribution as of January 1, 2014

	Number of Employees			Total Payments		
Attained Age	Male	Female	Total	Male	Female	Total
< 20	0	0	0	0	0	0
20-24	0	0	0	0	0	0
25-29	1	0	1	25,613	0	25,613
30-34	0	0	0	0	0	0
35-39	2	2	4	68,474	57,027	125,501
40-44	5	1	6	170,551	31,294	201,845
45-49	19	6	25	656,790	121,749	778,539
50-54	25	4	29	834,943	74,727	909,670
55-59	34	11	45	1,199,120	204,604	1,403,724
60-64	37	5	42	1,381,219	88,350	1,469,569
65-69	38	4	42	1,380,719	45,736	1,426,456
70-74	32	2	34	904,778	59,799	964,577
75-79	18	5	23	521,690	67,689	589,378
80-84	8	7	15	165,404	100,147	265,551
85-89	6	4	10	123,828	40,809	164,636
90-94	0	1	1	0	10,507	10,507
95-99	0	0	0	0	0	0
Total	225	52	277	7,433,129	902,436	8,335,565
Average (Age/Payment)	63.2	65.0	63.6	33,036	17,355	30,092
Frequency Percent	81.2	18.8	100.0	89.2	10.8	100.0

H:\Bristol County\2014\[BristolCounty14_Val v2.xlsm]Amorts

EXHIBIT 4 - CASHFLOW FORECAST:

The following is a 30 year forecast of benefit payments net of state reimbursable COLA payments, Contribution Income and Investment Returns.

Plan Year Ending	Benefit Payments	Employee Contributions	Employer Contributions	Investment Returns	Net change in plan assets
2014	$41,103,767	$12,263,065	$31,695,727	$43,054,395	$45,909,420
2015	43,371,819	12,863,163	33,755,949	45,997,496	49,244,789
2016	45,731,111	13,491,648	35,950,086	49,128,881	52,839,504
2017	48,382,566	14,149,831	38,286,842	52,455,188	56,509,295
2018	50,993,114	14,839,082	40,775,486	55,988,804	60,610,258
2019	53,684,750	15,560,833	42,752,033	60,426,114	65,054,231
2020	56,339,101	16,316,581	44,485,168	65,533,326	69,995,974
2021	59,242,450	17,107,892	46,290,203	71,026,645	75,182,290
2022	62,133,317	17,936,402	47,701,212	76,917,528	80,421,826
2023	65,083,146	18,803,820	48,578,401	83,201,858	85,500,933
2024	67,997,184	19,711,933	50,569,133	89,935,051	92,218,933
2025	71,006,165	20,662,608	52,642,447	97,202,546	99,501,436
2026	74,039,171	21,657,799	54,801,811	105,052,322	107,472,761
2027	76,952,786	22,699,545	57,050,841	113,545,149	116,342,749
2028	79,882,132	23,789,978	59,393,306	122,747,658	126,048,810
2029	82,673,195	24,931,326	7,222,920	132,468,969	81,950,020
2030	85,561,777	26,125,919	7,306,756	138,911,310	86,782,208
2031	88,551,286	27,376,188	7,385,742	145,736,563	91,947,207
2032	91,645,247	28,684,678	7,459,356	152,971,239	97,470,026
2033	94,847,310	30,054,045	7,527,042	160,643,845	103,377,622
2034	98,161,253	31,487,065	7,588,208	168,785,043	109,699,063
2035	101,590,984	32,986,641	7,642,224	177,427,817	116,465,697
2036	105,140,549	34,555,804	7,688,420	186,607,652	123,711,327
2037	108,814,136	36,197,721	7,726,084	196,362,738	131,472,407
2038	112,616,076	37,915,702	7,754,460	206,734,173	139,788,259
2039	116,550,855	39,713,206	7,772,745	217,766,201	148,701,297
2040	120,623,115	41,301,734	8,083,654	229,494,994	158,257,267
2041	124,837,659	42,953,803	8,407,001	241,982,379	168,505,524
2042	129,199,457	44,671,956	8,743,281	255,283,534	179,499,314
2043	133,056,377	46,458,834	9,093,012	269,483,672	191,979,141

EXHIBIT 5 – SUMMARY OF PLAN PROVISIONS:

This summary is prepared in accordance with Chapter 32 as of January 1, 2014, and does not take into account any subsequent changes.

1. Administration

Each of the 107 contributory retirement systems for public employees of the Commonwealth of Massachusetts are guided by the applicable provisions of Chapter 32 of the Massachusetts General Laws and other applicable statutes. Although these boards operate semi-independently, there is a uniform set of rules governing benefits, eligibility, contributions, financing, and accounting.

2. Participation

Participation is mandatory for all full-time employees whose employment commences prior to age 65. Eligibility with respect to part-time, professional, temporary, or intermittent employment is governed by the local board. Membership is optional for certain elected officials, State officials appointed by the Governor, and certain hospital interns.

There are four classes of membership as follows:

(i) Group 1: Most general employees in State and local government

(ii) Group 2: Certain specified hazardous duty positions

(iii) Group 3: State police officers and inspectors

(iv) Group 4: Local police officers, firefighters, and designated employees of the municipal light department.

For members in more than one group, participation will be proportional.

Chapter 176 of the Acts of 2011 created different plan provisions within these groups for those hired on or after April 2, 2012.

3. Salary

Salary is defined as gross regular compensation. Salary does not include bonuses, overtime, severance pay, unused sick leave credit, or other similar compensation.

4. Member Contributions

Member contributions vary depending upon date hired as follows:

Date of Hire	Member Contribution Rate
Prior to 1975	5.0% of Salary
1975 to 1983	7.0% of Salary
1984 to 1996	8.0% of Salary
1996 and Later plus	9.0% of Salary
1979 and Later	2.0% of Salary in excess of $30,000

For Group 1 employees who become members on or after April 2, 2012, the Contribution Rate shall be 6% after the completion of 30 years of service.

5. Average Salary

Average salary is used to determine a participant's benefit. It is defined as the average salary during the three consecutive-year period that produces the highest average. (Alternatively, if a greater amount results, it is the average rate of salary earned during the period or periods, whether or not consecutive, that constitutes the last three years preceding retirement.). For employees who become members on or after April 2, 2012, the averaging period shall be five years.

6. Creditable Service

In general, creditable service is awarded during the period in which a member contributes to the retirement system.

7. Service Retirement

a. Eligibility:

For an employee to be eligible for service retirement (also referred to as superannuation), one of the following conditions must be met:

(i) completion of 20 years of service

(ii) for an employee hired prior to January 1, 1978, attainment of age 55 as an active member

(iii) for an employee hired on or after January 1, 1978, attainment of age 55 as an active member and completion of ten years of service

(iv) for a Group 1 employee hired on or after April 2, 2012, attainment of age 60 and completion of ten years of service

b. Benefit Amount:

The retirement allowance is determined as a product of the participant's Benefit Rate times Average Salary times Creditable Service, where Benefit Rate is determined from the following table for those hired prior to April 2, 2012:

Age at	Percentage of Average Salary		
Retirement	Group 1	Group 2	Group 4
65 or Over	.025	.025	.025
64	.024	.025	.025
63	.023	.025	.025
62	.022	.025	.025
61	.021	.025	.025
60	.020	.025	.025
59	.019	.024	.025
58	.018	.023	.025
57	.017	.022	.025
56	.016	.021	.025
55	.015	.020	.025
54	.014	.014	.024
53	.013	.013	.023
52	.012	.012	.022
51	.011	.011	.021
50	.010	.010	.020
49	.009	.009	.019
48	.008	.008	.018
47	.007	.007	.017
46	.006	.006	.016
45	.005	.005	.015
44	.004	.004	.004
43	.003	.003	.003
42	.002	.002	.002
41	.001	.001	.001

For those hired after April 1, 2012 who retire with less than 30 years of service, the following rates are applied:

Age at Retirement	Percentage of Average Salary Group 1	Group 2	Group 4
67 or Over	.0250	.0250	.0250
66	.0235	.0250	.0250
65	.0220	.0250	.0250
64	.0205	.0250	.0250
63	.0190	.0250	.0250
62	.0175	.0250	.0250
61	.0160	.0235	.0250
60	.0145	.0220	.0250
59		.0205	.0250
58		.0190	.0250
57		.0175	.0250
56		.0160	.0235
55		.0145	.0220
54			.0205
53			.0190
52			.0175
51			.0160
50			.0145

For those hired after April 1, 2012 who retire with at least 30 years of service, the following rates are applied:

Age at Retirement	Percentage of Average Salary Group 1	Group 2	Group 4
67 or Over	.02500	.02500	.02500
66	.02375	.02500	.02500
65	.02250	.02500	.02500
64	.02125	.02500	.02500
63	.02000	.02500	.02500
62	.01875	.02500	.02500
61	.01750	.02375	.02500
60	.01625	.02250	.02500
59		.02125	.02500
58		.02000	.02500
57		.01875	.02500
56		.01750	.02375
55		.01625	.02250
54			.02125
53			.02000
52			.01875
51			.01750
50			.01625

8. Deferred Vested Retirement

a. Eligibility:

A participant who has completed ten or more years of creditable service is eligible for a deferred vested retirement benefit. If termination is involuntary, the participant is vested after six years.

b. Benefit Amount:

The participant's accrued benefit is payable commencing at age 55, or may be deferred until later at the employee's option.

c. Refund of Contributions:

In lieu of the deferred pension benefit, a member may elect to receive a refund of their accumulated contributions. Members with ten or more years of service are entitled to 100% of the credited interest on their contributions. Members with five to ten years of service are entitled to 50% of the credited interest on their contributions. No credited interest is provided for members with less than five years of service.

9. Accidental Disability

a. Eligibility:

Participants are eligible for an accidental disability benefit, regardless of service or age, if they become permanently and totally incapacitated for further duty as a result of personal injury sustained while in the performance of duties.

b. Benefit Amount:

The accidental disability amount is 72% of annual salary plus $450 per year for each child plus an additional annuity based upon accumulated Member Contributions with credited interest.

10. Ordinary Disability

a. Eligibility:

An ordinary disability occurs when a member becomes permanently and totally disabled due to sickness or injury that is not job related. In order to be eligible for an ordinary disability benefit, a member must have ten years of service (and be less than age 55 or age 60 if hired on or after April 2, 2012).

b. Benefit Amount:

The ordinary disability amount is equal to the accrued retirement benefit as if the member were age 55 (age 60 if hired on or after April 2, 2012). If the member was a veteran, the benefit is 50% of the member's final rate of Salary during the preceding 12 months, plus an annuity based upon accumulated Member Contributions plus credited interest. If the participant is over age 55 (age 60 if hired on or after April 2, 2012), he will receive not less than the superannuation allowance to which he is entitled.

11. Survivor Benefits

a. Occupational Death:

The survivors of a member who dies due to an occupational injury will be entitled to a lump sum return of contributions plus a pension benefit equal to 72% of the participant's annual Salary.

b. Non-Occupational Death:

Upon the death of a member other than due to an occupational injury, the designated beneficiary will be entitled to a retirement benefit as if Option C had been elected with a minimum of $250 per month to the surviving spouse, plus $120 for the first child, plus $90 for each additional child. If no beneficiary is designated and if the employee worked two years, and is married at least one year, the spouse may elect benefits. If there is no designated beneficiary or surviving spouse, then member contributions are returned. If there are dependent children but no surviving spouse, they may elect minimum survivor benefits of $250 per month plus $120 for the first child and $90 for each additional child.

c. Refund of Contributions:

Upon the death of a member not entitled to survivor benefits, the beneficiary is entitled to a refund of all member contributions with interest.

12. Cost-of-Living Increases

In accordance with the adoption of Chapter 17 of the Acts of 1997, the granting of a cost-of-living adjustment will be determined by an annual vote by the Retirement Board. The amount of increase will be based upon the Consumer Price Index, limited to a maximum of 3.0%, beginning on July 1. All retirees, disabled retirees, and beneficiaries who have been receiving benefits payments for at least one year as of July 1 are eligible for the adjustment. The maximum amount of pension benefit subject to a COLA is $16,000. All COLAs granted to members after 1981 and prior to July 1, 1998 are deemed to be an obligation of the State and are not the liability of the Retirement System.

13. Postretirement Death Benefits

Any benefits following the death of a member after retirement are based upon the form of benefit the participant elected at the time of retirement. There are three available forms as follows:

(i) Option A – Life annuity

(ii) Option B – Life annuity with death benefit equal to excess of member contributions plus credited interest to retirement over annuity benefit paid to member

(iii) Option C – Life annuity with 66-2/3% of benefit continued after death of member to designated joint annuitant

EXHIBIT 6 – ACTUARIAL METHODS AND ASSUMPTIONS:

The actuarial cost method, factors, and assumptions used in determining cost estimates are presented below.

1. Member Data

The member data used in the determination of cost estimates consist of pertinent information with respect to the active, inactive, retired, and disabled members of the employer as supplied by the employer to the actuary.

2. Valuation Date

January 1, 2014.

3. Actuarial Cost Method

The costs of the Plan have been determined in accordance with the individual entry age normal actuarial cost method.

4. Rate of Investment Return

It is assumed that the assets of the fund will accumulate at a compound annual rate of 8.0% per annum.

5. Salary Scale

It is assumed that salaries including longevity will increase at a rate of 3.0% per year.

6. Cost-of-Living Increases

Cost-of-living increases have been assumed to be 3.0% of the lesser of the pension amount and $16,000 per year.

7. Value of Investments

Assets held by the fund are valued at market value as reported by the Public Employees' Retirement Administration Commission (PERAC). The actuarial value of assets is determined using a five-year smoothing of asset returns greater than or less than the assumed rate of return.

8. Annual Rate of Withdrawal Prior to Retirement

Based on an analysis of experience, the assumed annual rates of withdrawal may best be illustrated by the following rates at the following ages:

Service	General Employees	Police and Fire Employees
0	0.1500	0.0150
10	0.0540	0.0150
20	0.0200	0.0000
30	0.0000	0.0000

9. Annual Rate of Mortality

It is assumed that both pre-retirement and post retirement mortality are represented by the RP-2000 Mortality Table for males and females, adjusted to 2015 with Scale AA. Mortality for disabled members is represented by the RP-2000 Mortality Table set forward two years for all disabled members.

10. Service Retirement

Based on an analysis of experience, the assumed annual retirement rates are illustrated at the following ages for those hired prior to April 2, 2012:

Age	Male General Employees	Female General Employees	Male and Female Police and Fire Employees
50	0.0100	0.0150	0.02000
51	0.0100	0.0150	0.02000
52	0.0100	0.0200	0.02000
53	0.0100	0.0250	0.05000
54	0.0200	0.0250	0.07500
55	0.0200	0.0550	0.15000
56	0.0250	0.0650	0.10000
57	0.0250	0.0650	0.10000
58	0.0500	0.0650	0.10000
59	0.0650	0.0650	0.15000
60	0.1200	0.0500	0.20000
61	0.2000	0.1300	0.20000
62	0.3000	0.1500	0.25000
63	0.2500	0.1250	0.25000
64	0.2200	0.1800	0.30000
65	0.4000	0.1500	1.00000
66	0.2500	0.2000	1.00000
67	0.2500	0.2000	1.00000
68	0.3000	0.2500	1.00000
69	0.3000	0.2000	1.00000
70	1.0000	1.0000	1.00000

Based on an analysis of experience, the assumed annual retirement rates are illustrated at the following ages for those hired on or after April 2, 2012:

Age	Male General Employees	Female General Employees	Male and Female Police and Fire Employees
50	0.0000	0.0000	0.0100
51	0.0000	0.0000	0.0100
52	0.0000	0.0000	0.0200
53	0.0000	0.0000	0.0200
54	0.0000	0.0000	0.0200
55	0.0000	0.0000	0.0500
56	0.0000	0.0000	0.0750
57	0.0000	0.0000	0.1500
58	0.0000	0.0000	0.1000
59	0.0000	0.0000	0.1000
60	0.0500	0.0650	0.1000
61	0.0650	0.0650	0.1500
62	0.2000	0.1500	0.2000
63	0.2000	0.1300	0.2000
64	0.3000	0.1500	0.3000
65	0.2500	0.1250	1.0000
66	0.2200	0.1800	1.0000
67	0.4000	0.2500	1.0000
68	0.3000	0.2000	1.0000
69	0.3000	0.2000	1.0000
70	1.0000	1.0000	1.0000

12. Annual Rate of Disability Prior to Retirement

Based on an analysis of experience, the assumed annual rates of disability may best be illustrated by the following probabilities at the following ages:

Attained Age	General Employees	Police and Fire Employees
20	0.0001	0.0010
30	0.0003	0.0030
40	0.0010	0.0030
50	0.0019	0.0125

In addition, it is assumed for the general employees that 40% of all disabilities are ordinary (60% are service connected). For police and fire employees, 10% of all disabilities are assumed to be ordinary (90% are service connected).

13. Family Composition

It is assumed that 80% of all members will be survived by a spouse and that females (males) are three years younger (older) than members.

14. Administrative Expenses

The normal cost is increased by an amount equal to the anticipated administrative expenses for the upcoming fiscal year. The amount for fiscal year 2014 is $1,275,000 and is anticipated to increase at 4.0% per year.

EXHIBIT 7 – GLOSSARY OF TERMS:

This glossary summarizes the technical terms contained in this report.

1. <u>Actuarial Accrued Liability</u>

That portion of the Actuarial Present Value of plan benefits that is not provided for by future employer Normal Costs or employee contributions.

2. <u>Actuarial Assumptions</u>

Assumptions as to the occurrence of future events affecting the Retirement System such as:

- Rates of investment returns
- Increases in a member's salary
- Inflation
- The probability of mortality, turnover, disablement
- Retirement at each age and other relevant items

3. <u>Actuarial Cost Method</u>

A procedure for allocating the Actuarial Present Value of pension plan benefits between Normal Cost and Actuarial Accrued Liability.

4. <u>Actuarial Present Value</u>

The single sum amount required at the valuation date that is required to provide for anticipated future events based upon the terms of the plan and the Actuarial Assumptions.

5. <u>Forecast</u>

A projection of future benefit payments or contribution requirements based upon the terms of the plan, the current asset amounts, the Actuarial Assumptions, and additional assumptions as to the replacement of terminating employees with new employees.

6. Normal Cost

That portion of the Actuarial Present Value of future benefits that is assigned to the current year.

7. Unfunded Actuarial Accrued Liability

That portion of the Actuarial Accrued Liability that is not provided for by current actuarial value of assets.

8. Valuation Method

The method used to divide the cost of future benefits among the Actuarial Accrued Liability, the current year's Normal Costs, and future years' Normal Costs. The resulting current funding requirement is then determined as the current year's Normal Cost plus the payment necessary to amortize the Unfunded Actuarial Liability.

9. Vested Liability

That portion of the Actuarial Present Value of Accrued Benefits that a member would be entitled to if the member terminated employment with the employer as of the valuation date.

CERTIFICATION:

This report fairly represents the actuarial position of the Bristol County Retirement System contributing as of January 1, 2014, in accordance with generally accepted actuarial principles applied consistently with the preceding valuation. In our opinion, the actuarial assumptions used to compute actuarial accrued liability and normal cost are reasonably related to plan experience and to reasonable expectations, and represents our best estimate of anticipated plan experience.

Sherman Actuarial Services, LLC

Daniel W. Sherman, ASA, MAAA
Enrolled Actuary No. 11-4086

July, 2014

BREAKOUTS