

CITY OF NEWTON

SELF-INSURED WORKERS COMPENSATION PROGRAM

INDICATED LIABILITIES
AS OF JUNE 30, 2016

INDICATED LOSS FUNDING
FOR FISCAL YEAR JULY 1, 2016-17

November 8, 2016





November 8, 2016

Sent Via Email

Mr. David C. Wilkinson
Comptroller
City of Newton
Commonwealth Avenue and Walnut St.
Newton Centre, MA 02159

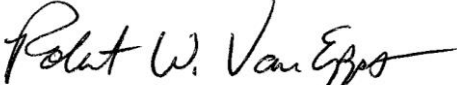
Dear David:


Enclosed you will find our report regarding the City of Newton's self-funded Workers Compensation program as of June 30, 2016.

The funding indications for the coming year have decreased slightly from last year's indications due to a decrease in non-pension claims offsetting a slight increase in pension claims funding. The indicated outstanding losses have decreased by \$123 thousand over last year's amount.

It has been a pleasure being of service again to the City. Please feel free to contact me if you have any questions regarding this report.

Sincerely,


Robert W. Van Epps, FCAS, MAAA
Managing Principal


Angela M. Taylor
Senior Actuarial Analyst

CITY OF NEWTON

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INTRODUCTION

Financial Risk Analysts, LLC has been retained by the City of Newton (the City) to provide actuarial services regarding its self-funded Workers Compensation program. The City has been fully self-funded on a pay as you go basis since at least 1956. Claims are handled by the City's Personnel Department which administers and processes benefits payments. Excess Workers Compensation coverage is not purchased and the City therefore assumes unlimited exposure to loss.

Financial Risk Analysts has been retained to provide indicated liability levels for the City's self-funded Workers Compensation losses as of June 30, 2016. In addition, we have been requested to provide an indicated contribution to the self-insurance fund for the one year period beginning July 1, 2016.

The estimates in this report were developed in accordance with the principals of the Casualty Actuarial Society and the applicable standards of the American Academy of Actuaries.

I, Robert W. Van Epps, am a Principal for Financial Risk Analysts, LLC. I am an independent consultant to the City. I am a Member of the American Academy of Actuaries and a Fellow of the Casualty Actuarial Society. I meet the qualification standards of the American Academy of Actuaries to issue this report.

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CONDITIONS & LIMITATIONS

GENERAL

Throughout this report and its exhibits the term "loss" is used to refer to both losses and allocated loss adjustment expenses (ALAE). ALAE provides for all expenses associated with the handling and settling of claims that can be directly attributable to a particular claim. Such expenses typically include claim handling fees, legal fees, investigatory expenses, medical reports, expert witness fees, rehabilitation costs, etc. No other costs associated with the City's self-insured Workers Compensation program other than losses and ALAE have been considered in this report.

DATA

In this report we have used historical data and other information provided to us by the City of Newton. This data consist primarily of historical loss and exposure information for the City. In addition we have relied on various oral representations made to us by employees of the City. Although the data supplied have been reviewed for purposes of reasonability, we have not independently audited or verified this information and we assume it to be accurate and complete.

The results of our analysis will be contingent upon the reliability of the information supplied to us and such reliability is the responsibility of the City. Should the City become aware of any significant discrepancies in the data reported to us we should be notified of such discrepancies and this report will be amended, if necessary.

We were provided with the following data:

- Accident year losses paid during fiscal years 1988-2016 for General Government employees. Losses paid prior to 1988 were not provided to us. The term "accident year" refers to the year in which the accident leading to the injury took place. "Losses" refers to benefits paid for either indemnity (lost wages) or medical benefits.

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- Data and information for long term disability and death cases. These are referred to as "pension cases".
- Covered payroll information by class code for Fiscal Years 1992-2016 and estimated payroll for fiscal year 2016.

We have made various assumptions to adjust for any missing or incomplete data. The City should recognize, however, that given the considerable breadth and scope of its self-funded program, the relatively limited data available increases the uncertainty associated with this actuarial study. The City does not fully establish case reserves for reported Workers Compensation cases. We encourage the City to establish procedures whereby such reserves are set up for all claims. This will considerably increase the accuracy of future actuarial studies and should also improve the City's ability to manage the self-insurance program.

In performing our analysis we also relied on data and information obtained from insurance industry sources to supplement the actual historical data provided to us by the City. Such data include loss development patterns, loss trend factors, loss payout patterns, and benefit level changes for Massachusetts Workers Compensation.

UNCERTAINTY

Actuarial projections, by their nature, are estimates of future contingent events that cannot be known with certainty. The ultimate liability of the City for its retained losses will be subject to events that have yet to occur such as the size of future Workers Compensation awards, future economic conditions, and the propensity for workers to file claims for Workers Compensation. No assumptions have been made in this report as to any extraordinary changes in the legal, social, or judicial environment that might affect future losses.

While we believe the results presented in this report are reasonable and reflect the use of accepted actuarial principles and standards of practice, it is possible that actual future loss results of the City will differ, perhaps materially, from those projected herein. In particular, as noted previously, the lack of case reserve estimates increases the degree of uncertainty in our loss estimates. In addition,

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since excess coverage is not purchased, the City is exposed to unlimited losses, which further increases the uncertainty associated with our projections. Nothing in this report should be construed as a warranty or guarantee as to the adequacy of the liability estimates contained herein.

ASSET QUALITY/INVESTMENT INCOME

No attempt has been made to evaluate the quality of the invested or non-invested assets supporting the loss and ALAE liabilities of the City. It has been assumed that the City's loss and ALAE liabilities are supported by creditworthy assets with minimal risk of default and/or capital loss.

In this report we present the pension case losses on a discounted basis. This is a generally accepted approach for purposes of establishing liabilities for claims with fixed and determinable payment levels. Discounted reserves reflect the time value of money and represent the present value as of June 30, 2016 of the expected future loss payments. For purposes of discounting the pension case loss estimates we used an annual interest rate of 5.0%, as selected by the City. It is important to note that interest/appreciation earned on the assets supporting these liabilities should be credited to the self-insurance fund. Alternatively, future years' contributions to the self-insurance fund can be increased to offset the interest amortization. Based on historic and current long term yields, and on the rates typically used in pension analyses, we believe this is a reasonable interest rate to use for pension claims. It should be noted, however, that we render no opinion on the ability of the City to earn at least 5.0% on the invested assets supporting the self-insurance liabilities.

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DISTRIBUTION & USE

This report is provided solely for the use of the City of Newton in evaluating its self-funded Workers Compensation liabilities as of June 30, 2016. A copy of this report may also be provided to the City's auditors with the proviso that the report is copied in its entirety and that each party receiving a copy of this report agrees to not distribute the report to any other third party.

Distribution of this report to parties other than those referenced above is not authorized without the express written consent of Financial Risk Analysts, LLC.

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SUMMARY OF FINDINGS

Indicated Liabilities as of June 30, 2016

Based upon our analysis, the table below summarized the indicated liability (unpaid losses) for the City's self-insured Workers Compensation program as of June 30, 2016:

General Government Workers Compensation Self Insured Liability As Of June 30, 2016	
Other Than Pension Cases	\$2,459,701
Pension Cases	\$5,840,516
Total Liability	\$8,300,217

The liability indication provided above is intended to provide for all General Government Workers Compensation losses incurred by the City from inception of its self-funded program through June 30, 2016 under the terms and conditions of its statutory obligations, but which have not been paid as of June 30, 2016.

The above liability is based on an actuarial central estimate and provides for what is commonly known as "expected losses." Expected losses represent the best estimate of the City's outstanding losses as of June 30, 2016 and reflect a statistical confidence level of approximately 53%. This means there is a 53% likelihood that actual losses will be less than or equal to expected losses.

Any actuarial estimate of loss reserves is subject to inherent variability. While expected losses represent the best estimate of losses to be incurred, actual losses in any given year can be expected to differ from expected losses. Funding at expected loss levels will entail a degree of risk (47%) that reserve levels will be exceeded. If the City wishes to fund at a level with a higher degree of

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statistical confidence, i.e. with a lower probability of reserves being inadequate, it may wish to fund at a higher loss level than that indicated by expected losses.

The liabilities indicated above include a provision for the following:

- Losses on claims that have occurred but that are not yet known and not yet reported to the City. These claims are part of the reserve provision known as *IBNR* or *Incurred But Not Reported*.
- Future loss development on known, recorded claims. This is also considered a part of the IBNR reserve.

Indicated Loss Funding For Fiscal Year 2016

As calculated on Exhibit 1.2, the table below summarizes our recommended loss funding for losses occurring during the fiscal period July 1, 2016 to June 30, 2017.

General Government Workers Compensation Indicated Loss Funding Fiscal Year July 1, 2016-17	
Other Than Pension Cases	1,303,778
Pension Cases	170,287
Total Loss Funding	1,474,065

The indicated funding level is based on estimated payroll as shown on Exhibit 1.2 of approximately \$49.8 million for General Government employees. The fiscal year 2017 recommended loss funding is intended to provide solely for losses occurring during the period July 1, 2016-2017. It does not include a provision to amortize any surplus or deficit in the fund balance as of June 30, 2016. The City may wish to make an adjustment to the extent a surplus or deficit exists. The loss funding also does not include any provisions for expenses related to the self-insured program. The City may want to consider any such expenses when determining the total cost of the program.

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As with the liability estimate, the funding indication is based on an actuarial central estimate and thus reflects an expected level of losses in the coming year. If the City wishes to fund at a level with a higher degree of statistical confidence, i.e. with a lower probability of the funding amount being inadequate to cover losses, it may wish to fund at a higher loss level than that indicated by expected losses.

As also shown on Exhibit 1.2 we are projecting an overall pure premium of \$3.02 for fiscal year 2017. A pure premium is defined as expected losses per unit of exposure. Losses are defined as previously noted. For Workers Compensation the standard exposure unit is \$100 of payroll. No other costs or expenses associated with the operation of the self-funded program are included in our estimates.

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ANALYSIS

BACKGROUND INFORMATION

This analysis reviews the City of Newton's self-funded Workers Compensation program as of June 30, 2016. The City has been self-funded for a considerable period of time. The actual inception date is unknown. The data provided to us include claims with date of loss going back to 1956. Our analysis therefore includes loss estimates for accident years 1956 through 2016. We have assumed no liability exists for years prior to 1956.

As mentioned previously, the data provided to us does not include any payments made on claims closed prior to 1988 nor does it include payments made prior to 1988 on all other claims.

ASSUMPTIONS AND METHODOLOGY

Indicated Outstanding Losses

We have used two commonly applied actuarial methodologies to estimate the City's outstanding losses. These are the paid loss development and the Bornhuetter-Ferguson paid loss method. From the results of these approaches final loss selections were made. The following is a detailed description of each of the methodologies used.

- **Paid Loss Development Method**

The paid loss development method is a method in which paid losses are projected to an ultimate level based on historical development patterns. An analysis of the changes in accident year incurred losses between various valuation points provides a basis for estimating future changes. Paid losses are projected to an ultimate level based on historical paid loss development patterns. This method assumes that loss settlement and payment patterns have remained reasonably stable over time.

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Paid loss development patterns have been derived from the City's own historical loss experience supplemented with insurance industry experience. Loss development factors are shown on Exhibits 5.1-5.3.

The actual historical loss experience of the City is shown on Exhibits 5.1-5.3. Because medical only claims are paid and closed in a relatively short period of time, we have been able to use the payment history provided to us by the City as the basis for making medical only claims projections.

For claims with indemnity experience displayed on Exhibits 5.1-5.2, we have had to adjust the losses to reflect the missing payments made prior to 1988. The losses have been adjusted using historical experience for the City and the industry. Adjusted losses are presented on Exhibits 5.1 and 5.2 and these are used for purposes of selecting loss development factors.

- **Bornhuetter-Ferguson Paid Loss Method**

This approach is essentially a credibility weighted average of two other reserving methods; the paid loss development method and the expected loss method. The expected loss method simply sets the indicated reserve equal to the difference between expected losses and paid losses. It produces very stable results but fails to incorporate actual results as they emerge.

The Bornhuetter-Ferguson method blends the paid loss development method and the expected loss method by splitting expected losses into two distinct pieces; expected paid losses and expected unpaid losses. As an accident year matures, the expected paid losses are replaced with actual reported losses plus expected unreported losses. Thus, as the year matures, the initial expected incurred loss estimate becomes less important while the actual paid loss experience increases in importance. In order to use this method, one must estimate both the initial expected losses and the expected loss payment pattern.

The Bornhuetter-Ferguson methods are displayed on Exhibits 3.1 and 3.2.

We estimate initial expected losses by applying an expected pure premium (loss cost) to exposure (payroll) for each year. Pure premium amounts are determined on Exhibits 3.3 and

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3.4 for indemnity and medical only respectively. They are based on results for the more recent years projected to current benefit and trend levels. For older year, we use pure premium amounts based on longer term averages or prior analyses.

Expected loss payment patterns are developed from the paid loss development factors on Exhibits 5.1 and 5.2.

Ultimate losses are selected on Exhibit 2.1 and 2.2. We generally relied on the results of the Bornhuetter-Ferguson approach for our selections. The more recent years will be the most uncertain ones and will exhibit the greatest volatility. Use of the Bornhuetter-Ferguson approach will dampen this volatility and should produce more stable and reliable results.

Note that for both methods adjusted paid losses rather than actual paid losses have been used for indemnity. Our results therefore produce a valid estimate of ultimate losses for a particular year even though payments made prior to 1988 are missing.

Indicated outstanding losses are determined by subtracting paid losses from the selected ultimate losses for indemnity and medical only.

Pension Cases

Pension cases have been analyzed separately on Exhibit 2.3. US Life Tables 2010 Vital Statistics for Males and Females have been used to determine annuity values for these claims using a 5.0% annual rate of interest. Amortizing such claims for mortality and interest is a common practice when establishing liabilities for these types of claims.

It has been assumed for the permanent total and death claims that benefits will be payable for life. Claimants currently receiving temporary disability benefits have also been reserved as permanent total claims and payable for life as requested by the City because the claimants are not expected to return to work.

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Effective July 1, 1999 the City elected to opt out of the Massachusetts Workers Compensation Trust Fund. As a result the City's liability for pension claims increased significantly. Prior to July 1, 1999, the City's net liability for pension claims was limited to the base benefit for each claim. The base benefit is the benefit established at the time of injury. It is a function of the injured worker's salary at the time of injury.

Benefits for pension claims are subject to annual cost of living adjustments. As a participant in the Trust Fund the City was not responsible for paying cost of living adjustments. By opting out the City is now responsible for paying a benefit equal to the initial base benefit plus the accumulated cost of living adjustments. In addition, the City will be responsible for paying future cost of living adjustments. We used a 3.4% annual cost of living adjustment (COLA) in the pension claim calculation. Offsetting this somewhat is the fact that the City will no longer be subject to assessment by the Trust Fund.

Fiscal Year 2016-17 Funding

Exhibit 1.2 displays recommended funding separately for non-pension indemnity and medical claims for the July 1, 2016-2017 period. Funding is determined by multiplying the pure premium in column (1) by the covered payroll in column (2). The City may wish to adjust the indicated funding if actual payroll amounts are different from those displayed on Exhibit 1.2. A provision for pension claims has also been included based on the City's historical experience for these types of claims.

Based on the payroll data provided to us, we are indicating funding of \$1,474,065 for General Government employees. Overall, our analysis produces indicated funding of \$2.96 per \$100 of payroll for General Government employees. This consists of \$2.50 for non-pension indemnity claims, \$0.12 for medical only claims, and \$0.34 for pension claims.

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WORKERS COMPENSATION
 INDICATED LIABILITY
 AS OF JUNE 30, 2016
 SUMMARY OF RESULTS

Indicated Liability As of June 30, 2016	
GENERAL GOVERNMENT	
A. Other Than Pension Claims	\$2,459,701
B. Pension Claims	\$5,840,516
C. Total	<u>\$8,300,217</u>

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- A. Exhibits 2.1 and 2.2
 - B. Exhibit 2.3

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WORKERS COMPENSATION
INDICATED FUNDING
FISCAL YEAR 2017

	<u>Expected Loss Cost</u> (1)	<u>Exposure (Payroll \$00)</u> (2)	<u>Expected Losses</u> (3)=(1)x(2)
<u>Non-Pension Claims</u>			
Indemnity	\$2.50	\$497,625	1,244,063
<u>Medical Only</u>	<u>\$0.12</u>	\$497,625	<u>59,715</u>
Total	\$2.62		1,303,778
Pension Claims			170,287
TOTAL	\$2.96		1,474,065

(1) Exhibits 3.3 and 3.4

(2) Exhibit 6

(3) Pension provision based on analysis of average annual pension claims

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WORKERS COMPENSATION
INDEMNITY
INDICATED OUTSTANDING LOSSES
FISCAL YEARS 1988-2016

Fiscal Year	Paid Losses	Indicated Ultimate Losses By Method		Selected Ultimate Losses	Indicated Outstanding Losses (6)=(5)-(2)
		Paid LDF	Paid Born-Ferg		
(1)	(2)	(3)	(4)	(5)	(6)
1988	\$731,803		\$731,803	\$731,803	\$0
1989	550,947		550,947	550,947	0
1990	403,358		403,358	403,358	0
1991	1,043,766		1,043,766	1,043,766	0
1992	525,993		525,993	525,993	0
1993	361,292		361,292	361,292	0
1994	362,024		362,024	362,024	0
1995	523,834		523,834	523,834	0
1996	356,685		356,685	356,685	0
1997	727,631		727,631	727,631	0
1998	429,650	429,650	429,650	429,650	0
1999	310,631	310,631	310,631	310,631	0
2000	691,332	691,332	691,332	691,332	0
2001	507,449	507,449	507,449	507,449	0
2002	612,851	612,851	612,851	612,851	0
2003	587,061	587,648	587,764	587,764	703
2004	782,874	785,222	784,885	784,885	2,011
2005	565,671	569,065	570,058	570,058	4,387
2006	424,518	428,763	432,126	432,126	7,608
2007	498,398	505,874	510,696	510,696	12,298
2008	496,667	508,091	516,144	516,144	19,477
2009	891,153	925,017	923,819	923,819	32,666
2010	486,258	514,947	541,808	541,808	55,550
2011	727,525	801,005	826,422	826,422	98,897
2012	681,743	788,095	840,342	840,342	158,599
2013	813,378	1,011,029	1,068,456	1,068,456	255,078
2014	987,588	1,411,263	1,369,879	1,369,879	382,291
2015	300,064	514,611	800,343	800,343	500,279
2016	228,735	882,688	1,131,613	1,131,613	902,878
Total	\$16,610,879		\$19,043,601	\$19,043,601	\$2,432,722

(2),(4) Exhibit 3.1

(3) Exhibit 4.1

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WORKERS COMPENSATION
MEDICAL ONLY
INDICATED OUTSTANDING LOSSES

Fiscal Year	Paid Losses	Indicated Ultimate Losses By Method		Selected Ultimate Losses	Indicated Outstanding Losses (6)=(5)-(2)
		Paid LDF	Paid Born-Ferg		
(1)	(2)	(3)	(4)	(5)	
1992	\$50,185	\$50,185	\$50,185	\$50,185	\$0
1993	55,048	55,048	55,048	55,048	0
1994	41,715	41,715	41,715	41,715	0
1995	30,253	30,253	30,253	30,253	0
1996	38,256	38,256	38,256	38,256	0
1997	52,656	52,656	52,656	52,656	0
1998	21,654	21,654	21,654	21,654	0
1999	26,186	26,186	26,186	26,186	0
2000	29,828	29,828	29,828	29,828	0
2001	52,518	52,518	52,518	52,518	0
2002	57,813	57,813	57,813	57,813	0
2003	48,175	48,175	48,175	48,175	0
2004	97,765	97,765	97,765	97,765	0
2005	54,109	54,109	54,109	54,109	0
2006	45,839	45,839	45,839	45,839	0
2007	63,186	63,186	63,186	63,186	0
2008	54,171	54,171	54,171	54,171	0
2009	42,316	42,316	42,316	42,316	0
2010	18,078	18,078	18,078	18,078	0
2011	40,683	40,764	40,800	40,800	117
2012	39,942	40,142	40,232	40,232	290
2013	57,647	58,223	58,262	58,262	615
2014	52,822	54,407	54,683	54,683	1,861
2015	71,090	76,138	74,773	74,773	3,683
2016	32,363	50,260	52,776	52,776	20,413
TOTAL	\$1,174,298	\$1,199,685	\$1,201,277	\$1,201,277	\$26,979

(2),(4) Exhibit 3.2

(3) Exhibit 4.2

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WORKERS COMPENSATION
PENSION CLAIMS
ESTIMATE OF PRESENT VALUE OF OUTSTANDING LOSSES

Permanent Total Disability Claims						
<u>Employee Number</u> (1)	<u>Sex</u> (2)	<u>Date Of Accident</u> (3)	<u>Nearest Age</u> (4)	<u>Net Weekly Benefit</u> (5)	<u>Annuity Factor</u> (6)	<u>Present Value Of Benefit</u> (7)=52x(5)x(6)
9910272	M	3/27/2012	63	\$723.16	15.625	587,568
124849	M	2/7/1989	65	\$900.61	14.580	682,806
9914136	M	4/22/2003	64	\$702.27	15.102	551,495
9910435	M	9/23/2008	67	\$954.99	13.545	672,638
14276	M	3/12/1981	89	\$1,243.16	4.028	260,387
9913147	F	4/28/2010	65	\$273.86	16.468	234,516
12830	M	9/26/1990	72	\$1,217.69	11.010	697,152
9915437	M	11/12/2004	66	\$703.27	14.061	514,211
14219	M	7/23/1984	90	\$1,085.12	3.759	212,106
9911003	M	1/4/2011	69	\$808.26	12.522	526,294
TOTAL						\$4,939,173

Widow Claims						
<u>Employee Number</u> (1)	<u>Sex</u> (2)	<u>Date Of Accident</u> (3)	<u>Nearest Age</u> (4)	<u>Net Weekly Benefit</u> (5)	<u>Annuity Factor</u> (6)	<u>Present Value Of Benefit</u> (7)
12443	F	11/25/1977	78	\$879.47	9.487	433,864
TOTAL						\$433,864

Temporary Disability Claims*						
<u>(1)</u>	<u>Sex</u> (2)	<u>Date Of Accident</u> (3)	<u>Nearest Age</u> (4)	<u>Net Weekly Benefit</u> (5)	<u>Annuity Factor</u> (6)	<u>Present Value Of Benefit</u> (7)
9911271	M	12/4/2012	50	\$708.96		129,638
9924937	M	5/1/2007	51	\$635.32		119,168
9921096	F	3/24/2004	66	\$210.87		26,630
992192	M	7/8/2011	56	\$546.69		78,723
9913037	M	10/21/2011	63	\$542.20		113,320
TOTAL						\$467,479

GRAND TOTAL PENSION CASES	\$5,840,516
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(1) *Guidance for duration of payments for Temporary Disability Claims provided by the City.

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WORKERS COMPENSATION
INDEMNITY
PROJECTION OF ULTIMATE LOSSES
FISCAL YEARS 1988-2016
BORNHUETTER-FERGUSON PAID LOSS METHOD

Fiscal Year	Exposure	Initial	Initial	Expected	Paid Losses		Expected	Expected	Indicated	Indicated
		Expected Pure Premium			Expected Losses	Actual				
(1)	(2)	(3)	(4)=(2)x(3)	(5)	(6)	(7)=(4)x(5)	(8)=1.0-(5)	(9)=(8)x(4)	(10)=(6)+(9)	(11)=(10)/(2)
1988	\$207,265	\$4.90	\$1,015,599	100.0%	\$731,803	\$1,015,599	0.0%	\$0	\$731,803	\$3.53
1989	217,129	5.16	1,120,386	100.0%	550,947	1,120,386	0.0%	0	550,947	2.54
1990	220,084	5.39	1,186,253	100.0%	403,358	1,186,253	0.0%	0	403,358	1.83
1991	222,813	5.00	1,114,065	100.0%	1,043,766	1,114,065	0.0%	0	1,043,766	4.68
1992	226,774	4.63	1,049,964	100.0%	525,993	1,049,964	0.0%	0	525,993	2.32
1993	233,157	4.74	1,105,164	100.0%	361,292	1,105,164	0.0%	0	361,292	1.55
1994	253,882	4.22	1,071,382	100.0%	362,024	1,071,382	0.0%	0	362,024	1.43
1995	256,823	4.41	1,132,589	100.0%	523,834	1,132,589	0.0%	0	523,834	2.04
1996	270,263	4.04	1,091,863	100.0%	356,685	1,091,863	0.0%	0	356,685	1.32
1997	282,380	2.58	728,540	100.0%	727,631	728,540	0.0%	0	727,631	2.58
1998	287,177	2.73	783,993	100.0%	429,650	783,993	0.0%	0	429,650	1.50
1999	309,695	2.56	792,819	100.0%	310,631	792,819	0.0%	0	310,631	1.00
2000	314,406	1.85	581,651	100.0%	691,332	581,651	0.0%	0	691,332	2.20
2001	322,083	1.89	608,737	100.0%	507,449	608,737	0.0%	0	507,449	1.58
2002	354,569	1.80	638,224	100.0%	612,851	638,224	0.0%	0	612,851	1.73
2003	362,190	1.94	702,649	99.9%	587,061	701,946	0.1%	703	587,764	1.62
2004	362,318	1.85	670,288	99.7%	782,874	668,277	0.3%	2,011	784,885	2.17
2005	365,553	2.00	731,106	99.4%	565,671	726,719	0.6%	4,387	570,058	1.56
2006	378,519	2.01	760,823	99.0%	424,518	753,215	1.0%	7,608	432,126	1.14
2007	405,875	2.02	819,868	98.5%	498,398	807,570	1.5%	12,298	510,696	1.26
2008	415,644	2.13	885,322	97.8%	496,667	865,845	2.2%	19,477	516,144	1.24
2009	414,492	2.13	882,868	96.3%	891,153	850,202	3.7%	32,666	923,819	2.23
2010	420,324	2.36	991,965	94.4%	486,258	936,415	5.6%	55,550	541,808	1.29
2011	416,654	2.58	1,074,967	90.8%	727,525	976,070	9.2%	98,897	826,422	1.98
2012	413,666	2.84	1,174,811	86.5%	681,743	1,016,212	13.5%	158,599	840,342	2.03
2013	438,957	2.98	1,308,092	80.5%	813,378	1,053,014	19.5%	255,078	1,068,456	2.43
2014	458,382	2.78	1,274,302	70.0%	987,588	892,011	30.0%	382,291	1,369,879	2.99
2015	465,004	2.58	1,199,710	58.3%	300,064	699,431	41.7%	500,279	800,343	1.72
2016	477,827	2.55	1,218,459	25.9%	228,735	315,581	74.1%	902,878	1,131,613	2.37
Total	\$9,773,905		\$27,716,459		\$16,610,879	\$25,283,737		\$2,432,722	\$19,043,601	\$1.95

(2) Exhibit 6

(3) Exhibit 3.3 for 2015 and 2016. Prior years from 6/30/15 analysis.

(5) Reciprocal of cumulative factors from Exhibits 5.1 and 5.2.

CITY OF NEWTON

WORKERS COMPENSATION
 MEDICAL
 PROJECTION OF ULTIMATE LOSSES
 FISCAL YEARS 1992-2016
 BORNHUETTER-FERGUSON PAID LOSS METHOD

Fiscal Year	Exposure	Initial Expected Pure Premium	Initial Expected Losses	Expected Percent of Losses Paid	Paid Losses		Expected Percent of Losses Unpaid	Expected Unpaid Losses	Indicated Ultimate Losses	Indicated Ultimate Pure Premium
					Actual	Expected				
(1)	(2)	(3)	(4)=(2)x(3)	(5)	(6)	(7)=(4)x(5)	(8)=1.0-(5)	(9)=(8)x(4)	(10)=(6)+(9)	(11)=(10)/(2)
1992	\$226,774	\$0.14	\$31,748	100.0%	\$50,185	\$31,748	0.0%	\$0	\$50,185	\$0.22
1993	233,157	0.14	32,642	100.0%	55,048	32,642	0.0%	0	55,048	0.24
1994	253,882	0.14	35,543	100.0%	41,715	35,543	0.0%	0	41,715	0.16
1995	256,823	0.14	35,955	100.0%	30,253	35,955	0.0%	0	30,253	0.12
1996	270,263	0.14	37,837	100.0%	38,256	37,837	0.0%	0	38,256	0.14
1997	282,380	0.14	39,533	100.0%	52,656	39,533	0.0%	0	52,656	0.19
1998	287,177	0.14	40,205	100.0%	21,654	40,205	0.0%	0	21,654	0.08
1999	309,695	0.14	43,357	100.0%	26,186	43,357	0.0%	0	26,186	0.08
2000	314,406	0.14	44,017	100.0%	29,828	44,017	0.0%	0	29,828	0.09
2001	322,083	0.14	45,092	100.0%	52,518	45,092	0.0%	0	52,518	0.16
2002	354,569	0.14	49,640	100.0%	57,813	49,640	0.0%	0	57,813	0.16
2003	362,190	0.14	50,707	100.0%	48,175	50,707	0.0%	0	48,175	0.13
2004	362,318	0.14	50,725	100.0%	97,765	50,725	0.0%	0	97,765	0.27
2005	365,553	0.14	51,177	100.0%	54,109	51,177	0.0%	0	54,109	0.15
2006	378,519	0.14	52,993	100.0%	45,839	52,993	0.0%	0	45,839	0.12
2007	405,875	0.14	56,823	100.0%	63,186	56,823	0.0%	0	63,186	0.16
2008	415,644	0.14	58,190	100.0%	54,171	58,190	0.0%	0	54,171	0.13
2009	414,492	0.14	58,029	100.0%	42,316	58,029	0.0%	0	42,316	0.10
2010	420,324	0.14	58,845	100.0%	18,078	58,845	0.0%	0	18,078	0.04
2011	416,654	0.14	58,332	99.8%	40,683	58,215	0.2%	117	40,800	0.10
2012	413,666	0.14	57,913	99.5%	39,942	57,623	0.5%	290	40,232	0.10
2013	438,957	0.14	61,454	99.0%	57,647	60,839	1.0%	615	58,262	0.13
2014	458,382	0.14	64,173	97.1%	52,822	62,312	2.9%	1,861	54,683	0.12
2015	465,004	0.12	55,800	93.4%	71,090	52,117	6.6%	3,683	74,773	0.16
2016	477,827	0.12	57,339	64.4%	32,363	36,926	35.6%	20,413	52,776	0.11
Total	\$8,906,614		\$1,228,069		\$1,174,298	\$1,201,090		\$26,979	\$1,201,277	\$0.13

(2) Exhibit 6

(3) Exhibit 3.4 for 2015 and 2016. Prior years from 6/30/15 analysis.

(5) Reciprocal of cumulative factors from Exhibit 5.3.

CITY OF NEWTON

WORKERS COMPENSATION
INDEMNITY
PROJECTED PURE PREMIUMS

Fiscal Year (1)	Initial Projected Ultimate Losses (2)	Exposure (3)	Developed Pure Premium (4)=(2)/(3)	Benefit Level Adjust. Factor (5)	Trend Factor To 1/1/17 (6)	On Level Pure Premium (7)
2002	612,851	354,569	1.73	1.091	0.749	1.41
2003	587,648	362,190	1.62	1.089	0.764	1.35
2004	785,222	362,318	2.17	1.089	0.779	1.84
2005	569,065	365,553	1.56	1.082	0.794	1.34
2006	428,763	378,519	1.13	1.071	0.809	0.98
2007	505,874	405,875	1.25	1.059	0.825	1.09
2008	508,091	415,644	1.22	1.048	0.841	1.07
2009	925,017	414,492	2.23	1.035	0.857	1.98
2010	514,947	420,324	1.23	1.032	0.874	1.11
2011	801,005	416,654	1.92	1.034	0.891	1.77
2012	788,095	413,666	1.91	1.026	0.908	1.78
2013	1,011,029	438,957	2.30	1.017	0.926	2.17
2014	1,411,263	458,382	3.08	1.014	0.944	2.95
2015	514,611	465,004	1.11	1.008	0.962	1.08
2016	882,688	477,827	1.85	1.000	0.981	1.81
(8) MEAN						1.58
(9) LATEST 5						1.96
(10) LATEST 3						1.95
(11) BEST 3						1.92
(12) SELECTED						2.50

FORECASTED PURE PREMIUM			
	<u>Selected</u> (13)	<u>Adjustment Factor</u> (14)	<u>Forecast Pure Premium</u> (15)
2015	2.50	0.969	2.58
2016	2.50	0.981	2.55
2017	2.50	1.000	2.50

(2) Exhibit 4.1
(3) Exhibit 6
(5) Based on Massachusetts benefit level changes
(6) -1.9% annual trend based on 2016 WCRIB MA filing
(7) (4) x (5) x (6)
(14) (5) x (6)
(15) (13)/(14)

CITY OF NEWTON

WORKERS COMPENSATION
 MEDICAL ONLY
 PROJECTED PURE PREMIUMS

Fiscal Year (1)	Initial Projected Ultimate Losses (2)	Exposure (3)	Developed Pure Premium (4)=(2)/(3)	Benefit Level Adjust. Factor (5)	Trend Factor To 1/1/17 (6)	On Level Pure Premium (7)
2002	57,813	354,569	0.16	1.101	0.762	0.13
2003	48,175	362,190	0.13	1.068	0.776	0.11
2004	97,765	362,318	0.27	1.046	0.790	0.22
2005	54,109	365,553	0.15	1.034	0.804	0.12
2006	45,839	378,519	0.12	1.032	0.819	0.10
2007	63,186	405,875	0.16	1.032	0.834	0.14
2008	54,171	415,644	0.13	1.032	0.849	0.11
2009	42,316	414,492	0.10	1.024	0.865	0.09
2010	18,078	420,324	0.04	1.000	0.881	0.04
2011	40,764	416,654	0.10	1.000	0.897	0.09
2012	40,142	413,666	0.10	1.000	0.913	0.09
2013	58,223	438,957	0.13	1.000	0.930	0.12
2014	54,407	458,382	0.12	1.000	0.947	0.11
2015	76,138	465,004	0.16	1.000	0.964	0.15
2016	50,260	477,827	0.11	1.000	0.982	0.11
(8) MEAN						0.12
(9) LATEST 5						0.12
(10) LATEST 3						0.12
(11) BEST 3						0.11
(12) SELECTED						0.12

FORECASTED PURE PREMIUM			
	Selected (13)	Adjustment Factor (14)	Forecast Pure Premium (15)
2015	0.12	0.964	0.12
2016	0.12	0.982	0.12
2017	0.12	1.000	0.12

(2) Exhibit 4.2
 (3) Exhibit 6
 (5) Based on Massachusetts benefit level changes
 (6) -1.8% annual trend based on 2016 WCRIB MA filing
 (7) (4) x (5) x (6)
 (14) (5) x (6)
 (15) (13)/(14)

CITY OF NEWTON

WORKERS COMPENSATION
 INDEMNITY
 PROJECTED ULTIMATE LOSSES
 PAID LOSS DEVELOPMENT METHOD

<u>Fiscal Year</u> (1)	<u>Paid Losses</u> (2)	<u>Paid LDF</u> (3)	<u>Initial Projected Ultimate Losses</u> (4)=(2)x(3)
1998	429,650	1.000	429,650
1999	310,631	1.000	310,631
2000	691,332	1.000	691,332
2001	507,449	1.000	507,449
2002	612,851	1.000	612,851
2003	587,061	1.001	587,648
2004	782,874	1.003	785,222
2005	565,671	1.006	569,065
2006	424,518	1.010	428,763
2007	498,398	1.015	505,874
2008	496,667	1.023	508,091
2009	891,153	1.038	925,017
2010	486,258	1.059	514,947
2011	727,525	1.101	801,005
2012	681,743	1.156	788,095
2013	813,378	1.243	1,011,029
2014	987,588	1.429	1,411,263
2015	300,064	1.715	514,611
2016	228,735	3.859	882,688
TOTAL	11,023,546		12,785,231

(2),(3) Exhibits 5.1 and 5.2

CITY OF NEWTON

WORKERS COMPENSATION
 MEDICAL ONLY
 PROJECTED ULTIMATE LOSSES
 PAID LOSS DEVELOPMENT METHOD

<u>Fiscal Year</u> (1)	<u>Paid Losses</u> (2)	<u>Paid LDF</u> (3)	<u>Initial Projected Ultimate Losses</u> (4)=(2)x(3)
1992	50,185	1.000	50,185
1993	55,048	1.000	55,048
1994	41,715	1.000	41,715
1995	30,253	1.000	30,253
1996	38,256	1.000	38,256
1997	52,656	1.000	52,656
1998	21,654	1.000	21,654
1999	26,186	1.000	26,186
2000	29,828	1.000	29,828
2001	52,518	1.000	52,518
2002	57,813	1.000	57,813
2003	48,175	1.000	48,175
2004	97,765	1.000	97,765
2005	54,109	1.000	54,109
2006	45,839	1.000	45,839
2007	63,186	1.000	63,186
2008	54,171	1.000	54,171
2009	42,316	1.000	42,316
2010	18,078	1.000	18,078
2011	40,683	1.002	40,764
2012	39,942	1.005	40,142
2013	57,647	1.010	58,223
2014	52,822	1.030	54,407
2015	71,090	1.071	76,138
2016	32,363	1.553	50,260
TOTAL	1,174,298		1,199,685

(2),(3) Exhibit 5.3

CITY OF NEWTON

WORKERS COMPENSATION
INDEMNITY
LOSS DEVELOPMENT FACTORS

Fiscal Year	Adjusted Cumulative Paid Losses & ALAE Valued As Of (Months)									
	12	24	36	48	60	72	84	96	108	
1981										13,014
1982								50,271		79,896
1983							85,974	151,711		190,854
1984						104,034	131,996	136,739		141,551
1985					47,779	73,645	97,884	112,151		145,836
1986				162,488	213,185	253,463	291,687	355,426		372,283
1987			133,598	187,011	244,851	257,161	257,537	293,215		294,936
1988		309,658	422,764	500,503	574,645	703,346	731,742	731,742		731,742
1989	125,123	302,209	400,338	495,906	533,152	543,317	543,317	543,317		543,317
1990	61,057	136,259	240,897	345,480	396,190	399,793	401,285	401,609		402,383
1991	251,479	533,452	803,595	949,121	983,668	1,004,961	1,024,987	1,034,376		1,043,766
1992	200,283	389,798	473,625	508,353	523,441	525,908	525,991	525,991		525,993
1993	236,354	328,415	357,812	361,292	361,292	361,292	361,292	361,292		361,292
1994	256,041	307,371	323,286	336,139	349,228	362,024	362,024	362,024		362,024
1995	252,218	364,159	408,641	433,274	453,377	482,933	487,876	489,671		489,857
1996	140,989	274,415	297,650	313,820	326,365	338,770	351,657	352,487		355,159
1997	196,695	406,077	486,522	531,195	593,981	655,648	684,784	695,698		695,777
1998	226,291	423,091	425,054	425,054	425,054	429,643	429,643	429,643		429,643
1999	128,232	265,674	316,163	316,163	316,195	316,195	316,195	316,195		316,195
2000	179,744	347,949	437,667	506,255	563,350	573,221	585,234	628,446		651,134
2001	256,216	437,942	494,943	498,590	505,217	506,687	506,773	506,773		506,773
2002	236,017	393,215	475,848	568,033	568,033	596,506	596,506	603,514		604,114
2003	228,774	405,223	433,485	578,897	580,465	586,601	586,748	586,748		587,061
2004	338,477	480,882	563,330	643,668	694,186	755,783	782,021	782,021		782,021
2005	188,127	437,560	513,875	526,334	563,531	564,858	565,101	565,101		565,259
2006	234,892	421,979	422,760	422,760	423,686	423,686	423,686	423,686		423,686
2007	141,177	294,160	436,185	477,224	494,835	496,742	498,256	498,256		498,398
2008	296,585	430,388	465,051	493,648	493,648	493,648	493,648	491,505		496,667
2009	242,860	568,388	729,978	844,690	874,497	875,028	876,273	891,153		
2010	182,173	429,747	441,941	448,207	448,207	448,207	486,258			
2011	319,794	648,838	707,668	752,542	726,135	727,525				
2012	316,328	467,599	471,203	563,095	681,743					
2013	307,568	556,820	695,113	813,378						
2014	438,693	926,154	987,588							
2015	120,961	300,064								
2016	228,735									

Fiscal Year	Development Factors									
	12-24	24-36	36-48	48-60	60-72	72-84	84-96	96-108	108-120	
1981										1.577
1982								1.589		1.327
1983							1.765	1.258		1.221
1984						1.269	1.036	1.035		1.243
1985					1.541	1.329	1.146	1.300		1.034
1986				1.312	1.189	1.151	1.219	1.047		1.000
1987			1.400	1.309	1.050	1.001	1.139	1.006		1.006
1988		1.365	1.184	1.148	1.224	1.040	1.000	1.000		1.000
1989	2.415	1.325	1.239	1.075	1.019	1.000	1.000	1.000		1.000
1990	2.232	1.768	1.434	1.147	1.009	1.004	1.001	1.002		1.000
1991	2.121	1.506	1.181	1.036	1.022	1.020	1.009	1.009		1.000
1992	1.946	1.215	1.073	1.030	1.005	1.000	1.000	1.000		1.000
1993	1.390	1.090	1.010	1.000	1.000	1.000	1.000	1.000		1.000
1994	1.200	1.052	1.040	1.039	1.037	1.000	1.000	1.000		1.000
1995	1.444	1.122	1.060	1.046	1.065	1.010	1.004	1.000		1.000
1996	1.946	1.085	1.054	1.040	1.038	1.038	1.002	1.008		1.004
1997	2.065	1.198	1.092	1.118	1.104	1.044	1.016	1.000		1.022
1998	1.870	1.005	1.000	1.000	1.011	1.000	1.000	1.000		1.000
1999	2.072	1.190	1.000	1.000	1.000	1.000	1.000	1.000		1.000
2000	1.936	1.258	1.157	1.113	1.018	1.021	1.074	1.036		1.018
2001	1.709	1.130	1.007	1.013	1.003	1.000	1.000	1.000		1.000
2002	1.666	1.210	1.194	1.000	1.050	1.000	1.012	1.001		1.013
2003	1.771	1.070	1.335	1.003	1.011	1.000	1.000	1.001		1.000
2004	1.421	1.171	1.143	1.078	1.089	1.035	1.000	1.000		1.000
2005	2.326	1.174	1.024	1.071	1.002	1.000	1.000	1.000		1.000
2006	1.796	1.002	1.000	1.002	1.000	1.000	1.000	1.000		1.002
2007	2.084	1.483	1.094	1.037	1.004	1.003	1.000	1.000		1.000
2008	1.451	1.081	1.061	1.000	1.000	1.000	0.996	1.011		
2009	2.340	1.284	1.157	1.035	1.001	1.001	1.017			
2010	2.359	1.028	1.014	1.000	1.000	1.085				
2011	2.029	1.091	1.063	0.965	1.002					
2012	1.478	1.008	1.195	1.211						
2013	1.810	1.248	1.170							
2014	2.111	1.066								
2015	2.481									
Mean	1.906	1.194	1.125	1.068	1.055	1.039	1.053	1.048		1.034
3 Yr. Mean	2.134	1.107	1.143	1.059	1.001	1.029	1.004	1.004		1.001
5 Yr. Mean	1.982	1.088	1.120	1.042	1.001	1.018	1.003	1.002		1.000
Best 3	1.983	1.062	1.130	1.012	1.001	1.001	1.000	1.000		1.000
Selected	2.250	1.200	1.150	1.075	1.050	1.040	1.020	1.015		1.008
Cumulative	3.859	1.715	1.429	1.243	1.156	1.101	1.059	1.038		1.023

CITY OF NEWTON

**WORKERS COMPENSATION
INDEMNITY
LOSS DEVELOPMENT FACTORS**

Fiscal Year	Adjusted Cumulative Paid Losses & ALAE												
	Valued As Of (Months)												
	120	132	144	156	168	180	192	204	216	228	240	252	264
1978			21,834	21,834	21,834	21,834	21,834	21,834	21,834	21,834	21,834	21,834	21,834
1979		48,767	73,098	110,017	132,877	144,057	145,357	145,357	145,357	145,357	145,357	145,357	145,357
1980	35,296	54,135	73,763	94,286	110,435	110,435	110,435	110,435	110,435	110,435	110,435	110,435	110,435
1981	20,529	27,144	33,759	40,405	42,640	44,884	47,119	49,354	51,589	53,824	56,059	58,294	60,529
1982	106,029	122,456	140,818	159,999	160,887	160,887	160,887	160,887	160,887	160,887	160,887	160,887	160,887
1983	233,093	249,208	260,364	269,481	278,497	287,513	298,111	302,775	307,239	311,703	316,167	320,631	325,295
1984	175,886	181,486	185,599	186,549	186,549	186,549	186,549	186,549	186,549	186,549	186,549	186,549	186,549
1985	150,852	150,852	150,852	150,852	150,852	150,852	150,852	150,852	150,852	150,852	150,852	150,852	150,852
1986	372,283	372,283	372,283	372,283	372,283	372,283	372,283	372,283	372,283	372,283	372,283	372,283	372,283
1987	296,657	297,654	297,654	297,654	297,654	297,654	297,654	297,654	297,654	297,654	297,654	297,654	297,654
1988	731,742	731,742	731,742	731,742	731,742	731,742	731,803	731,803	731,803	731,803	731,803	731,803	731,803
1989	543,317	543,317	543,317	543,317	543,317	543,317	543,317	543,317	543,317	550,947	550,947	550,947	550,947
1990	402,383	403,358	403,358	403,358	403,358	403,358	403,358	403,358	403,358	403,358	403,358	403,358	403,358
1991	1,043,766	1,043,766	1,043,766	1,043,766	1,043,766	1,043,766	1,043,766	1,043,766	1,043,766	1,043,766	1,043,766	1,043,766	1,043,766
1992	525,993	525,993	525,993	525,993	525,993	525,993	525,993	525,993	525,993	525,993	525,993	525,993	525,993
1993	361,292	361,292	361,292	361,292	361,292	361,292	361,292	361,292	361,292	361,292	361,292	361,292	361,292
1994	362,024	362,024	362,024	362,024	362,024	362,024	362,024	362,024	362,024	362,024	362,024	362,024	362,024
1995	489,857	489,857	489,857	489,857	489,913	489,969	489,969	490,317	492,048	496,346	500,326	508,145	523,834
1996	356,685	356,685	356,685	356,685	356,685	356,685	356,685	356,685	356,685	356,685	356,685	356,685	356,685
1997	711,015	711,075	711,212	711,712	727,631	727,631	727,631	727,631	727,631	727,631	727,631	727,631	727,631
1998	429,643	429,643	429,643	429,643	429,643	429,643	429,643	429,643	429,643	429,650	429,650	429,650	429,650
1999	316,195	316,195	316,195	310,631	310,631	310,631	310,631	310,631	310,631	310,631	310,631	310,631	310,631
2000	663,048	677,135	684,201	688,104	690,820	690,957	691,332	691,332	691,332	691,332	691,332	691,332	691,332
2001	506,773	506,773	506,773	506,773	506,773	506,773	507,449	507,449	507,449	507,449	507,449	507,449	507,449
2002	612,126	612,126	612,126	612,126	612,851	612,851	612,851	612,851	612,851	612,851	612,851	612,851	612,851
2003	587,061	587,061	587,061	587,061	587,061	587,061	587,061	587,061	587,061	587,061	587,061	587,061	587,061
2004	782,021	782,021	782,874	782,874	782,874	782,874	782,874	782,874	782,874	782,874	782,874	782,874	782,874
2005	565,465	565,465	565,465	565,465	565,465	565,465	565,465	565,465	565,465	565,465	565,465	565,465	565,465
2006	424,518	424,518	424,518	424,518	424,518	424,518	424,518	424,518	424,518	424,518	424,518	424,518	424,518
2007	498,398	498,398	498,398	498,398	498,398	498,398	498,398	498,398	498,398	498,398	498,398	498,398	498,398

Fiscal Year	Development Factors												
	120-132	132-144	144-156	156-168	168-180	180-192	192-204	204-216	216-228	228-240	240-252	252-264	264-Ult.
1978			1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
1979		1.499	1.505	1.208	1.084	1.009	1.000	1.000	1.000	1.000	1.000	1.000	1.000
1980	1.534	1.363	1.278	1.171	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
1981	1.322	1.244	1.197	1.055	1.053	1.050	1.047	1.045	1.043	1.042	1.040	1.038	1.028
1982	1.155	1.150	1.136	1.006	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
1983	1.069	1.045	1.035	1.033	1.032	1.037	1.016	1.015	1.015	1.014	1.014	1.015	1.000
1984	1.032	1.023	1.005	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
1985	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
1986	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
1987	1.003	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
1988	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
1989	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.014	1.000	1.000	1.000	1.000
1990	1.002	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
1991	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
1992	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
1993	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
1994	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
1995	1.000	1.000	1.000	1.000	1.000	1.001	1.004	1.009	1.008	1.016	1.031	1.000	1.000
1996	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
1997	1.000	1.000	1.001	1.022	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
1998	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
1999	1.000	1.000	0.982	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2000	1.021	1.010	1.006	1.004	1.000	1.001	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2001	1.000	1.000	1.000	1.000	1.001	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2002	1.000	1.000	1.001	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2003	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2004	1.000	1.001	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2005	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2006	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Mean	1.042	1.049	1.042	1.019	1.007	1.004	1.003	1.003	1.004	1.004	1.004	1.003	1.002
3 Yr. Mean	1.000	1.000	1.000	1.000	1.001	1.000	1.000	1.000	1.000	1.005	1.010	1.000	1.000
5 Yr. Mean	1.000	1.000	1.001	1.001	1.000	1.000	1.000	1.002	1.002	1.003	1.006	1.000	1.000
Best 3	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Selected	1.005	1.004	1.003	1.002	1.001	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Cumulative	1.015	1.010	1.006	1.003	1.001	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000

CITY OF NEWTON

WORKERS COMPENSATION
MEDICAL ONLY
HISTORICAL LOSS DATA

Fiscal Year	Cumulative Paid Losses & ALAE Valued As Of (Months)										
	12	24	36	48	60	72	84	96	108	120	132
1989	16,707	23,305	23,305	23,305	23,305	23,905	23,905	23,905	23,905	23,905	23,905
1990	23,114	29,040	29,646	29,646	29,646	29,646	29,646	29,646	29,646	29,646	29,646
1991	2,960	3,346	12,650	41,187	41,187	41,187	41,187	41,187	41,187	41,187	41,187
1992	33	17,928	50,185	50,185	50,185	50,185	50,185	50,185	50,185	50,185	50,185
1993	10,419	54,025	55,048	55,048	55,048	55,048	55,048	55,048	55,048	55,048	55,048
1994	18,509	41,202	41,715	41,715	41,715	41,715	41,715	41,715	41,715	41,715	41,715
1995	22,975	30,235	30,253	30,253	30,253	30,253	30,253	30,253	30,253	30,253	30,253
1996	23,877	37,491	37,710	38,256	38,256	38,256	38,256	38,256	38,256	38,256	38,256
1997	24,696	36,216	52,656	52,656	52,656	52,656	52,656	52,656	52,656	52,656	52,656
1998	15,742	20,874	21,654	21,654	21,654	21,654	21,654	21,654	21,654	21,654	21,654
1999	21,591	25,809	26,098	26,098	26,164	26,164	26,186	26,186	26,186	26,186	26,186
2000	18,865	29,410	29,504	29,828	29,828	29,828	29,828	29,828	29,828	29,828	29,828
2001	30,657	48,528	48,754	52,518	52,518	52,518	52,518	52,518	52,518	52,518	52,518
2002	38,981	56,866	56,866	57,332	57,392	57,392	57,813	57,813	57,813	57,813	57,813
2003	40,915	47,993	48,175	48,175	48,175	48,175	48,175	48,175	48,175	48,175	48,175
2004	50,291	83,306	85,102	93,370	96,404	97,277	97,765	97,765	97,765	97,765	97,765
2005	35,622	50,864	54,109	54,109	54,109	54,109	54,109	54,109	54,109	54,109	54,109
2006	29,844	45,820	45,820	45,820	45,839	45,839	45,839	45,839	45,839	45,839	45,839
2007	50,432	63,186	63,186	63,186	63,186	63,186	63,186	63,186	63,186	63,186	63,186
2008	49,696	53,830	53,967	54,171	54,171	54,171	54,171	54,171	54,171		
2009	23,767	36,677	42,316	42,316	42,316	42,316	42,316	42,316			
2010	16,700	18,078	18,078	18,078	18,078	18,078	18,078				
2011	30,744	36,479	36,479	40,683	40,683	40,683					
2012	30,514	39,670	39,942		39,942						
2013	48,712	57,647	57,647	57,647							
2014	50,665	52,822	52,822								
2015	51,105	71,090									
2016	32,363										

Fiscal Year	Development Factors										
	12-24	24-36	36-48	48-60	60-72	72-84	84-96	96-108	108-120	120-132	132-Ult.
1989	1.395	1.000	1.000	1.000	1.026	1.000	1.000	1.000	1.000	1.000	1.000
1990	1.256	1.021	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
1991	1.130	3.781	3.256	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
1992	543.273	2.799	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
1993	5.185	1.019	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
1994	2.226	1.012	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
1995	1.316	1.001	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
1996	1.570	1.006	1.014	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
1997	1.466	1.454	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
1998	1.326	1.037	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
1999	1.195	1.011	1.000	1.003	1.000	1.001	1.000	1.000	1.000	1.000	1.000
2000	1.559	1.003	1.011	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2001	1.583	1.005	1.077	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2002	1.459	1.000	1.008	1.001	1.000	1.007	1.000	1.000	1.000	1.000	1.000
2003	1.173	1.004	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2004	1.656	1.022	1.097	1.032	1.009	1.005	1.000	1.000	1.000	1.000	1.000
2005	1.428	1.064	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2006	1.535	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2007	1.253	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000		
2008	1.083	1.003	1.004	1.000	1.000	1.000	1.000	1.000			
2009	1.543	1.154	1.000	1.000	1.000	1.000	1.000				
2010	1.083	1.000	1.000	1.000	1.000	1.000					
2011	1.187	1.000	1.115	1.000	1.000						
2012	1.300	1.007	1.000	1.000							
2013	1.183	1.000	1.000								
2014	1.043	1.000									
2016	1.391										

Mean	21.585	1.208	1.103	1.002	1.002	1.001	1.000	1.000	1.000	1.000	1.000
3 Yr. Mean	1.206	1.002	1.038	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
5 Yr. Mean	1.221	1.001	1.023	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Best 3	1.223	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Selected	1.450	1.040	1.020	1.005	1.003	1.002	1.000	1.000	1.000	1.000	1.000
Cumulative	1.553	1.071	1.030	1.010	1.005	1.002	1.000	1.000	1.000	1.000	1.000

CITY OF NEWTON**WORKERS COMPENSATION
EXPOSURE INFORMATION**

Fiscal Year Ending <u>June 30,</u> (1)	Covered Payroll <u>(\$00)</u> (2)
1992	226,774
1993	233,157
1994	253,882
1995	256,823
1996	270,263
1997	282,380
1998	287,177
1999	309,695
2000	314,406
2001	322,083
2002	354,569
2003	362,190
2004	362,318
2005	365,553
2006	378,519
2007	405,875
2008	415,644
2009	414,492
2010	420,324
2011	416,654
2012	413,666
2013	438,957
2014	458,382
2015	465,004
2016	477,827
2017	497,625

 Provided by the City