

CITY OF NEWTON

SELF-INSURED WORKERS COMPENSATION PROGRAM

INDICATED LIABILITIES
AS OF JUNE 30, 2017

INDICATED LOSS FUNDING
FOR FISCAL YEAR JULY 1, 2017-18

October 27, 2017





October 27, 2017

Sent Via Email

Ms. Susan Dzikowski
Comptroller
City of Newton
Commonwealth Avenue and Walnut St.
Newton Centre, MA 02159

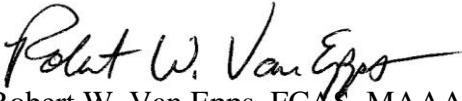
Dear Susan:

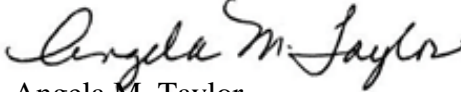
Enclosed you will find our report regarding the City of Newton's self-funded Workers Compensation program as of June 30, 2017.

The funding indications for the coming year have decreased slightly from last year's indications, with slight decreases in both non-pension and pension claims funding. The indicated outstanding losses have decreased by \$566 thousand over last year's amount mainly due to a reduction in pension claim values. Decreases in both funding and indicated outstanding losses reflect continued favorable loss experience the past few years.

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, 2017. In addition, we have been requested to provide an indicated contribution to the self-insurance fund for the one year period beginning July 1, 2017.

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 1988-2017 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 1992-2017 and estimated payroll for fiscal year 2018.

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, 2017 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, 2017. 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, 2017

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, 2017:

General Government Workers Compensation Self Insured Liability As Of June 30, 2017	
Other Than Pension Cases	\$2,369,186
Pension Cases	\$5,365,023
Total Liability	\$7,734,209

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, 2017 under the terms and conditions of its statutory obligations, but which have not been paid as of June 30, 2017.

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, 2017 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 2018

As calculated on Exhibit 1.2, the table below summarizes our recommended loss funding for losses occurring during the fiscal period July 1, 2017 to June 30, 2018.

General Government Workers Compensation Indicated Loss Funding Fiscal Year July 1, 2017-18	
Other Than Pension Cases	1,214,752
Pension Cases	167,300
Total Loss Funding	1,382,052

The indicated funding level is based on estimated payroll as shown on Exhibit 1.2 of approximately \$51.3 million for General Government employees. The fiscal year 2018 recommended loss funding is intended to provide solely for losses occurring during the period July 1, 2017-2018. It does not include a provision to amortize any surplus or deficit in the fund balance as of June 30, 2017. 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 \$2.70 for fiscal year 2018. 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, 2017. 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 3.0% 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 2017-18 Funding

Exhibit 1.2 displays recommended funding separately for non-pension indemnity and medical claims for the July 1, 2017-2018 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 \$1,382,052 for General Government employees. Overall, our analysis produces indicated funding of \$2.70 per \$100 of payroll for General Government employees. This consists of \$2.25 for non-pension indemnity claims, \$0.12 for medical only claims, and \$0.33 for pension claims.

CITY OF NEWTONWORKERS COMPENSATION
INDICATED LIABILITY
AS OF JUNE 30, 2017
SUMMARY OF RESULTS

Indicated Liability As of June 30, 2017	
GENERAL GOVERNMENT	
A. Other Than Pension Claims	\$2,369,186
B. Pension Claims	\$5,365,023
C. Total	<u>\$7,734,209</u>

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

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WORKERS COMPENSATION
INDICATED FUNDING
FISCAL YEAR 2018

	<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	\$2.25	\$512,554	1,153,246
<u>Medical Only</u>	<u>\$0.12</u>	\$512,554	<u>61,506</u>
Total	\$2.37		1,214,752
Pension Claims			167,300
TOTAL	\$2.70		1,382,052

(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 (1)	Paid Losses (2)	Indicated Ultimate Losses By Method		Selected Ultimate Losses (5)	Indicated Outstanding Losses (6)=(5)-(2)
		Paid LDF (3)	Paid Born-Ferg (4)		
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	587,061	587,061	587,061	0
2004	783,229	784,012	783,899	783,899	670
2005	565,671	567,368	567,864	567,864	2,193
2006	424,518	427,065	429,083	429,083	4,565
2007	498,398	503,382	506,597	506,597	8,199
2008	496,667	504,117	509,947	509,947	13,280
2009	876,314	896,470	895,737	895,737	19,423
2010	488,661	507,230	525,364	525,364	36,703
2011	726,135	768,977	786,333	786,333	60,198
2012	718,920	791,531	827,003	827,003	108,083
2013	1,121,719	1,303,437	1,303,544	1,303,544	181,825
2014	1,062,373	1,333,278	1,321,056	1,321,056	258,683
2015	237,931	343,334	604,814	604,814	366,883
2016	353,175	611,699	824,117	824,117	470,942
2017	236,092	817,822	1,046,320	1,046,320	810,228
Total	\$17,316,108		\$19,657,983	\$19,657,983	\$2,341,875

(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)	(6)
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	40,683	40,683	40,683	0
2012	39,942	39,942	39,942	39,942	0
2013	57,647	57,762	57,770	57,770	123
2014	52,822	53,139	53,207	53,207	385
2015	71,090	72,939	72,485	72,485	1,395
2016	51,776	55,245	55,388	55,388	3,612
2017	23,103	36,365	44,899	44,899	21,796
TOTAL	\$1,216,814	\$1,235,826	\$1,244,125	\$1,244,125	\$27,311

(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	64	\$723.16	14.566	547,745
12849	M	2/7/1989	66	\$925.89	13.596	654,597
9914136	M	4/22/2003	65	\$702.27	14.081	514,211
9910435	M	9/23/2008	68	\$954.99	12.633	627,348
14276	M	3/12/1981	90	\$1,278.04	3.727	247,689
9913147	F	4/28/2010	66	\$273.86	15.329	218,296
12830	M	9/26/1990	73	\$1,251.88	10.253	667,447
9915437	M	11/12/2004	67	\$703.27	13.113	479,543
14219	M	7/23/1984	91	\$1,115.58	3.727	216,204
9911003	M	1/4/2011	70	\$808.26	11.675	490,695
TOTAL						\$4,663,775

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	79	\$904.16	8.801	413,791
TOTAL						\$413,791

Temporary 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)
9911271	M	12/4/2012	51	\$708.96	2.361	87,045
9924937	M	5/1/2007	52	\$635.32	2.441	80,638
9921096	F	3/24/2004	67	\$210.87	1.376	15,083
9912292	M	7/8/2011	57	\$546.69	0.907	25,782
9913037	M	10/21/2011	64	\$542.20	2.799	78,910
9926055	M	6/24/2015	65	\$461.12	4.422	106,034
TOTAL						\$287,457

GRAND TOTAL PENSION CASES	\$5,365,023
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(1) *Guidance for duration of payments for Temporary Disability Claims provided by the City.

CITY OF NEWTON

WORKERS COMPENSATION
 INDEMNITY
 PROJECTION OF ULTIMATE LOSSES
 FISCAL YEARS 1988-2017
 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)
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	100.0%	587,061	702,649	0.0%	0	587,061	1.62
2004	362,318	1.85	670,288	99.9%	783,229	669,618	0.1%	670	783,899	2.16
2005	365,553	2.00	731,106	99.7%	565,671	728,913	0.3%	2,193	567,864	1.55
2006	378,519	2.01	760,823	99.4%	424,518	756,258	0.6%	4,565	429,083	1.13
2007	405,875	2.02	819,868	99.0%	498,398	811,669	1.0%	8,199	506,597	1.25
2008	415,644	2.13	885,322	98.5%	496,667	872,042	1.5%	13,280	509,947	1.23
2009	414,492	2.13	882,868	97.8%	876,314	863,445	2.2%	19,423	895,737	2.16
2010	420,324	2.36	991,965	96.3%	488,661	955,262	3.7%	36,703	525,364	1.25
2011	416,654	2.58	1,074,967	94.4%	726,135	1,014,769	5.6%	60,198	786,333	1.89
2012	413,666	2.84	1,174,811	90.8%	718,920	1,066,728	9.2%	108,083	827,003	2.00
2013	438,957	3.84	1,685,595	86.1%	1,121,719	1,451,297	13.9%	234,298	1,356,017	3.09
2013	438,957	2.98	1,308,092	86.1%	1,121,719	1,126,267	13.9%	181,825	1,303,544	2.97
2014	458,382	2.78	1,274,302	79.7%	1,062,373	1,015,619	20.3%	258,683	1,321,056	2.88
2015	465,004	2.57	1,195,060	69.3%	237,931	828,177	30.7%	366,883	604,814	1.30
2016	477,827	2.33	1,113,337	57.7%	353,175	642,395	42.3%	470,942	824,117	1.72
2017	497,625	2.29	1,139,561	28.9%	236,092	329,333	71.1%	810,228	1,046,320	2.10
Total	\$10,710,487		\$30,431,843		\$18,437,827	\$27,855,670		\$2,576,173	\$21,014,000	\$1.96

(2) Exhibit 6

(3) Exhibit 3.3 for 2016 and 2017. Prior years from 6/30/16 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 1992-2017
 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	100.0%	40,683	58,332	0.0%	0	40,683	0.10
2012	413,666	0.14	57,913	100.0%	39,942	57,913	0.0%	0	39,942	0.10
2013	438,957	0.14	61,454	99.8%	57,647	61,331	0.2%	123	57,770	0.13
2014	458,382	0.14	64,173	99.4%	52,822	63,788	0.6%	385	53,207	0.12
2015	465,004	0.12	55,800	97.5%	71,090	54,405	2.5%	1,395	72,485	0.16
2016	477,827	0.12	57,339	93.7%	51,776	53,727	6.3%	3,612	55,388	0.12
2017	497,625	0.12	59,715	63.5%	23,103	37,919	36.5%	21,796	44,899	0.09
Total	\$9,404,239		\$1,287,784		\$1,216,814	\$1,260,473		\$27,311	\$1,244,125	\$0.13

(2) Exhibit 6

(3) Exhibit 3.4 for 2016 and 2017. Prior years from 6/30/16 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 1/1/18 (6)	On Level Pure Premium (7)
2002	612,851	354,569	1.73	1.093	0.735	1.39
2003	587,061	362,190	1.62	1.091	0.749	1.32
2004	784,012	362,318	2.16	1.092	0.764	1.80
2005	567,368	365,553	1.55	1.084	0.779	1.31
2006	427,065	378,519	1.13	1.073	0.794	0.96
2007	503,382	405,875	1.24	1.061	0.809	1.06
2008	504,117	415,644	1.21	1.050	0.825	1.05
2009	896,470	414,492	2.16	1.038	0.841	1.88
2010	507,230	420,324	1.21	1.034	0.857	1.07
2011	768,977	416,654	1.85	1.036	0.874	1.68
2012	791,531	413,666	1.91	1.028	0.891	1.75
2013	1,303,437	438,957	2.97	1.019	0.908	2.75
2014	1,333,278	458,382	2.91	1.016	0.926	2.74
2015	343,334	465,004	0.74	1.010	0.944	0.71
2016	611,699	477,827	1.28	1.002	0.962	1.23
2017	817,822	497,625	1.64	1.000	0.981	1.61
(8) MEAN						1.52
(9) LATEST 5						1.81
(10) LATEST 3						1.18
(11) BEST 3						1.86
(12) SELECTED						2.25

	(13)	(14)	(15)
FORECASTED PURE PREMIUM	2018 SELECTED	ON LEVEL FACTOR	TRENDED ON LEVEL
2016	2.25	0.964	2.33
2017	2.25	0.981	2.29
2018	2.25	1.000	2.25

- (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 1/1/18 (6)	On Level Pure Premium (7)
2002	57,813	354,569	0.16	1.101	0.748	0.13
2003	48,175	362,190	0.13	1.068	0.762	0.11
2004	97,765	362,318	0.27	1.046	0.776	0.22
2005	54,109	365,553	0.15	1.034	0.790	0.12
2006	45,839	378,519	0.12	1.032	0.804	0.10
2007	63,186	405,875	0.16	1.032	0.819	0.14
2008	54,171	415,644	0.13	1.032	0.834	0.11
2009	42,316	414,492	0.10	1.024	0.849	0.09
2010	18,078	420,324	0.04	1.000	0.865	0.03
2011	40,683	416,654	0.10	1.000	0.881	0.09
2012	39,942	413,666	0.10	1.000	0.897	0.09
2013	57,762	438,957	0.13	1.000	0.913	0.12
2014	53,139	458,382	0.12	1.000	0.930	0.11
2015	72,939	465,004	0.16	1.000	0.947	0.15
2016	55,245	477,827	0.12	1.000	0.964	0.12
2017	36,365	497,625	0.07	1.000	0.982	0.07
(8) MEAN						0.11
(9) LATEST 5						0.11
(10) LATEST 3						0.11
(11) BEST 3						0.12
(12) SELECTED						0.12

	(13)	(14)	(15)
FORECASTED PURE PREMIUM	2018 SELECTED	ON LEVEL FACTOR	TRENDED ON LEVEL
2016	0.12	0.964	0.12
2017	0.12	0.982	0.12
2018	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	1.000	587,061
2004	783,229	1.001	784,012
2005	565,671	1.003	567,368
2006	424,518	1.006	427,065
2007	498,398	1.010	503,382
2008	496,667	1.015	504,117
2009	876,314	1.023	896,470
2010	488,661	1.038	507,230
2011	726,135	1.059	768,977
2012	718,920	1.101	791,531
2013	1,121,719	1.162	1,303,437
2014	1,062,373	1.255	1,333,278
2015	237,931	1.443	343,334
2016	353,175	1.732	611,699
2017	236,092	3.464	817,822
TOTAL	11,728,775		13,298,696

(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	1.000	40,683
2012	39,942	1.000	39,942
2013	57,647	1.002	57,762
2014	52,822	1.006	53,139
2015	71,090	1.026	72,939
2016	51,776	1.067	55,245
2017	23,103	1.574	36,365
TOTAL	1,216,814		1,235,826

(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	876,273	876,314
2010	182,173	429,747	441,941	448,207	448,207	448,207	480,462	488,661	
2011	319,794	648,838	707,668	752,542	726,135	726,135	726,135		
2012	316,328	467,599	471,203	563,095	672,929	718,920			
2013	307,568	556,820	695,113	813,378	1,121,719				
2014	438,693	926,154	987,588	1,062,373					
2015	118,670	235,712	237,931						
2016	228,735	353,175							
2017	236,092								

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	1.000
2009	2.340	1.284	1.157	1.035	1.001	1.001	1.000	1.000	
2010	2.359	1.028	1.014	1.000	1.000	1.072	1.017		
2011	2.029	1.091	1.063	0.965	1.000	1.000			
2012	1.478	1.008	1.195	1.195	1.068				
2013	1.810	1.248	1.170	1.379					
2014	2.111	1.066	1.076						
2015	1.986	1.009							
2016	1.544								
Mean	1.876	1.187	1.124	1.078	1.056	1.037	1.051	1.047	1.033
3 Yr. Mean	1.880	1.108	1.147	1.180	1.023	1.024	1.004	1.004	1.001
5 Yr. Mean	1.786	1.084	1.104	1.115	1.014	1.015	1.003	1.002	1.000
Best 3	1.780	1.055	1.103	1.077	1.000	1.001	1.000	1.000	1.000
Prior	2.250	1.200	1.150	1.075	1.050	1.040	1.020	1.015	1.008
Selected	2.000	1.200	1.150	1.080	1.055	1.040	1.020	1.015	1.008
Cumulative	3.464	1.732	1.443	1.255	1.162	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)												
	<u>120</u>	<u>132</u>	<u>144</u>	<u>156</u>	<u>168</u>	<u>180</u>	<u>192</u>	<u>204</u>	<u>216</u>	<u>228</u>	<u>240</u>	<u>252</u>	<u>264</u>
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	233,090	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	489,913	489,969	489,969	490,317	492,048	496,346	500,326	508,145	523,834	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			
2001	506,773	506,773	506,773	506,773	506,773	507,449	507,449	507,449	507,449				
2002	612,126	612,126	612,126	612,851	612,851	612,851	612,851						
2003	587,061	587,061	587,061	587,061	587,061	587,061							
2004	782,021	782,021	782,874	782,874	782,874								
2005	565,465	565,465	565,671	565,671									
2006	424,518	424,518	424,518										
2007	498,398	498,398											
2008	496,667												

Fiscal Year	Development Factors												
	<u>120-132</u>	<u>132-144</u>	<u>144-156</u>	<u>156-168</u>	<u>168-180</u>	<u>180-192</u>	<u>192-204</u>	<u>204-216</u>	<u>216-228</u>	<u>228-240</u>	<u>240-252</u>	<u>252-264</u>	<u>264-Ult.</u>
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	1.066	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	
1997	1.000	1.000	1.001	1.022	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			
1999	1.000	1.000	0.982	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					
2001	1.000	1.000	1.000	1.000	1.001	1.000	1.000						
2002	1.000	1.000	1.001	1.000	1.000	1.000							
2003	1.000	1.000	1.000	1.000	1.000								
2004	1.000	1.001	1.000	1.000									
2005	1.000	1.000	1.000										
2006	1.000	1.000											
2007	1.000												
Mean	1.041	1.048	1.041	1.019	1.007	1.004	1.003	1.003	1.004	1.003	1.004	1.003	1.002
3 Yr. Mean	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.010	1.000	1.000
5 Yr. Mean	1.000	1.000	1.000	1.001	1.000	1.000	1.000	1.000	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
Prior	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
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	54,171	54,171
2009	23,767	36,677	42,316	42,316	42,316	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	18,078	18,078	18,078	18,078
2011	30,744	36,479	36,479	40,683	40,683	40,683	40,683	40,683	40,683	40,683	40,683
2012	30,514	39,670	39,942	39,942	39,942	39,942	39,942	39,942	39,942	39,942	39,942
2013	48,712	57,647	57,647	57,647	57,647	57,647	57,647	57,647	57,647	57,647	57,647
2014	50,665	52,822	52,822	52,822	52,822	52,822	52,822	52,822	52,822	52,822	52,822
2015	51,105	71,090	71,090	71,090	71,090	71,090	71,090	71,090	71,090	71,090	71,090
2016	31,207	51,776	51,776	51,776	51,776	51,776	51,776	51,776	51,776	51,776	51,776
2017	23,103	23,103	23,103	23,103	23,103	23,103	23,103	23,103	23,103	23,103	23,103

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	1.000	1.000
2008	1.083	1.003	1.004	1.000	1.000	1.000	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	1.000	1.000	1.000	1.000
2010	1.083	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2011	1.187	1.000	1.115	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2012	1.300	1.007	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2013	1.183	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2014	1.043	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2016	1.391	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2017	1.659	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000

Mean	20.873	1.200	1.099	1.001	1.001	1.001	1.000	1.000	1.000	1.000	1.000
3 Yr. Mean	1.364	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
5 Yr. Mean	1.315	1.001	1.023	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Best 3	1.291	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Prior	1.450	1.040	1.020	1.005	1.003	1.002	1.000	1.000	1.000	1.000	1.000
Selected	1.475	1.040	1.020	1.004	1.002	1.000	1.000	1.000	1.000	1.000	1.000
Cumulative	1.574	1.067	1.026	1.006	1.002	1.000	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
2018	512,554

Provided by the City