

**CITY OF NEWTON
CONTRIBUTORY RETIREMENT SYSTEM**

Actuarial Valuation Report

January 1, 2013

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Report Summary:

<u>Highlights</u>	<u>January 1, 2012</u>	<u>January 1, 2013</u>
<u>Contributions</u>		
Funding Schedule FY 2014	\$18,363,516	\$18,363,516
Funding Schedule FY 2015	18,997,785	19,972,859
<u>Funded Ratios</u>		
GAS No. 25	53.1%	52.3%
<u>Participants</u>		
Actives	1,610	1,616
Retirees and Beneficiaries	1,164	1,162
Inactives	561	547
Disabled	<u>155</u>	<u>156</u>
Total	3,490	3,481
<u>Payroll</u>		
Payroll of Active Members	\$80,337,091	\$82,970,316
Average Payroll	49,899	51,343
<u>Normal Cost</u>		
Employer	\$3,208,303	\$3,232,242
Employee	<u>6,821,163</u>	<u>7,099,229</u>
Total	\$10,029,466	\$10,331,471
<u>Actuarial Accrued Liabilities</u>		
Actives	\$196,092,515	\$203,941,029
Retirees, Beneficiaries, Disabilities and Inactives	<u>297,131,645</u>	<u>308,435,662</u>
Total	\$493,224,160	\$512,376,691
<u>Actuarial Value of Assets</u>	<u>262,109,152</u>	<u>268,087,455</u>
<u>Unfunded Actuarial Accrued Liabilities</u>	\$231,115,008	\$244,289,236

Introduction

This report presents the findings of an actuarial valuation as of January 1, 2013, of the City of Newton Contributory Retirement System.

The actuarial valuation is based on:

- Provisions Chapter 32 of the Massachusetts General Laws, "M.G.L", as of January 1, 2013.
- Benefit changes approved under Chapter 176 of the Acts of 2011 for members hired on or after April 2, 2012.
- Employee data provided by the Retirement Board
- Asset information reported to the Public Employee Retirement Administration Commission by the City of Newton 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, 2013.

The valuation and forecast do not account for:

- Changes in the law, if any, subsequent to the valuation date
- 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 year, the total unfunded actuarial accrued liability increased by 5.7% to \$244,289,236. The increase was larger than expected as a result of net unfavorable actuarial experience during the preceding year. Less than expected growth in the actuarial value of assets occurred due to the continuing recognition of investment losses in prior years, which limited the return on the actuarial value of assets to 5.95%. The other sources of the (gain)/loss are as follows:

Investment	4,535,523
Salary Increases	1,909,569
New Participants and Rehires	1,242,463
Active - Retirements	72,103
Active - Terminations	145,463
Active - Mortality	(107,752)
Active - Disabilities	(1,316,794)
Inactive - Mortality and data adjustments	(296,100)
Mortality update	793,652
Other	<u>1,687,117</u>
Total (gain)/loss	8,665,244

Benefit changes approved under Chapter 176 of the Acts of 2011 for members hired on or after April 2, 2012 were reflected in this valuation. Since these changes apply to new hires, there is no immediate impact on past service liability.

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

	<u>January 1, 2012</u>	<u>January 1, 2013</u>
Superannuation	\$6,552,100	\$6,768,920
Termination	1,428,088	1,462,497
Death	350,498	356,685
Disability	1,698,780	1,743,369
Total Normal Cost	\$10,029,466	\$10,331,471
% of Pay	12.5%	12.5%
Employee Contributions	6,821,163	7,099,229
% of Pay	8.5%	8.6%
Employer Normal Cost	\$3,208,303	\$3,232,242
% of Pay	4.0%	3.9%

Present Value of Actuarial Accrued Liabilities

The actuarial accrued liabilities (AAL) represents the value as of the valuation date 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

	<u>January 1, 2012</u>	<u>January 1, 2013</u>
Actives		
Superannuation	\$187,082,622	\$194,535,018
Termination	(3,252,613)	(3,402,094)
Death	3,449,414	3,543,869
Disability	<u>8,813,092</u>	<u>9,264,236</u>
Subtotal	196,092,515	203,941,029
Retirees and Inactives		
Retirees and Beneficiaries	\$238,411,842	\$250,074,089
Terminated (Refund)	4,748,232	4,122,139
Disabled	<u>53,971,571</u>	<u>54,239,434</u>
Subtotal	297,131,645	308,435,662
Total	\$493,224,160	\$512,376,691

Present Value of Future Benefits

The present value of future benefits represents the value as of the valuation date 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

	<u>January 1, 2012</u>	<u>January 1, 2013</u>
Actives		
Superannuation	\$237,829,495	\$247,143,968
Termination	8,015,305	8,186,372
Death	6,178,520	6,340,075
Disability	<u>23,983,438</u>	<u>25,096,311</u>
Subtotal	276,006,758	286,766,726
Retirees and Inactives		
Retirees and Beneficiaries	\$238,411,842	\$250,074,089
Terminated (Refund)	4,748,232	4,122,139
Disabled	<u>53,971,571</u>	<u>54,239,434</u>
Subtotal	297,131,645	308,435,662
Total	\$573,138,403	\$595,202,388

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	<u>January 1, 2012</u>	<u>January 1, 2013</u>
Cash equivalents		\$6,723,788	\$16,706,648
Real Estate		10,274,070	1,157,254
PRIT Core Fund		215,818,018	235,776,636
Accounts receivable		536,859	549,432
Accounts payable		(9,522)	(7,654)
Accrued income		<u>0</u>	<u>0</u>
Total Market Value		\$233,343,214	\$254,182,316
Total Actuarial Value		\$262,109,152	\$268,087,455

Sum of values may not equal due to rounding.

Actuarial Value of Assets

For actuarial purposes, the assets are valued using a method which reflects the market value of assets through gradual recognition of any unrealized appreciation or depreciation in assets beyond the 7.75% return. The following table shows the development of valuation assets:

Table V

(1) Assets for valuation purposes, January 1, 2012	\$262,109,152
(2) Cash flow during year without regard to investment income and investment expenses	
(a) Benefit payouts and refunds	(\$34,005,104)
(b) City contributions	\$16,510,671
(c) Member contributions	\$7,776,175
(d) Net transfers and reimbursements	\$380,006
(e) Net cash flow	(\$9,338,252)
(3) Expected investment income and expenses	\$19,951,602
(4) Preliminary Asset Value (1 + 2 + 3)	\$272,722,502
(5) Market value, December 31, 2012	\$254,182,316
(6) Preliminary asset value	<u>\$272,722,502</u>
(7) Unrecognized appreciation (5 - 6)	(\$18,540,186)
(8) Adjustment (7 x 25%)	(\$4,635,047)
(9) Adjusted asset value (4 + 8)	\$268,087,455
(10) Assets for valuation purposes, January 1, 2013 (adjusted asset value limited to 120% of market value of assets)	\$268,087,455
(11) Ratio of actuarial value to market value	105.5%
(12) The actuarial rate of return for year ending December 31, 2012 (based on the adjusted asset value)	5.95%
(13) The market value rate of return for year ending December 31, 2012	13.20%

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. If assumptions are met over time, annual pension contributions will accumulate Plan assets equal to the AAL, and the UAAL will be eliminated, and 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

	<u>January 1, 2012</u>	<u>January 1, 2013</u>
Actuarial Accrued Liability	\$493,224,160	\$512,376,691
Actuarial Assets	<u>262,109,152</u>	<u>268,087,455</u>
Unfunded Actuarial Accrued Liability	\$231,115,008	\$244,289,236
Funded Status	53.1%	52.3%

Appropriations

The pension appropriation for the upcoming fiscal years have been calculated in accordance with the requirements set forth in Sections 22D and 22F 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 prior unfunded actuarial accrued liability by June 30, 2037
 \$ 244,289,236 over 24 years with 3.75% increasing payments
- Interest adjustment for payments deposited annually each August 1.

The pension appropriation is shown in Table VII.

Table VII

	<u>January 1, 2012</u>	<u>January 1, 2013</u>
Normal cost	\$3,208,303	\$3,232,242
Amortization payment of the prior accrued liability	<u>13,704,984</u>	<u>15,199,854</u>
Total cost	\$16,913,287	\$18,432,096
% of Pay	21.1%	22.2%
Fiscal 2014 cost	\$18,363,516	\$18,363,516
Fiscal 2015 cost	\$18,997,785	\$19,972,859

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 24 years until the unfunded liabilities are completely paid off, at which time only the normal cost will remain. The total FYE14 cost represents 22.1% of payroll, decreasing to 18.3% by the time the unfunded liabilities are fully paid off, leaving only a normal cost of 2.0% thereafter. The decrease in the cost as a percentage of payroll is a result of the increase in member contributions.

Appropriation Forecast

Fiscal Year Ending	Employee Payroll*	Employee Contribution	Employer Normal Cost with Interest	Amortization Payments with Interest	Employer Total Cost with Interest	Employer Total Cost % of Payroll	Funded Ratio %**
2014	\$82,970,316	\$7,099,229	\$3,376,089	\$14,987,427	\$18,363,516	22.1%	52.3%
2015	86,703,980	7,502,955	3,440,002	16,532,857	19,972,859	23.0	53.0
2016	90,605,659	7,928,641	3,502,831	17,152,839	20,655,670	22.8	53.8
2017	94,682,914	8,377,446	3,564,348	17,796,070	21,360,418	22.6	54.6
2018	98,943,645	8,850,587	3,624,308	18,463,423	22,087,731	22.3	55.4
2019	103,396,109	9,349,346	3,682,447	19,155,801	22,838,248	22.1	56.3
2020	108,048,934	9,875,071	3,738,479	19,874,144	23,612,623	21.9	57.3
2021	112,911,136	10,429,180	3,792,098	20,619,424	24,411,522	21.6	58.4
2022	117,992,137	11,013,161	3,842,971	21,392,653	25,235,624	21.4	59.7
2023	123,301,783	11,628,581	3,890,744	22,194,877	26,085,621	21.2	61.0
2024	128,850,364	12,277,087	3,935,035	23,027,185	26,962,220	20.9	62.5
2025	134,648,630	12,960,411	3,975,432	23,890,705	27,866,137	20.7	64.2
2026	140,707,818	13,680,373	4,011,498	24,786,606	28,798,104	20.5	66.1
2027	147,039,670	14,438,887	4,042,759	25,716,104	29,758,863	20.2	68.1
2028	153,656,455	15,237,964	4,068,710	26,680,458	30,749,168	20.0	70.3
2029	160,570,996	16,079,719	4,088,810	27,680,975	31,769,785	19.8	72.6
2030	167,796,691	16,966,376	4,102,480	28,719,011	32,821,491	19.6	75.2
2031	175,347,542	17,900,270	4,109,101	29,795,974	33,905,075	19.3	77.9
2032	183,238,181	18,883,858	4,108,009	30,913,323	35,021,332	19.1	80.7
2033	191,483,899	19,919,720	4,098,499	32,072,573	36,171,072	18.9	83.7
2034	200,100,675	21,010,571	4,079,814	33,275,294	37,355,108	18.7	86.8
2035	209,105,205	21,956,047	4,263,406	34,523,118	38,786,524	18.5	90.0
2036	218,514,939	22,944,069	4,455,259	35,817,735	40,272,994	18.4	93.3
2037	228,348,112	23,976,552	4,655,746	37,160,900	41,816,646	18.3	96.7
2038	238,623,777	25,055,497	4,865,254	0	4,865,254	2.0	100.0
2039	249,361,847	26,182,994	5,084,191	0	5,084,191	2.0	100.0
2040	260,583,130	27,361,229	5,312,979	0	5,312,979	2.0	100.0
2041	272,309,371	28,592,484	5,552,063	0	5,552,063	2.0	100.0
2042	284,563,292	29,879,146	5,801,906	0	5,801,906	2.0	100.0
2043	297,368,640	31,223,707	6,062,992	0	6,062,992	2.0	100.0
2044	310,750,229	32,628,774	6,335,827	0	6,335,827	2.0	100.0
2045	324,733,989	34,097,069	6,620,939	0	6,620,939	2.0	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). On June 25, 2012 GASB released Statement Nos. 67 and 68, which will supersede the requirements of Statement Nos. 25 and 27, respectively. Statement No. 67 is effective with the fiscal year beginning after June 15, 2013 and Statement No. 68 is effective with the fiscal year beginning after June 15, 2014. None of the GASB 67 and 68 changes in requirements have been reflected in this report.

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 Statements 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

	<u>January 1, 2012</u>	<u>January 1, 2013</u>
(1) Actuarial Accrued Liability	\$493,224,160	\$512,376,691
(2) Actuarial Value of Assets	<u>262,109,152</u>	<u>268,087,455</u>
(3) Unfunded Actuarial Accrued Liability	\$231,115,008	\$244,289,236
(4) Funded Ratio: (2) / (1)	53.1%	52.3%
(5) Covered Payroll	\$80,337,091	\$82,970,316
(6) UAAL as a Percentage of Payroll: (3) / (5)	287.7%	294.4%
(7) Annual Required Contribution (ARC)	\$16,343,094	\$18,363,516
(8) Net Pension Obligation	\$0	\$0

**PERAC Annual Statement
APPENDIX PAGE 3
ACTUARIAL VALUATION AND ASSUMPTIONS**

The most recent actuarial valuation of the System was prepared by Buck Consultants as of January 1, 2013.

The normal cost for employees on that date was:	\$7,099,229	8.6% of pay
The normal cost for the employer was:	3,232,242	3.9% of pay
The actuarial liability for active members was:		\$203,941,029
The actuarial liability for retired and inactive members was:		308,435,662
Total actuarial accrued liability:		\$512,376,691
System assets as of that date:		268,087,455
Unfunded actuarial accrued liability:		\$244,289,236

The ratio of system's assets to total actuarial liability was: 52.3%

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

Investment Return:	7.75%
Ultimate Rate of Salary Increase: for Groups 1 & 4	3.50%

SCHEDULE OF FUNDING PROGRESS

Actuarial Valuation Date	Actuarial Value of Assets	Actuarial Accrued Liability	Unfunded Actuarial Accrued Liability	Funded Ratio	Covered Payroll	UAAL as a percent of Covered Payroll
	(a)	(b)	(b - a)	(a / b)	(c)	(b - a) / c
01/01/13	\$268,087,455	\$512,376,691	\$244,289,236	52.3%	\$82,970,316	294.4%
01/01/12	262,109,152	493,224,160	231,115,008	53.1%	80,337,091	287.7%
01/01/11	260,156,459	473,083,813	212,927,354	55.0%	81,378,076	261.7%
01/01/10	254,035,335	462,103,688	208,068,353	55.0%	83,843,673	248.2%
01/01/09	252,116,922	443,009,607	190,892,685	56.9%	82,013,624	232.8%
01/01/08	281,114,591	419,000,697	137,886,106	67.1%	79,205,738	174.1%
01/01/07	265,700,539	402,257,645	136,557,106	66.1%	74,197,265	184.0%
01/01/06	253,420,995	382,732,277	129,311,282	66.2%	71,278,135	181.4%
01/01/05	244,266,000	361,080,000	116,814,000	67.6%	69,702,000	168.0%
01/01/04	233,888,000	350,688,000	116,800,000	66.7%	68,327,000	171.0%

EXHIBITS

Age/Service Distribution with Salary as of January 1, 2013

Attained Age	Average Salary	<5	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40+	Total
20-24	72	26,397									72 26,397
25-29	196	33,554	28	51,033							224 35,739
30-34	71	39,705	76	50,933	23	60,055					170 47,478
35-39	41	42,531	46	59,802	53	63,901	5				145 56,198
40-44	29	42,818	29	54,993	42	63,660	24	2	62,358		126 58,444
45-49	32	43,968	33	46,028	30	58,900	32	22	18	68,045	168 56,859
50-54	47	41,485	34	47,067	37	48,228	22	21	47	13	221 55,377
55-59	21	44,090	49	44,365	35	51,944	15	28	43	29	233 59,602
60-64	11	48,419	29	49,638	34	47,314	24	23	10	17	171 55,950
65-69	3	57,895	11	38,226	8	56,294	13	13	9	2	67 48,927
70+			1	126,222	1	67,961	3	48,676	7	34,090	19 50,356
Total Employees	523	336	263	138	109	134	65	29	19	1,616	
Average Salary	36,846	50,371	56,601	63,397	59,751	65,937	72,148	65,769	62,869	51,343	

Retiree Distribution as of January 1, 2013

Attained Age	Number of Employees			Total Payments		
	Male	Female	Total	Male	Female	Total
< 20						
20-24						
25-29						
30-34						
35-39		1	1		6,816	6,816
40-44		2	2		21,612	21,612
45-49	1	2	3	20,402	14,130	34,532
50-54	2	3	5	44,101	41,643	85,744
55-59	26	22	48	1,104,638	260,694	1,365,331
60-64	80	55	135	3,140,465	1,183,570	4,324,035
65-69	122	102	224	4,800,577	2,162,709	6,963,286
70-74	91	95	186	3,127,215	1,614,070	4,741,285
75-79	54	103	157	1,813,495	1,848,470	3,661,965
80-84	63	80	143	1,564,310	1,258,789	2,823,098
85-89	54	106	160	1,182,963	1,337,680	2,520,643
90-94	15	61	76	284,494	637,964	922,458
95-99	5	15	20	79,533	112,648	192,181
100+		2	2		20,596	20,596
Total	513	649	1,162	17,162,192	10,521,391	27,683,583
Average (Age/Payment)	73.0	77.1	75.3	33,455	16,212	23,824
Frequency Percent	44.1	55.9	100.0	62.0	38.0	100.0

Disabled Retiree Distribution as of January 1, 2013

Attained Age	Number of Employees			Total Payments		
	Male	Female	Total	Male	Female	Total
< 20						
20-24						
25-29						
30-34						
35-39	2		2	89,601		89,601
40-44	2		2	64,013		64,013
45-49	6		6	251,436		251,436
50-54	7	3	10	423,213	99,112	522,325
55-59	14	4	18	654,877	130,101	784,978
60-64	27	5	32	1,277,784	134,917	1,412,701
65-69	31		31	1,214,835		1,214,835
70-74	18		18	853,034		853,034
75-79	19	5	24	568,614	126,540	695,154
80-84	9		9	261,386		261,386
85-89	3		3	26,751		26,751
90-94	1		1	24,370		24,370
95-99						
100+						
Total	139	17	156	5,709,914	490,670	6,200,584
Average (Age/Payment)	66.9	63.9	66.6	41,079	28,863	39,747
Frequency Percent	89.1	10.9	100.0	92.1	7.9	100.0

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
2013	\$36,289,814	\$7,099,229	\$18,363,516	\$21,444,045	\$10,616,976
2014	37,855,931	7,502,955	19,972,859	21,309,351	10,929,234
2015	39,454,063	7,928,641	20,655,670	22,147,788	11,278,036
2016	40,883,468	8,377,446	21,360,418	23,022,070	11,876,466
2017	42,316,358	8,850,587	22,087,731	23,945,104	12,567,064
2018	43,625,791	9,349,346	22,838,248	24,928,978	13,490,781
2019	44,914,208	9,875,071	23,612,623	25,987,982	14,561,468
2020	46,105,742	10,429,180	24,411,522	27,136,520	15,871,480
2021	47,116,634	11,013,161	25,235,624	28,396,459	17,528,610
2022	48,082,035	11,628,581	26,085,621	29,789,699	19,421,866
2023	48,859,697	12,277,087	26,962,220	31,340,094	21,719,704
2024	49,559,364	12,960,411	27,866,137	33,074,981	24,342,165
2025	50,142,120	13,680,373	28,798,104	35,021,156	27,357,513
2026	50,676,274	14,438,887	29,758,863	37,206,637	30,728,113
2027	51,151,739	15,237,964	30,749,168	39,659,516	34,494,909
2028	51,455,225	16,079,719	31,769,785	42,414,989	38,809,268
2029	51,769,070	16,966,376	32,821,491	45,508,749	43,527,546
2030	51,969,853	17,900,270	33,905,075	48,976,994	48,812,486
2031	52,010,299	18,883,858	35,021,332	52,865,650	54,760,541
2032	51,993,864	19,919,720	36,171,072	57,222,390	61,319,318
2033	51,803,373	21,010,571	37,355,108	62,099,234	68,661,540
2034	51,575,077	21,956,047	38,786,524	67,542,913	76,710,407
2035	51,309,004	22,944,069	40,272,994	73,616,675	85,524,734
2036	51,027,579	23,976,552	41,816,646	80,379,196	95,144,815
2037	50,558,048	25,055,497	4,865,254	86,828,969	66,191,672
2038	50,031,585	26,182,994	5,084,191	92,073,140	73,308,740
2039	49,508,082	27,361,229	5,312,979	97,873,016	81,039,142
2040	48,922,300	28,592,484	5,552,063	104,278,800	89,501,047
2041	48,297,551	29,879,146	5,801,906	111,346,497	98,729,998
2042	49,918,592	31,223,707	6,062,992	119,048,880	106,416,987

*Excludes account balances of \$4,122,139 for inactive members.

EXHIBIT 5 – SUMMARY OF PLAN PROVISIONS:

This summary is prepared in accordance with Chapter 32 as of January 1, 2013, and does not take into account any subsequent changes.

1. Administration

Each of the 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.

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:

<u>Date of Hire</u>	<u>Member Contribution Rate</u>	
	<u>On Salary up to \$30,000</u>	<u>On Salary in excess of \$30,000</u>
Prior to 1975	5.0%	5.0%
1975 to 1978	7.0%	7.0%
1979 to 1983	7.0%	9.0%
1984 to 1995	8.0%	10.0%
1996 and later*	9.0%	11.0%

*The contribution rate for Group 1 participants hired on or after April 2, 2012 and who attain 30 years of service is reduced by three percentage points.

5. Average Salary

Average salary is used to determine a participant's benefit. For those hired prior to April 2, 2012, 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 those hired on or after April 2, 2012, it is defined as the average salary during the five 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 five years preceding retirement.) For those hired on or after January 1, 2011, salary taken into account for benefit purposes is capped at 64% of the IRC Section 401(a)(17) limit (indexed).

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:

Group 1 members hired after April 1, 2012 are eligible for service retirement (also referred to as superannuation) upon attainment of age 60 and completion of ten years of creditable service.

For other members, one of the following conditions must be met:

- (i) completion of 20 years of creditable 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 creditable 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 tables. The amount determined by the benefit formula cannot exceed 80% of the member's Average Salary. Any member who is a veteran also receives an additional annual retirement allowance of \$15 per year of creditable service, not exceeding \$300. This veteran allowance is paid in addition to the 80% maximum.

For Actives Hired prior to 4/2/2012			
<u>Age at Retirement</u>	<u>Fraction of Average Salary</u>		
	<u>Group 1</u>	<u>Group 2</u>	<u>Group 4</u>
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 Actives Hired on or after 4/2/2012

Fraction of Average Salary

Age at Retirement	<u>Group 1</u>		<u>Group 2</u>		<u>Group 4</u>	
	<30 Years of Creditable Service	30+ Years of Creditable Service	<30 Years of Creditable Service	30+ Years of Creditable Service	<30 Years of Creditable Service	30+ Years of Creditable Service
67 or over	.02500	.02500	.02500	.02500	.02500	.02500
66	.02350	.02375	.02500	.02500	.02500	.02500
65	.02200	.02250	.02500	.02500	.02500	.02500
64	.02050	.02125	.02500	.02500	.02500	.02500
63	.01900	.02000	.02500	.02500	.02500	.02500
62	.01750	.01875	.02500	.02500	.02500	.02500
61	.01600	.01750	.02350	.02375	.02500	.02500
60	.01450	.01625	.02200	.02250	.02500	.02500
59	N/A	N/A	.02050	.02125	.02500	.02500
58	N/A	N/A	.01900	.02000	.02500	.02500
57	N/A	N/A	.01750	.01875	.02500	.02500
56	N/A	N/A	.01600	.01750	.02350	.02375
55	N/A	N/A	.01450	.01625	.02200	.02250

8. Deferred Vested Retirement**a. Eligibility:**

Participants who have completed ten or more years of creditable service are eligible for a deferred vested retirement benefit (provided they have not withdrawn their accumulated contributions). If termination is involuntary, eligibility is met after six years. The benefit is payable upon attaining age 60 for Group 1 members hired after April 1, 2012 and age 55 for other members.

b. Benefit Amount:

Accrued benefit.

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 \$729.84 per year for each child plus an additional annuity based upon accumulated Member Contributions with credited interest.

10. Ordinary Disabilitya. 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).

b. Benefit Amount:

The ordinary disability amount is equal to the accrued retirement benefit as if the member were age 55. 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, he will receive not less than the superannuation allowance to which he is entitled.

11. Survivor Benefitsa. 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 \$12,000. 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, 2013.

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 7.75% per annum, net of all expenses.

5. Salary Scale

It is assumed that salaries including longevity will increase at 2.5% per year in 2013, 3.0% per year in 2014, and 3.5% per year starting in 2015.

6. Cost-of-Living Increases

Cost-of-living increases have been assumed to be 3.0% of the lesser of the pension amount and \$12,000 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). Actuarial assets equal preliminary asset value plus 25% of the difference between market value and preliminary asset value. Preliminary asset value is the previous years' actuarial asset amount increased by net cash flow and expected investment income. The result must be within 20% of market value.

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:

<u>Service</u>	<u>General Employees</u>	<u>Police and Fire Employees</u>
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 projected 23 years (10 years beyond the valuation year) with Scale AA for males and females. Mortality for disabled members is represented by the RP-2000 Mortality Table set forward three years for all disabled members. The prior report used the same base tables projected 22 years with Scale AA.

It is assumed that 80% of all deaths are ordinary (20% are service connected).

10. Service Retirement

Based on an analysis of experience, the assumed annual retirement rates are illustrated at the following ages:

<u>Age</u>	<u>Male General Employees</u>	<u>Female General Employees</u>	<u>Male and Female Police and Fire Employees</u>
45	0.0000	0.0000	0.0100
46	0.0000	0.0000	0.0100
47	0.0000	0.0000	0.0100
48	0.0000	0.0000	0.0100
49	0.0000	0.0000	0.0100
50	0.0100	0.0150	0.0200
51	0.0100	0.0150	0.0200
52	0.0100	0.0200	0.0200
53	0.0100	0.0250	0.0500
54	0.0200	0.0250	0.0750
55	0.0200	0.0550	0.1500
56	0.0250	0.0650	0.1000
57	0.0250	0.0650	0.1000
58	0.0500	0.0650	0.1000
59	0.0650	0.0650	0.1500
60	0.1200	0.0500	0.2000
61	0.2000	0.1300	0.2000
62	0.3000	0.1500	0.2500
63	0.2500	0.1250	0.2500
64	0.2200	0.1800	0.3000
65	0.4000	0.1500	1.0000
66	0.2500	0.2000	1.0000
67	0.2500	0.2000	1.0000
68	0.3000	0.2500	1.0000
69	0.3000	0.2000	1.0000
70	1.0000	1.0000	1.0000

Note that these retirement rates are currently applied to all active members. Due to the implementation of the new provisions and retirement eligibilities under Chapter 176, it is possible

that future experience may warrant a different set of assumptions for those members hired on or after April 2, 2012.

11. **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:

<u>Attained Age</u>	<u>General Employees</u>	<u>Police and Fire Employees</u>
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). A load was applied to the accidental disability liability to account for the additional benefit payable for each dependent child upon the member's disability. Loads of approximately 2% and 11.7% were developed for Group 1 and Group 4, respectively, taking into account the higher likelihood of Group 4 accidental disabilities at younger ages, thus the likelihood of Group 4 having more dependent children than Group 1 accidental disability retirees.

12. **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.

13. **Administrative Expenses**

No provision is made for anticipated administrative expenses.

EXHIBIT 7 – GLOSSARY OF TERMS:

This glossary summarizes the technical terms contained in this report.

1. Actuarial Accrued Liability

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

2. Actuarial Assumptions

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. Actuarial Cost Method

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

4. Actuarial Present Value

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. Forecast

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 City of Newton Contributory Retirement System as of January 1, 2013, 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. The valuation was performed by, and under the supervision of, actuaries who have experience in performing valuations for public retirement systems. We are both Members of the American Academy of Actuaries and meet the Academy's Qualification Standards to issue this Statement of Actuarial Opinion.

Buck Consultants, LLC



Philip Bonanno, FSA, EA, MAAA, FCA
Director, Consulting Actuary
Enrolled Actuary No. 11-06215



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Senior Consultant
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July 3, 2013

BREAKOUTS

Breakouts

Code	Department	Active Participants	Payroll	Normal Cost	Amortization of Unfunded Liability	FYE 2015 Appropriation
001	M.I.S.	8	\$ 703,101	\$ 15,517	\$ 86,420	\$ 101,937
002	Personnel	6	441,938	2,685	106,138	108,823
003	Human Services	8	549,663	20,025	95,470	115,495
005	Jackson Homestead	2	134,334	(5,458)	20,006	14,548
006	Executive	5	445,917	10,178	92,224	102,402
007	Comptroller	5	372,265	16,016	119,296	135,312
008	Retirement	2	187,490	(1,080)	33,084	32,004
009	Assessing	12	957,574	20,745	183,844	204,589
010	Purchasing	5	302,465	17,761	64,784	82,545
011	Treasury	9	533,425	23,556	85,563	109,119
012	Law	11	922,646	31,776	159,371	191,147
013	City Clerk	6	350,063	9,921	35,955	45,876
014	Clerk of the Board	4	258,062	11,224	54,488	65,712
015	Board of Aldermen (Group 1)	19	185,250	14,727	32,052	46,779
016	Building (Group 1)	23	1,440,911	42,736	331,207	373,943
016	Building (Group 2 & 4)	3	173,865	17,831	16,804	34,635
017	Elections	3	190,781	2,809	101,414	104,223
018	Planning	12	758,540	18,903	104,441	123,344
018F	Community Development	10	619,097	14,074	117,978	132,052
018P	Community Preservation	1	83,928	6,526	2,691	9,217
019	Fire (Group 2 & 4)	180	12,463,329	922,512	3,625,429	4,547,941
019A	Fire - Civilian Personnel	5	303,884	3,474	67,842	71,316
19S	Fire (Retired under "Starck" Bill)	0	-	-	198,138	198,138
020	Police (Group 2 & 4)	134	10,469,310	752,782	3,268,075	4,020,857
022	Sealer/Weights & Measures	1	69,459	3,537	5,621	9,158

Breakouts

Code	Department	Participants	Payroll	Normal Cost	Amortization of Unfunded Liability	FYE 2015 Appropriation
020A	Police - Civilian Personnel (Group 1)	38	\$ 2,125,537	\$ 2,709	\$ 184,573	\$ 187,282
021	Police School Traffic Supervisors	16	509,776	22,289	154,461	176,750
023	Inspectional Services (Group 1)	9	632,911	21,796	136,386	158,182
023	Inspectional Services (Group 2 & 4)	2	143,506	11,177	44,380	55,557
025	Health	39	2,216,814	139,668	316,108	455,776
026	Veterans	1	85,857	5,479	46,914	52,393
027	Library	60	3,019,994	78,871	580,673	659,544
028	School Custodian	85	4,437,418	137,159	888,288	1,025,447
029	School Cafeteria	1	23,289	1,287	145,643	146,930
030	School Teacher Aides (Group 1)	539	16,329,732	390,713	918,930	1,309,643
031	School Clerical	109	6,775,764	268,361	1,178,659	1,447,020
031A	School Committee	0	-	-	2,779	2,779
031C	School - Community Schools	2	137,382	11,164	11,210	22,374
032	Recreation	30	1,890,610	32,143	536,698	568,841
032A	Recreation - Arts in the Parks	1	45,699	4,339	262	4,601
033	Engineering	12	918,900	36,499	203,771	240,270
034	Public Works	106	5,720,628	204,228	1,385,945	1,590,173
034A	Storm Water Management	6	334,330	4,664	40,921	45,585
034B	Man Highway Crew	6	288,436	21,710	6,684	28,394
035	Water/Sewer	14	882,561	19,751	129,752	149,503
035S	Sewer Personnel (Group 1)	17	865,304	14,476	198,959	213,435
035W	Water Personnel	28	1,406,044	23,378	233,407	256,785
036	Newton Housing Authority	21	1,262,527	15,364	179,119	194,483
TOTAL		1616	\$ 82,970,316	\$ 3,440,002	\$ 16,532,857	\$ 19,972,859