

# I 000008 STIP

Section I - Rate Recommendation  
 Subsection A - Introduction  
 7/1/2018

Section I - A  
 Exhibit 1

## RATE INDICATION SUMMARY

<b>Statewide Rate Change Summary</b>		
<i>Indication Effective Date: 7/1/2018</i>		
(1)	Indicated Rate Change Based on Policy Year 2014 Data (Section I-B, Exhibit 1)	-10.3%
(2)	Indicated Rate Change Based on Policy Year 2015 Data (Section I-B, Exhibit 1)	-15.5%
(3)	Average Indicated Rate Change = [ (1) + (2) ] / 2.0	-12.9%

<b>Expense Constants</b>		
	Current	Recommended
(4)	\$338	\$338
(5)	\$250	\$250
(6)	\$159	\$159
(7)	\$64	\$64

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Section I - Rate Recommendation  
 Subsection B - Calculation of Indicated Rate Change  
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 Exhibit 1

Calculation of Indicated Rate Change		Policy Year <u>2014</u>	Policy Year <u>2015</u>
(1)	Standard Earned Premium plus Adjusted ARAP Premium (Section I-D, Exhibit 2)	1,089,030,715	1,152,664,308
(2)	Composite Adjustment Factor (Section I-D, Exhibit 2)	1.035	1.043
(3)	Adjusted Standard Earned Premium plus Adjusted ARAP = [ (1) x (2) ]	1,127,034,967	1,201,727,724
(4)	Cumulative Premium Development Factor to Ultimate (Section I-D, Exhibit 2)	1.000	1.010
(5)	Rate On-Level Factor (Section I-D, Exhibit 2)	1.015	1.015
(6)	Factor to Remove Expense Constant (Section I-D, Exhibit 2)	0.958	0.959
(7)	Adjusted On-Level Standard Earned Premium plus Adjusted ARAP at Ultimate = [ (3) x (4) x (5) x (6) ]	1,095,560,696	1,181,786,575
(8)	Annual Wage Trend (Section I-D, Exhibit 4)	0.027	0.027
(9)	Wage Trend Factor to 7/1/2019 (based on Section I-D, Exhibit 4)	1.129	1.099
(10)	Standard Earned Premium plus ARAP Projected to Prospective Effective Period = [ (7) x (9) ]	1,237,308,803	1,299,075,958
(11)	Average On-Level Incurred Losses Projected to Prospective Effective Period (Section I-C Exhibit I, Page 1 Item (30), Page 2 Item (30))	718,357,754	708,739,123
(12)	Loss Ratio Projected to Prospective Effective Period = [ (11) / (10) ]	0.581	0.546
(13)	Factor to Remove the Large Deductible Contribution to the Residual Market Subsidy (Section I-E)	1.000	1.000
(14)	Loss Adjustment Expense Factor (Section I-D, Exhibit 5)	1.185	1.185
(15)	Fixed Expense Ratio (Section I-D, Exhibit 5)	0.043	0.042
(16)	Indicated Policy Year Loss, LAE, and Fixed Expense Ratio = { [ (12) x (14) ] + (15) } x (13)	0.731	0.689
(17)	Commission and Other Acquisition Expense Ratio (Section I-D, Exhibit 5)	0.126	0.126
(18)	Premium Tax Ratio (Section I-D, Exhibit 5)	0.022	0.022
(19)	Premium Discount Ratio (Section I-D, Exhibit 5)	0.051	0.051
(20)	Variable Expense Ratio = [ (17) + (18) + (19) ]	0.199	0.199
(21)	Underwriting Profit Provision (Section VII-A)	-0.014	-0.014
(22)	Permissible Loss, LAE, and Fixed Expense Ratio = [ 1.0 - (20) - (21) ]	0.815	0.815
(23)	Indicated Rate Change = [ (16) / (22) ] - 1.0	<b>-10.3%</b>	<b>-15.5%</b>
(24)	Overall Indicated Rate Change = [ (23) PY2014 + (23) PY2015 ] / 2.0	<b>-12.9%</b>	

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 Subsection C - Indicated Rate Change Detail  
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## Premium and Incurred Losses Projected to the Prospective Effective Period Policy Year 2014

<b>Premium</b>			
(1) Adjusted On-Level Standard Earned Premium plus Adjusted ARAP at Ultimate (Section I -D, Exhibit 2)	1,095,560,696		
(2) Annual Wage Trend (Section I-D, Exhibit 4)	0.027		
(3) Wage Trend Factor to Prospective Effective Period (7/1/2019)	1.129		
(4) Standard Earned Premium plus ARAP Projected to Prospective Effective Period	1,237,308,803		
<b>Indemnity Losses</b>		<u>Paid</u>	<u>Paid + Case</u>
(5) Indemnity Losses at Latest Month - Industry Total (Section I-D, Exhibit 1)		248,255,901	354,986,956
(6) Indemnity Loss Development Factor to 252 Months (Section I-D, Exhibit 1)		1.788	1.226
(7) Tail Factor 252 Months to Ultimate (Section I-D, Exhibit 1)		1.036	1.022
(8) Factor to Adjust for Escalated Benefits (Section I-D, Exhibit 1)		1.042	1.006
(9) Estimated Ultimate Indemnity Loss = [ (5) x (6) x (7) x (8) ]		479,094,919	447,478,236
(10) Annual Indemnity Loss Trend (Section I-D, Exhibit 4)		0.0003	0.0003
(11) Indemnity Loss Trend Factor to 7/1/2019		1.001	1.001
(12) Estimated Indemnity Losses Trended = [ (9) x (11) ]		479,737,139	448,078,075
(13) Estimated Benefit Change Factor Prior to 1/1/2018 (Section I-D, Exhibit 3)		1.029	1.029
(14) On Level Losses = [ (12) x (13) ]		493,796,648	461,209,761
(15) Estimated Benefit Change Factor Subsequent to 1/1/2018 (Section I-D, Exhibit 3)		1.010	1.010
(16) On-Level Incurred Losses Projected to Prospective Effective Period = [ (14) x (15) ]		498,575,053	465,672,827
<b>Medical Losses</b>			
(17) Medical Losses at Latest Month - Industry Total (Section I-D, Exhibit 1)		167,187,626	238,805,472
(18) Medical Loss Development Factor to 252 Months (Section I-D, Exhibit 1)		1.308	1.009
(19) Tail Factor 252 Months to Ultimate (Section I-D, Exhibit 1)		1.057	1.025
(20) Factor to Adjust for Escalated Benefits (1.000 for Medical Losses)		1.000	1.000
(21) Estimated Ultimate Medical Loss = [ (17) x (18) x (19) x (20) ]		231,165,614	247,021,225
(22) Annual Medical Loss Trend (Section I-D, Exhibit 4)		-0.003	-0.003
(23) Medical Loss Trend Factor to 7/1/2019		0.988	0.988
(24) Estimated Medical Losses Trended = [ (21) x (23) ]		228,400,827	244,066,801
(25) Estimated Benefit Change Factor Prior to 1/1/2018 (Section I-D, Exhibit 3)		1.000	1.000
(26) On Level Losses = [ (24) x (25) ]		228,400,827	244,066,801
(27) Estimated Benefit Change Factor Subsequent to 1/1/2018 (Section I-D, Exhibit 3)		1.000	1.000
(28) On-Level Incurred Losses Projected to Prospective Effective Period = [ (26) x (27) ]		228,400,827	244,066,801
<b>Total Combined Medical and Indemnity Losses</b>			
(29) Total Estimated Ultimate Losses Trended and On Level = [ (16) + (28) ]		726,975,880	709,739,628
(30) Average On-Level Incurred Losses Projected to Prospective Effective Period			718,357,754

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## Premium and Incurred Losses Projected to the Prospective Effective Period Policy Year 2015

**Premium**

(1)	Adjusted On-Level Standard Earned Premium plus Adjusted ARAP at Ultimate (Section I -D, Exhibit 2)	1,181,786,575
(2)	Annual Wage Trend (Section I-D, Exhibit 4)	0.027
(3)	Wage Trend Factor to Prospective Effective Period (7/1/2019)	1.099
(4)	Standard Earned Premium plus ARAP Projected to Prospective Effective Period	1,299,075,958

**Indemnity Losses**

		<u>Paid</u>	<u>Paid + Case</u>
(5)	Indemnity Losses at Latest Month - Industry Total (Section I-D, Exhibit 1)	135,805,533	251,318,679
(6)	Indemnity Loss Development Factor to 252 Months (Section I-D, Exhibit 1)	3.378	1.715
(7)	Tail Factor 252 Months to Ultimate (Section I-D, Exhibit 1)	1.036	1.022
(8)	Factor to Adjust for Escalated Benefits (Section I-D, Exhibit 1)	1.042	1.006
(9)	Estimated Ultimate Indemnity Loss = [ (5) x (6) x (7) x (8) ]	495,132,269	442,916,868
(10)	Annual Indemnity Loss Trend (Section I-D, Exhibit 4)	0.0003	0.0003
(11)	Indemnity Loss Trend Factor to 7/1/2019	1.001	1.001
(12)	Estimated Indemnity Losses Trended = [ (9) x (11) ]	495,648,373	443,378,544
(13)	Estimated Benefit Change Factor Prior to 1/1/2018 (Section I-D, Exhibit 3)	1.021	1.021
(14)	On Level Losses = [ (12) x (13) ]	506,069,480	452,700,667
(15)	Estimated Benefit Change Factor Subsequent to 1/1/2018 (Section I-D, Exhibit 3)	1.010	1.010
(16)	On-Level Incurred Losses Projected to Prospective Effective Period = [ (14) x (15) ]	510,966,648	457,081,392

**Medical Losses**

(17)	Medical Losses at Latest Month - Industry Total (Section I-D, Exhibit 1)	126,959,971	209,806,226
(18)	Medical Loss Development Factor to 252 Months (Section I-D, Exhibit 1)	1.689	1.055
(19)	Tail Factor 252 Months to Ultimate (Section I-D, Exhibit 1)	1.057	1.025
(20)	Factor to Adjust for Escalated Benefits (1.000 for Medical Losses)	1.000	1.000
(21)	Estimated Ultimate Medical Loss = [ (17) x (18) x (19) x (20) ]	226,662,866	226,992,687
(22)	Annual Medical Loss Trend (Section I-D, Exhibit 4)	-0.003	-0.003
(23)	Medical Loss Trend Factor to 7/1/2019	0.991	0.991
(24)	Estimated Medical Losses Trended = [ (21) x (23) ]	224,551,729	224,878,478
(25)	Estimated Benefit Change Factor Prior to 1/1/2018 (Section I-D, Exhibit 3)	1.000	1.000
(26)	On Level Losses = [ (24) x (25) ]	224,551,729	224,878,478
(27)	Estimated Benefit Change Factor Subsequent to 1/1/2018 (Section I-D, Exhibit 3)	1.000	1.000
(28)	On-Level Incurred Losses Projected to Prospective Effective Period = [ (26) x (27) ]	224,551,729	224,878,478

**Total Combined Medical and Indemnity Losses**

(29)	Total Estimated Ultimate Losses Trended and On Level = [ (16) + (28) ]	735,518,376	681,959,870
(30)	Average On-Level Incurred Losses Projected to Prospective Effective Period	708,739,123	

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## Summary of Estimated Ultimate Losses

### Paid Loss Development Method

Policy Year (1)	Benefit Type (2)	Paid Losses at 12/31/16 (3)	Cumulative Factors from Latest Month to 252 Months (4)	Losses Developed to 252 Months (5)	Tail Factor from 252 Months to Ultimate (6)	Factor to Adjust for Escalated Benefits (7)	Estimated Ultimate Losses (8)
2014	Indemnity	248,255,901	1.788	443,855,172	1.036	1.042	479,094,919
2014	Medical	167,187,626	1.308	218,718,702	1.057	1.000	231,165,614
2014	Total	415,443,527		662,573,874			710,260,534
2015	Indemnity	135,805,533	3.378	458,712,897	1.036	1.042	495,132,269
2015	Medical	126,959,971	1.689	214,458,400	1.057	1.000	226,662,866
2015	Total	262,765,504		673,171,297			721,795,135

### Paid Plus Case Loss Development Method

Policy Year (9)	Benefit Type (10)	Paid Plus Case Losses at 12/31/16 (11)	Cumulative Factors from Latest Month to 252 Months (12)	Losses Developed to 252 Months (13)	Tail Factor from 252 Months to Ultimate (14)	Factor to Adjust for Escalated Benefits (15)	Estimated Ultimate Losses (16)
2014	Indemnity	354,986,956	1.226	435,356,600	1.022	1.006	447,478,236
2014	Medical	238,805,472	1.009	240,891,655	1.025	1.000	247,021,225
2014	Total	593,792,428		676,248,255			694,499,461
2015	Indemnity	251,318,679	1.715	430,918,793	1.022	1.006	442,916,868
2015	Medical	209,806,226	1.055	221,360,104	1.025	1.000	226,992,687
2015	Total	461,124,905		652,278,898			669,909,555

Notes:

- (3), (11): Aggregate Financial Data.
- (4) = (5) / (3)
- (5) Section II: Exhibit 1, Page 2, Column (5) + Exhibit 1, Page 3, Column (5).
- (6): Section II - C, Exhibit 1, Page 1.
- (7): Section II - D, Exhibit 1, Page 1.
- (8) = (5) x (6) x (7)
- (12) = (13) / (11)
- (13) Section II: Exhibit 1, Page 2, Column (10) + Exhibit 1, Page 3, Column (10).
- (14): Section II - C, Exhibit 2, Page 1.
- (15): Section II - D, Exhibit 2, Page 1.
- (16) = (13) x (14) x (15)

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Page 2

## Summary of Estimated Ultimate Losses Remainder of Industry

### Paid Loss Development Method

Policy Year (1)	Benefit Type (2)	Paid Losses at 12/31/16 (3)	Cumulative Factors from Latest Month to 252 Months (4)	Losses Developed to 252 Months (5)
2014	Indemnity	217,310,214	1.758	381,985,257
2014	Medical	149,244,179	1.300	194,039,418
2014	Total	366,554,393		576,024,676
2015	Indemnity	119,541,045	3.300	394,492,571
2015	Medical	113,151,657	1.665	188,400,690
2015	Total	232,692,702		582,893,261

### Paid Plus Case Loss Development Method

Policy Year (6)	Benefit Type (7)	Paid Plus Case Losses at 12/31/16 (8)	Cumulative Factors from Latest Month to 252 Months (9)	Losses Developed to 252 Months (10)
2014	Indemnity	314,467,264	1.213	381,403,154
2014	Medical	216,161,495	1.008	217,820,663
2014	Total	530,628,759		599,223,818
2015	Indemnity	224,156,256	1.670	374,271,478
2015	Medical	187,990,447	1.044	196,183,796
2015	Total	412,146,703		570,455,274

Notes:

(3), (8): Aggregate Financial Data.

(4), (9): Section II - B, Exhibit 1, Page 1.

(5) = (3) x (4)

(10) = (8) x (9)

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## Summary of Estimated Ultimate Losses AIG

### Paid Loss Development Method

Policy Year (1)	Benefit Type (2)	Paid Losses at 12/31/16 (3)	Cumulative Factors from Latest Month to 252 Months (4)	Losses Developed to 252 Months (5)
2014	Indemnity	30,945,687	1.999	61,869,914
2014	Medical	17,943,447	1.375	24,679,284
2014	Total	48,889,134		86,549,198
2015	Indemnity	16,264,488	3.948	64,220,326
2015	Medical	13,808,314	1.887	26,057,709
2015	Total	30,072,802		90,278,036

### Paid Plus Case Loss Development Method

Policy Year (6)	Benefit Type (7)	Paid Plus Case Losses at 12/31/16 (8)	Cumulative Factors from Latest Month to 252 Months (9)	Losses Developed to 252 Months (10)
2014	Indemnity	40,519,692	1.332	53,953,446
2014	Medical	22,643,977	1.019	23,070,992
2014	Total	63,163,669		77,024,437
2015	Indemnity	27,162,423	2.086	56,647,315
2015	Medical	21,815,779	1.154	25,176,308
2015	Total	48,978,202		81,823,623

Notes:

(3), (8): Aggregate Financial Data.

(4), (9): Section II - B, Exhibit 1, Page 2.

(5) = (3) x (4)

(10) = (8) x (9)

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Section I - D  
 Exhibit 2

Policy Year Aggregate Financial Data  
 Calculation of Standard Premium plus Adjusted ARAP Premium Development Factors  
 Industrywide

Summary Exhibit

	Policy Year as of 12/31/2016	
	2014	2015
(1) Standard Earned Premium plus Adjusted ARAP Premium	1,089,030,715	1,152,664,308
(2) Adjustment for Experience and Merit Rating, ARAP, and Construction Credit Off-balance	1.036	1.045
(3) Adjustment Factor to Remove the Impact of Loading for Recoupment of Insolvency Fund Assessments	0.999	0.998
(4) Composite Adjustment Factor = (2) x (3)	1.035	1.043
(5) Adjusted Standard Earned Premium plus ARAP = (1) x (4)	1,127,034,967	1,201,727,724
(6) Cumulative Premium Development Factor to Ultimate (see Section III, Exhibit 1, Page 2)	1.000	1.010
(7) Rate On-Level Factor	1.015	1.015
(8) Factor to Remove Expense Constant	0.958	0.959
(9) Adjusted On-Level Standard Earned Premium plus Adjusted ARAP at Ultimate = (5) x (6) x (7) x (8)	1,095,560,696	1,181,786,575

Notes:

- (1): Section III-B, Exhibit 2
- (2): Section III-B, Exhibit 1
- (3): Section III-C, Exhibit 1
- (6): Premiums are deemed to be fully developed at 252 months.
- (7): Section III-D, Exhibit 1
- (8): Section VI-F, Exhibit 2.



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Section I - Rate Recommendation  
 Subsection D - Benefit Change Adjustments Summary  
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Section I - D  
 Exhibit 3

## Benefit Level Adjustment Factors

### All Injury Types

Time Period		Indemnity					Medical	Total
Beginning Period	Ending Period	Death	Permanent Total	Permanent Partial	Temporary Total	All Injury Types	All Injury Types	All Injury Types
1/1/2018	Prosp. Eff. Period					1.010	1.000	
PY 2014	1/1/2018					1.029	1.000	
PY 2015	1/1/2018					1.021	1.000	
PY 2006	Prosp. Eff. Period	1.062	1.069	1.118	1.040	1.093	1.032	
PY 2007	Prosp. Eff. Period	1.056	1.061	1.102	1.036	1.081	1.032	
PY 2008	Prosp. Eff. Period	1.050	1.052	1.087	1.031	1.069	1.024	
PY 2009	Prosp. Eff. Period	1.047	1.049	1.081	1.029	1.064	1.002	
PY 2010	Prosp. Eff. Period	1.048	1.050	1.082	1.029	1.065	1.000	
PY 2011	Prosp. Eff. Period	1.044	1.045	1.073	1.027	1.059	1.000	
PY 2012	Prosp. Eff. Period	1.039	1.038	1.061	1.024	1.049	1.000	
PY 2013	Prosp. Eff. Period	1.037	1.035	1.056	1.022	1.045	1.000	
PY 2014	Prosp. Eff. Period	1.032	1.031	1.049	1.020	1.039	1.000	
PY 2015	Prosp. Eff. Period	1.020	1.025	1.038	1.016	1.031	1.000	
PY 2013	CPY 2014_07	1.012	1.007	1.012	1.004		1.000	
PY 2014	CPY 2015_07	1.014	1.010	1.016	1.005		1.000	
PY 2015	CPY 2016_07	1.009	1.011	1.017	1.007		1.000	
CPY 2014_07	Prosp. Eff. Period							1.023
CPY 2015_07	Prosp. Eff. Period							1.017
CPY 2016_07	Prosp. Eff. Period							1.011
CPY 2008_09	Prosp. Eff. Period							1.044
Prior Eff. Period (using benefit level projections from prior filing)	Prosp. Eff. Period					1.019	1.000	1.012

**Trend Summary**

		Indemnity		Medical				SAWW
		Severity	Frequency	Lost Time Medical		Medical Only		
				Severity	Frequency	Severity	Frequency	
(1)	Massachusetts Trend	2.9%	-1.9%	2.7%	-1.9%	1.9%	-4.9%	2.7%
	5 Year	3.2%	-2.3%	1.9%	-2.3%	2.1%	-5.4%	3.2%
	6 Year	3.5%	-2.5%	2.9%	-2.5%	2.3%	-5.5%	2.8%
	7 Year	2.7%	-1.8%	2.4%	-1.8%	2.1%	-4.9%	2.7%
	8 Year	2.5%	-1.5%	3.4%	-1.5%	1.6%	-4.6%	2.8%
	9 Year	2.6%	-1.6%	3.1%	-1.6%	1.5%	-4.7%	2.6%
	10 Year	2.5%	-1.6%	2.7%	-1.6%	1.5%	-4.5%	2.4%
(2)	Complement of Credibility	-0.2%	-2.3%	1.6%	-2.3%	3.6%	-4.3%	2.8%
(3)	Credibility Weighted Trend	2.1%	-2.0%	2.2%	-2.0%	1.9%	-4.8%	2.7%
	5 Year	1.6%	-2.3%	1.7%	-2.3%	2.4%	-5.3%	3.2%
	6 Year	2.6%	-2.5%	2.1%	-2.5%	2.3%	-5.5%	2.8%
	7 Year	1.6%	-2.0%	2.0%	-2.0%	2.1%	-4.7%	2.7%
	8 Year	1.9%	-1.7%	2.5%	-1.7%	1.6%	-4.5%	2.8%
	9 Year	2.3%	-1.8%	2.5%	-1.8%	1.5%	-4.5%	2.6%
	10 Year	2.5%	-1.7%	2.2%	-1.7%	1.5%	-4.5%	2.4%
(4)	Selected Trend	2.1%	-2.0%	2.2%	-2.0%	1.9%	-4.8%	2.7%

	Lost Time Medical	Medical Only
(5) Medical Loss Trend	0.1%	-3.0%
(6) Fraction of Total Medical	86.9%	13.1%
(7) Total Medical Loss Trend	-0.3%	

	Indemnity	Medical
(8) Total Loss Trend	0.0%	-0.3%
(9) SAWW Trend	2.7%	2.7%
(10) Total Net Trend	-2.6%	-2.9%

Notes:

(1),(2),(3): Section V, Exhibit 2 Severity; Exhibit 3 Frequency and SAWW.

(4) = Selected Trend

(5) =  $[(1.0 + \text{Credibility Weighted Severity Trend}) \times (1.0 + \text{Credibility Weighted Frequency Trend})] - 1.0$

(6) Medical Only = Medical Only Fraction of Total Medical from Section IV-E, Exhibit 2

Lost Time Medical = 1.0 - Medical Only

(7) = Weighted Average of (5) using (6) as weights

(8): Indemnity =  $(1.0 + \text{Credibility Weighted Severity Trend}) \times (1.0 + \text{Credibility Weighted Frequency Trend}) - 1.0$

Medical = Row (7)

(9): (4) for SAWW.

(10) =  $\{ [ 1.0 + (8) ] / [ 1.0 + (9) ] \} - 1.0$

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Section I - D  
Exhibit 5

## Summary of Expense Ratios

(1)	Commission and Other Acquisition Expense Ratio	12.6%
(2)	Average Premium Discount as a % of Standard Premium + ARAP	5.1%
(3)	Premium Tax Ratio = 2.28% x [ 1.0 - (2) ]	2.2%
(4)	Variable Expense Ratio = (1) + (2) + (3)	19.9%
(5)	Fixed Expense Ratio	4.3%
(6)	Total Loss Adjustment Expense Ratio (LAE / Loss)	18.5%

### Notes:

(1): Section VI-G, Exhibit 1.

(2): Section VI-E, Exhibit 1.

(3): 2.28% from Section VI-B, Exhibit 3.

(5): Section VI-B, Exhibit 1.

(6): Section VI-H, Exhibit 1.

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Section I - Rate Recommendation  
 Subsection E - Reflecting the Impact of Large Deductibles  
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## Factor to Remove the Large Deductible Contribution to the Residual Market Subsidy

		Total Market	Residual Market ("rm")	Voluntary Market ("vol")
(1)	Permissible Loss, LAE, and Fixed Expense Ratio	81.5%		
(2)	Fixed Expense Ratio	4.3%		
(3)	Permissible Loss and LAE Ratio = [ (1) - (2) ]	77.2%		
(4)	Loss Ratio Differential, r	1.149		
(5)	Market Weight - $w_x$		24%	76%
(6)	Implied Permissible Loss and LAE Ratio		0.857	0.746
(7)	Implied Permissible Loss, LAE, and Fixed Expense Ratio		0.900	0.789
(8)	Implied Permissible Loss, LAE, and Fixed Expense Ratio Differential	1.141		
(9)	Variable Expense Ratio	19.9%	10.9%	22.7%
(10)	Underwriting Profit Provision	-1.35%		
(11)	Implied Rate Factor Equivalent		0.994	1.002
(12)	Implied Rate Differential, d	0.992		
(13)	Residual Market Rate equivalent, $Q_{rm}$	0.994		
(14)	Proportion of Total Voluntary Assessable Premium Not from Large Deductibles, u	0.767		
(15)	Factor to Remove the Large Deductible Contribution to the Residual Market Subsidy	<b>1.000</b>		

**Notes**

- (1): from Section VI-A, Exhibit 1 and Section VII-A, Exhibit 1
- (2): Section VI-B, Exhibit 1, average of column (18).
- (4): Loss Ratio Differential from Page 2, assumes LAE as % of loss is the same for Residual and Voluntary Market.
- (5): Residual Market weight,  $w_{rm}$ , from Section I-E, Exhibit 2, Voluntary Market weight,  $w_{vol} = 1.0 - w_{rm}$
- (6): Voluntary Market Implied Permissible Loss and LAE Ratio = (3) / [ (5 $w_{rm}$ ) x (4) + (5 $w_{vol}$ ) ]  
 Residual Market Permissible Implied Loss and LAE Ratio = (4) x (6) $_{vol}$
- (7) = (2) + (6)
- (8) = (7) $_{rm}$  / (7) $_{vol}$
- (9): Section VI-A, Exhibit 1, Total Market; Residual Market commission calculated based on the Residual Market - Pool Procedures - Producer Fee Schedule.
- Premium discounts were discontinued in the Residual Market effective 1/1/1991.
- (10): Section VII-A, Exhibit 1.
- (11) = (7) / [ 1.0 - (9) - (10) ]
- (12) = (11) $_{rm}$  / (11) $_{vol}$
- (13) = d / [  $w_{vol} + (w_{rm} \times d)$  ]
- (14): Exhibit 2.
- (15) = [ 1.0 -  $w_{rm} \times Q_{rm} \times (1.0 - u)$  ] / [ 1.0 -  $w_{rm} \times (1.0 - u)$  ]

Calculation of Residual Market to Voluntary Loss Ratio Differential  
 (\$ amounts in millions)

Policy Year	Total Market			Residual Market			Voluntary Market			Loss Ratio Differential LR <sub>rm</sub> / LR <sub>vol</sub> = (7) / (10)
	Standard Earned Premium plus ARAP	Paid Losses and Case Reserves	Paid + Case Loss Ratio = (3) / (2)	Standard Earned Premium Plus ARAP	Paid Losses and Case Reserves	Paid + Case Loss Ratio = (6) / (5)	Standard Earned Premium Plus ARAP	Paid Losses and Case Reserves	Paid + Case Loss Ratio = (9) / (8)	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
2009	821	515	62.7%	110	77	69.8%	711	438	61.6%	1.132
2010	893	548	61.4%	108	73	67.4%	785	475	60.5%	1.114
2011	961	583	60.7%	134	103	77.3%	827	480	58.0%	1.332
2012	980	581	59.3%	176	129	73.4%	804	452	56.2%	1.306
2013	1,029	563	54.8%	209	119	56.7%	819	445	54.3%	1.046
2014	1,087	594	54.6%	242	150	62.0%	845	444	52.5%	1.181
2015	1,151	461	40.1%	263	116	44.3%	887	345	38.8%	1.140
(12) Average Last 2 Years				252	133	52.8%	866	394	45.5%	1.159
(13) Average All Years				177	110	61.8%	811	440	54.2%	1.140
(14) Selected Loss Ratio Differential										<b>1.149</b>

Notes:  
 Data as of 12/31/2016 from Aggregate Financial Database, excluding large deductible policies.

I 000025 STIP

Residual Market Weight "w<sub>rm</sub>"  
 Proportion of Voluntary Assessable Premium Not from Large Deductibles "u"  
 (\$ amounts in millions)

Calendar Year	Voluntary Assessable Premium Basis Used to Determine Shares of the Residual Market	Take-Out Program Written Premium	Take-Out Credits	Residual Market Direct Written Premium	Large Deductible Standard + ARAP Written Premium	Voluntary Non-Large Deductible Not in Take-Out Program Written Premium = (2) - (3) - (6) + (4)	Residual Market Weight "w <sub>rm</sub> " = (5) / [(3) + (5) + (7)]	"u" -- Proportion of Assessable Premium Not from Large Deductibles = (7) / [(7) + (6)]
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
2015	1025	37	36	258	227	797	0.236	0.778
2016	1094	52	47	274	266	823	0.238	0.756
Selected	1060	44	42	266	247	810	0.237	0.767

Note:

Refers to the prospective effective period from 7/1/2018 through 7/1/2019.

(2),(3),(4),(5),(6): Massachusetts Workers' Compensation Assigned Risk Pool Special Bulletin No. SB-10-16 for Calendar Year 2015 and Special Bulletin No. SB-10-17 for Calendar Year 2016.

(2),(3),(4),(5),(6),(7): Selected based on two-year average of Calendar Year 2015 and 2016.

## II 000013 STIP

Section II - Loss Development  
 Subsection A - Loss Development Summary  
 7/1/2018

Section II - A  
 Exhibit 1  
 Page 1

### Summary of Estimated Ultimate Losses

#### Paid Loss Development Method

Policy Year (1)	Benefit Type (2)	Paid Losses at 12/31/16 (3)	Cumulative Factors from Latest Month to 252 Months (4)	Losses Developed to 252 Months (5)	Tail Factor from 252 Months to Ultimate (6)	Factor to Adjust for Escalated Benefits (7)	Estimated Ultimate Losses (8)
2014	Indemnity	248,255,901	1.788	443,855,172	1.036	1.042	479,094,919
2014	Medical	167,187,626	1.308	218,718,702	1.057	1.000	231,165,614
2014	Total	415,443,527		662,573,874			710,260,534
2015	Indemnity	135,805,533	3.378	458,712,897	1.036	1.042	495,132,269
2015	Medical	126,959,971	1.689	214,458,400	1.057	1.000	226,662,866
2015	Total	262,765,504		673,171,297			721,795,135

#### Paid Plus Case Loss Development Method

Policy Year (9)	Benefit Type (10)	Paid Plus Case Losses at 12/31/16 (11)	Cumulative Factors from Latest Month to 252 Months (12)	Losses Developed to 252 Months (13)	Tail Factor from 252 Months to Ultimate (14)	Factor to Adjust for Escalated Benefits (15)	Estimated Ultimate Losses (16)
2014	Indemnity	354,986,956	1.226	435,356,600	1.022	1.006	447,478,236
2014	Medical	238,805,472	1.009	240,891,655	1.025	1.000	247,021,225
2014	Total	593,792,428		676,248,255			694,499,461
2015	Indemnity	251,318,679	1.715	430,918,793	1.022	1.006	442,916,868
2015	Medical	209,806,226	1.055	221,360,104	1.025	1.000	226,992,687
2015	Total	461,124,905		652,278,898			669,909,555

Notes:

- (3), (11): Aggregate Financial Data.
- (4) = (5) / (3)
- (5) Section II: Exhibit 1, Page 2, Column (5) + Exhibit 1, Page 3, Column (5).
- (6): Section II - C, Exhibit 1, Page 1.
- (7): Section II - D, Exhibit 1, Page 1.
- (8) = (5) x (6) x (7)
- (12) = (13) / (11)
- (13) Section II: Exhibit 1, Page 2, Column (10) + Exhibit 1, Page 3, Column (10).
- (14): Section II - C, Exhibit 2, Page 1.
- (15): Section II - D, Exhibit 2, Page 1.
- (16) = (13) x (14) x (15)

## II 000014 STIP

Section II - Loss Development  
 Subsection A - Loss Development Summary  
 7/1/2018

Section II - A  
 Exhibit 1  
 Page 2

### Summary of Estimated Ultimate Losses Remainder of Industry

#### Paid Loss Development Method

Policy Year (1)	Benefit Type (2)	Paid Losses at 12/31/16 (3)	Cumulative Factors from Latest Month to 252 Months (4)	Losses Developed to 252 Months (5)
2014	Indemnity	217,310,214	1.758	381,985,257
2014	Medical	149,244,179	1.300	194,039,418
2014	Total	366,554,393		576,024,676

2015	Indemnity	119,541,045	3.300	394,492,571
2015	Medical	113,151,657	1.665	188,400,690
2015	Total	232,692,702		582,893,261

#### Paid Plus Case Loss Development Method

Policy Year (6)	Benefit Type (7)	Paid Plus Case Losses at 12/31/16 (8)	Cumulative Factors from Latest Month to 252 Months (9)	Losses Developed to 252 Months (10)
2014	Indemnity	314,467,264	1.213	381,403,154
2014	Medical	216,161,495	1.008	217,820,663
2014	Total	530,628,759		599,223,818

2015	Indemnity	224,156,256	1.670	374,271,478
2015	Medical	187,990,447	1.044	196,183,796
2015	Total	412,146,703		570,455,274

Notes:

(3), (8): Aggregate Financial Data.

(4), (9): Section II - B, Exhibit 1, Page 1.

(5) = (3) x (4)

(10) = (8) x (9)



## II 000015 STIP

Section II - Loss Development  
 Subsection A - Loss Development Summary  
 7/1/2018

Section II - A  
 Exhibit 1  
 Page 3

### Summary of Estimated Ultimate Losses AIG

#### Paid Loss Development Method

Policy Year (1)	Benefit Type (2)	Paid Losses at 12/31/16 (3)	Cumulative Factors from Latest Month to 252 Months (4)	Losses Developed to 252 Months (5)
2014	Indemnity	30,945,687	1.999	61,869,914
2014	Medical	17,943,447	1.375	24,679,284
2014	Total	48,889,134		86,549,198

2015	Indemnity	16,264,488	3.948	64,220,326
2015	Medical	13,808,314	1.887	26,057,709
2015	Total	30,072,802		90,278,036

#### Paid Plus Case Loss Development Method

Policy Year (6)	Benefit Type (7)	Paid Plus Case Losses at 12/31/16 (8)	Cumulative Factors from Latest Month to 252 Months (9)	Losses Developed to 252 Months (10)
2014	Indemnity	40,519,692	1.332	53,953,446
2014	Medical	22,643,977	1.019	23,070,992
2014	Total	63,163,669		77,024,437

2015	Indemnity	27,162,423	2.086	56,647,315
2015	Medical	21,815,779	1.154	25,176,308
2015	Total	48,978,202		81,823,623

Notes:

(3), (8): Aggregate Financial Data.

(4), (9): Section II - B, Exhibit 1, Page 2.

(5) = (3) x (4)

(10) = (8) x (9)

Policy Year Aggregate Financial Data  
 Summary of Loss Development Factors  
 Remainder of Industry

Loss Development Factors From																			
Months of Development	24-36	36-48	48-60	60-72	72-84	84-96	96-108	108-120	120-132	132-144	144-156	156-168	168-180	180-192	192-204	204-216	216-228	228-240	240-252
<b>(1) Indemnity Paid Losses</b>																			
2 Year Average	1.877	1.312	1.143	1.055	1.028	1.016	1.015	1.006	1.005	1.007	1.007	1.004	1.002	1.005	1.002	1.003	1.002	1.001	1.001
Cumulative Factor to 252	3.300	1.758	1.340	1.173	1.111	1.081	1.063	1.048	1.041	1.036	1.028	1.021	1.017	1.015	1.010	1.008	1.005	1.003	1.001
<b>(2) Medical Paid Losses</b>																			
2 Year Average	1.281	1.080	1.034	1.020	1.017	1.009	1.011	1.009	1.009	1.006	1.007	1.009	1.008	1.008	1.012	1.007	1.006	1.007	1.006
Cumulative Factor to 252	1.665	1.300	1.204	1.164	1.141	1.122	1.112	1.099	1.090	1.080	1.073	1.065	1.056	1.047	1.039	1.027	1.020	1.013	1.006
<b>(3) Indemnity Paid Plus Case Losses</b>																			
2 Year Average	1.377	1.109	1.067	1.014	0.999	0.999	0.998	1.002	1.002	1.003	1.006	1.002	0.999	0.999	1.002	0.998	1.000	1.001	1.000
Cumulative Factor to 252	1.670	1.213	1.094	1.025	1.011	1.012	1.013	1.016	1.013	1.011	1.008	1.002	1.000	1.001	1.002	0.999	1.001	1.001	1.000
<b>(4) Medical Paid Plus Case Losses</b>																			
2 Year Average	1.036	1.015	1.004	1.004	0.998	0.997	0.994	1.000	1.003	0.996	0.998	1.006	1.003	0.985	1.003	1.000	1.007	1.000	0.995
Cumulative Factor to 252	1.044	1.008	0.993	0.989	0.985	0.987	0.990	0.996	0.996	0.993	0.997	0.999	0.993	0.990	1.005	1.002	1.002	0.996	0.995

- Notes:  
 (1): Exhibit 2, Page 1.  
 (2): Exhibit 2, Page 2.  
 (3): Exhibit 3, Page 1.  
 (4): Exhibit 3, Page 2.

II 000016 STIP

Policy Year Aggregate Financial Data  
 Summary of Loss Development Factors  
 AIG

Loss Development Factors From																			
Months of Development	24-36	36-48	48-60	60-72	72-84	84-96	96-108	108-120	120-132	132-144	144-156	156-168	168-180	180-192	192-204	204-216	216-228	228-240	240-252
<b>(1) Indemnity Paid Losses</b>																			
5 Year Average	1.975	1.414	1.175	1.071	1.024	1.015	1.006	1.005	1.008	1.004	1.007	1.007	1.009	1.005	1.002	1.011	1.004	1.008	1.002
Cumulative Factor to 252	3.948	1.999	1.414	1.203	1.123	1.097	1.081	1.075	1.070	1.062	1.057	1.050	1.043	1.033	1.028	1.026	1.014	1.011	1.002
<b>(2) Medical Paid Losses</b>																			
5 Year Average	1.372	1.115	1.048	1.022	1.016	1.003	1.014	1.013	1.013	1.011	1.010	1.009	1.011	1.009	1.007	1.012	1.009	1.003	1.002
Cumulative Factor to 252	1.887	1.375	1.233	1.177	1.151	1.132	1.129	1.113	1.099	1.085	1.074	1.063	1.054	1.042	1.033	1.025	1.014	1.005	1.002
<b>(3) Indemnity Paid Plus Case Losses</b>																			
5 Year Average	1.566	1.206	1.055	1.024	0.998	0.995	1.002	1.000	1.000	1.002	1.000	1.003	1.004	1.002	1.000	1.008	1.007	1.000	0.999
Cumulative Factor to 252	2.086	1.332	1.104	1.046	1.021	1.024	1.029	1.027	1.026	1.027	1.024	1.024	1.021	1.017	1.014	1.014	1.007	0.999	0.999
<b>(4) Medical Paid Plus Case Losses</b>																			
5 Year Average	1.133	1.048	0.996	0.980	0.989	0.975	1.003	0.999	0.993	1.003	0.994	1.013	0.994	1.004	1.014	1.045	0.990	1.000	0.982
Cumulative Factor to 252	1.154	1.019	0.972	0.976	0.996	1.008	1.033	1.030	1.031	1.038	1.035	1.041	1.028	1.034	1.031	1.016	0.972	0.982	0.982

- Notes:  
 (1): Exhibit 2, Page 3.  
 (2): Exhibit 2, Page 4.  
 (3): Exhibit 3, Page 3.  
 (4): Exhibit 3, Page 4.

II 000017 STIP

# II 000018 STIP

Section II - Loss Development  
 Subsection B - Policy Year Data  
 7/1/2018

Section II - B  
 Exhibit 2  
 Page 1

## Policy Year Aggregate Financial Data Calculation of Indemnity Paid Loss Development Factors Remainder of Industry

Policy Year	Losses (in 000's) Evaluated at Month		Loss Development Factor	Policy Year	Losses (in 000's) Evaluated at Month		Loss Development Factor
	24	36			144	156	
2013	105,285	196,675	1.868	2003	228,844	230,584	1.008
2014	114,962	216,907	1.887	2004	232,176	233,871	1.007
Average			1.877	Average			1.007
	36	48			156	168	
2012	185,562	246,481	1.328	2002	243,527	244,323	1.003
2013	196,675	254,827	1.296	2003	230,584	231,563	1.004
Average			1.312	Average			1.004
	48	60			168	180	
2011	232,821	264,889	1.138	2001	250,383	250,865	1.002
2012	246,481	282,867	1.148	2002	244,323	244,599	1.001
Average			1.143	Average			1.002
	60	72			180	192	
2010	234,463	248,604	1.060	2000	252,115	252,700	1.002
2011	264,889	278,140	1.050	2001	250,865	252,660	1.007
Average			1.055	Average			1.005
	72	84			192	204	
2009	239,645	245,656	1.025	1999	231,346	231,951	1.003
2010	248,604	256,267	1.031	2000	252,700	253,111	1.002
Average			1.028	Average			1.002
	84	96			204	216	
2008	231,821	235,290	1.015	1998	216,891	217,485	1.003
2009	245,656	250,086	1.018	1999	231,951	232,938	1.004
Average			1.016	Average			1.003
	96	108			216	228	
2007	227,078	231,855	1.021	1997	187,533	188,094	1.003
2008	235,290	237,292	1.009	1998	217,485	217,792	1.001
Average			1.015	Average			1.002
	108	120			228	240	
2006	220,636	221,454	1.004	1996	189,908	190,221	1.002
2007	231,855	233,913	1.009	1997	188,094	188,319	1.001
Average			1.006	Average			1.001
	120	132			240	252	
2005	213,031	213,495	1.002	1996	190,221	190,432	1.001
2006	221,454	223,394	1.009	Average			1.001
Average			1.005				
	132	144					
2004	230,186	232,176	1.009				
2005	213,495	214,796	1.006				
Average			1.007				

Notes:  
 Losses from Aggregate Financial Data.

# II 000019 STIP

Section II - Loss Development  
 Subsection B - Policy Year Data  
 7/1/2018

Section II - B  
 Exhibit 2  
 Page 2

## Policy Year Aggregate Financial Data Calculation of Medical Paid Loss Development Factors Remainder of Industry

Policy Year	Losses (in 000's) Evaluated at Month		Loss Development Factor	Policy Year	Losses (in 000's) Evaluated at Month		Loss Development Factor
	24	36			144	156	
2013	105,864	134,217	1.268	2003	126,542	127,745	1.010
2014	115,146	148,938	1.293	2004	122,643	123,209	1.005
Average			1.281	Average			1.007
	36	48			156	168	
2012	133,123	144,553	1.086	2002	129,201	130,324	1.009
2013	134,217	144,147	1.074	2003	127,745	128,920	1.009
Average			1.080	Average			1.009
	48	60			168	180	
2011	133,709	138,522	1.036	2001	122,555	123,552	1.008
2012	144,553	149,145	1.032	2002	130,324	131,403	1.008
Average			1.034	Average			1.008
	60	72			180	192	
2010	129,986	132,332	1.018	2000	120,573	121,504	1.008
2011	138,522	141,631	1.022	2001	123,552	124,457	1.007
Average			1.020	Average			1.008
	72	84			192	204	
2009	126,670	127,980	1.010	1999	121,805	123,344	1.013
2010	132,332	135,520	1.024	2000	121,504	122,866	1.011
Average			1.017	Average			1.012
	84	96			204	216	
2008	120,678	121,689	1.008	1998	110,702	111,410	1.006
2009	127,980	129,324	1.011	1999	123,344	124,325	1.008
Average			1.009	Average			1.007
	96	108			216	228	
2007	131,039	133,015	1.015	1997	93,225	93,609	1.004
2008	121,689	122,573	1.007	1998	111,410	112,370	1.009
Average			1.011	Average			1.006
	108	120			228	240	
2006	117,320	118,366	1.009	1996	95,748	96,718	1.010
2007	133,015	134,190	1.009	1997	93,609	93,980	1.004
Average			1.009	Average			1.007
	120	132			240	252	
2005	114,485	115,457	1.008	1996	96,718	97,324	1.006
2006	118,366	119,549	1.010	Average			1.006
Average			1.009				
	132	144					
2004	122,181	122,643	1.004				
2005	115,457	116,499	1.009				
Average			1.006				

Notes:  
 Losses from Aggregate Financial Data.

# II 000020 STIP

Section II - Loss Development  
 Subsection B - Policy Year Data  
 7/1/2018

Section II - B  
 Exhibit 2  
 Page 3

## Policy Year Aggregate Financial Data Calculation of Indemnity Paid Loss Development Factors AIG

Policy Year	Losses (in 000's) Evaluated at Month		Loss Development Factor	Policy Year	Losses (in 000's) Evaluated at Month		Loss Development Factor
	24	36			132	144	
2010	20,443	42,929	2.100	2001	46,089	46,520	1.009
2011	20,863	40,920	1.961	2002	63,207	63,356	1.002
2012	13,493	25,762	1.909	2003	90,559	90,699	1.002
2013	15,133	29,616	1.957	2004	113,224	114,049	1.007
2014	15,893	30,946	1.947	2005	123,864	123,960	1.001
Average			1.975	Average			1.004
	36	48			144	156	
2009	34,477	48,407	1.404	2000	40,686	41,279	1.015
2010	42,929	60,274	1.404	2001	46,520	46,547	1.001
2011	40,920	56,176	1.373	2002	63,356	63,721	1.006
2012	25,762	37,570	1.458	2003	90,699	91,082	1.004
2013	29,616	42,335	1.429	2004	114,049	115,110	1.009
Average			1.414	Average			1.007
	48	60			156	168	
2008	68,669	79,105	1.152	1999	30,788	31,180	1.013
2009	48,407	58,408	1.207	2000	41,279	41,685	1.010
2010	60,274	71,166	1.181	2001	46,547	46,680	1.003
2011	56,176	64,773	1.153	2002	63,721	64,353	1.010
2012	37,570	44,510	1.185	2003	91,082	91,065	1.000
Average			1.175	Average			1.007
	60	72			168	180	
2007	92,581	98,923	1.069	1998	30,719	30,860	1.005
2008	79,105	84,736	1.071	1999	31,180	32,084	1.029
2009	58,408	62,216	1.065	2000	41,685	41,699	1.000
2010	71,166	77,056	1.083	2001	46,680	46,745	1.001
2011	64,773	69,149	1.068	2002	64,353	65,008	1.010
Average			1.071	Average			1.009
	72	84			180	192	
2006	99,664	101,288	1.016	1997	40,431	40,874	1.011
2007	98,923	102,517	1.036	1998	30,860	31,065	1.007
2008	84,736	88,242	1.041	1999	32,084	32,160	1.002
2009	62,216	62,936	1.012	2000	41,699	41,974	1.007
2010	77,056	78,072	1.013	2001	46,745	46,784	1.001
Average			1.024	Average			1.005
	84	96			192	204	
2005	120,229	121,421	1.010	1996	22,659	22,695	1.002
2006	101,288	104,367	1.030	1997	40,874	41,004	1.003
2007	102,517	104,718	1.021	1998	31,065	31,221	1.005
2008	88,242	89,059	1.009	1999	32,160	32,159	1.000
2009	62,936	63,254	1.005	2000	41,974	41,880	0.998
Average			1.015	Average			1.002
	96	108			204	216	
2004	109,696	111,668	1.018	1996	22,695	23,105	1.018
2005	121,421	122,807	1.011	1997	41,004	41,300	1.007
2006	104,367	104,609	1.002	1998	31,221	31,857	1.020
2007	104,718	104,452	0.997	1999	32,159	32,156	1.000
2008	89,059	88,938	0.999	Average			1.011
Average			1.006				
	108	120			216	228	
2003	90,174	90,537	1.004	1996	23,105	23,178	1.003
2004	111,668	112,776	1.010	1997	41,300	41,421	1.003
2005	122,807	122,864	1.000	1998	31,857	32,003	1.005
2006	104,609	105,208	1.006	Average			1.004
2007	104,452	104,783	1.003				
Average			1.005				
	120	132			228	240	
2002	62,120	63,207	1.018	1996	23,178	23,174	1.000
2003	90,537	90,559	1.000	1997	41,421	42,125	1.017
2004	112,776	113,224	1.004	Average			1.008
2005	122,864	123,864	1.008				
2006	105,208	106,135	1.009				
Average			1.008				
	132	144			240	252	
2002	62,120	63,207	1.018	1996	23,174	23,230	1.002
2003	90,537	90,559	1.000	Average			1.002
2004	112,776	113,224	1.004				
2005	122,864	123,864	1.008				
2006	105,208	106,135	1.009				
Average			1.008				

Notes:  
 Losses from Aggregate Financial Data.

# II 00021 STIP

## Policy Year Aggregate Financial Data Calculation of Medical Paid Loss Development Factors AIG

Policy Year	Losses (in 000's) Evaluated at Month		Loss Development Factor	Policy Year	Losses (in 000's) Evaluated at Month		Loss Development Factor
	24	36			132	144	
2010	18,885	26,015	1.378	2001	16,759	16,964	1.012
2011	18,868	25,703	1.362	2002	26,682	26,937	1.010
2012	11,828	16,224	1.372	2003	36,458	36,802	1.009
2013	12,445	17,155	1.378	2004	52,324	53,020	1.013
2014	13,095	17,943	1.370	2005	56,216	56,664	1.008
Average			1.372	Average			1.011
	36	48			144	156	
2009	25,594	28,325	1.107	2000	13,587	13,627	1.003
2010	26,015	29,197	1.122	2001	16,964	17,251	1.017
2011	25,703	28,397	1.105	2002	26,937	27,217	1.010
2012	16,224	17,967	1.107	2003	36,802	37,022	1.006
2013	17,155	19,461	1.134	2004	53,020	53,777	1.014
Average			1.115	Average			1.010
	48	60			156	168	
2008	34,948	36,256	1.037	1999	10,313	10,430	1.011
2009	28,325	29,433	1.039	2000	13,627	13,668	1.003
2010	29,197	30,673	1.051	2001	17,251	17,503	1.015
2011	28,397	30,001	1.056	2002	27,217	27,495	1.010
2012	17,967	18,980	1.056	2003	37,022	37,204	1.005
Average			1.048	Average			1.009
	60	72			168	180	
2007	42,801	43,548	1.017	1998	12,612	12,841	1.018
2008	36,256	36,744	1.013	1999	10,430	10,574	1.014
2009	29,433	30,195	1.026	2000	13,668	13,722	1.004
2010	30,673	31,161	1.016	2001	17,503	17,718	1.012
2011	30,001	31,186	1.040	2002	27,495	27,737	1.009
Average			1.022	Average			1.011
	72	84			180	192	
2006	48,004	49,404	1.029	1997	15,967	16,058	1.006
2007	43,548	43,908	1.008	1998	12,841	13,030	1.015
2008	36,744	37,076	1.009	1999	10,574	10,706	1.013
2009	30,195	30,867	1.022	2000	13,722	13,777	1.004
2010	31,161	31,579	1.013	2001	17,718	17,842	1.007
Average			1.016	Average			1.009
	84	96			192	204	
2005	53,273	54,078	1.015	1996	10,091	10,124	1.003
2006	49,404	50,649	1.025	1997	16,058	16,184	1.008
2007	43,908	44,238	1.008	1998	13,030	13,222	1.015
2008	37,076	37,257	1.005	1999	10,706	10,812	1.010
2009	30,867	29,773	0.965	2000	13,777	13,797	1.001
Average			1.003	Average			1.007
	96	108			204	216	
2004	49,587	50,754	1.024	1996	10,124	10,187	1.006
2005	54,078	54,952	1.016	1997	16,184	16,395	1.013
2006	50,649	51,556	1.018	1998	13,222	13,347	1.009
2007	44,238	44,512	1.006	1999	10,812	11,001	1.017
2008	37,257	37,459	1.005	Average			1.012
Average			1.014		216	228	
	108	120			228	240	
2003	35,864	36,184	1.009	1996	10,187	10,226	1.004
2004	50,754	51,690	1.018	1997	16,395	16,444	1.003
2005	54,952	55,587	1.012	1998	13,347	13,614	1.020
2006	51,556	52,606	1.020	Average			1.009
2007	44,512	44,807	1.007		228	240	
Average			1.013	1996	10,226	10,251	1.003
	120	132		1997	16,444	16,499	1.003
2002	26,421	26,682	1.010	Average			1.003
2003	36,184	36,458	1.008		240	252	
2004	51,690	52,324	1.012	1996	10,251	10,268	1.002
2005	55,587	56,216	1.011	Average			1.002
2006	52,606	53,739	1.022				
Average			1.013				

Notes:  
 Losses from Aggregate Financial Data.

## II 00022 STIP

Section II - Loss Development  
 Subsection B - Policy Year Data  
 7/1/2018

Section II - B  
 Exhibit 3  
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### Policy Year Aggregate Financial Data Calculation of Indemnity Paid Plus Case Loss Development Factors Remainder of Industry

Policy Year	Losses (in 000's) Evaluated at Month		Loss Development Factor	Policy Year	Losses (in 000's) Evaluated at Month		Loss Development Factor
	24	36			144	156	
2013	205,739	272,677	1.325	2003	234,185	235,774	1.007
2014	219,869	313,965	1.428	2004	236,692	237,949	1.005
Average			1.377	Average			1.006
	36	48			156	168	
2012	261,633	295,003	1.128	2002	248,252	248,907	1.003
2013	272,677	297,331	1.090	2003	235,774	236,052	1.001
Average			1.109	Average			1.002
	48	60			168	180	
2011	274,496	294,481	1.073	2001	255,417	255,539	1.000
2012	295,003	312,950	1.061	2002	248,907	248,429	0.998
Average			1.067	Average			0.999
	60	72			180	192	
2010	260,825	266,355	1.021	2000	256,627	256,739	1.000
2011	294,481	296,427	1.007	2001	255,539	255,160	0.999
Average			1.014	Average			0.999
	72	84			192	204	
2009	261,580	262,150	1.002	1999	235,820	236,565	1.003
2010	266,355	265,304	0.996	2000	256,739	256,971	1.001
Average			0.999	Average			1.002
	84	96			204	216	
2008	244,672	243,788	0.996	1998	220,116	219,912	0.999
2009	262,150	262,520	1.001	1999	236,565	236,024	0.998
Average			0.999	Average			0.998
	96	108			216	228	
2007	238,832	238,665	0.999	1997	190,379	190,203	0.999
2008	243,788	242,777	0.996	1998	219,912	220,284	1.002
Average			0.998	Average			1.000
	108	120			228	240	
2006	226,017	226,831	1.004	1996	193,199	193,422	1.001
2007	238,665	238,867	1.001	1997	190,203	190,304	1.001
Average			1.002	Average			1.001
	120	132			240	252	
2005	218,649	218,613	1.000	1996	193,422	193,397	1.000
2006	226,831	227,988	1.005	Average			1.000
Average			1.002				
	132	144					
2004	236,378	236,692	1.001				
2005	218,613	219,443	1.004				
Average			1.003				

Notes:  
 Losses from Aggregate Financial Data.



# II 000023 STIP

Section II - Loss Development  
 Subsection B - Policy Year Data  
 7/1/2018

Section II - B  
 Exhibit 3  
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## Policy Year Aggregate Financial Data Calculation of Medical Paid Plus Case Loss Development Factors Remainder of Industry

Policy Year	Losses (in 000's) Evaluated at Month		Loss Development Factor	Policy Year	Losses (in 000's) Evaluated at Month		Loss Development Factor
	24	36			144	156	
2013	187,967	191,375	1.018	2003	145,523	145,270	0.998
2014	204,823	215,708	1.053	2004	141,589	141,256	0.998
Average			1.036	Average			0.998
	36	48			156	168	
2012	190,656	196,975	1.033	2002	150,342	151,836	1.010
2013	191,375	190,822	0.997	2003	145,270	145,524	1.002
Average			1.015	Average			1.006
	48	60			168	180	
2011	172,676	173,672	1.006	2001	147,234	147,451	1.001
2012	196,975	197,378	1.002	2002	151,836	152,563	1.005
Average			1.004	Average			1.003
	60	72			180	192	
2010	166,143	168,532	1.014	2000	153,925	149,950	0.974
2011	173,672	172,533	0.993	2001	147,451	146,784	0.995
Average			1.004	Average			0.985
	72	84			192	204	
2009	156,817	155,923	0.994	1999	144,951	146,328	1.009
2010	168,532	168,816	1.002	2000	149,950	149,527	0.997
Average			0.998	Average			1.003
	84	96			204	216	
2008	136,440	136,116	0.998	1998	135,397	134,711	0.995
2009	155,923	155,267	0.996	1999	146,328	147,016	1.005
Average			0.997	Average			1.000
	96	108			216	228	
2007	157,192	155,321	0.988	1997	102,466	103,072	1.006
2008	136,116	136,213	1.001	1998	134,711	135,698	1.007
Average			0.994	Average			1.007
	108	120			228	240	
2006	135,559	136,535	1.007	1996	108,244	108,857	1.006
2007	155,321	154,266	0.993	1997	103,072	102,546	0.995
Average			1.000	Average			1.000
	120	132			240	252	
2005	133,475	133,781	1.002	1996	108,857	108,347	0.995
2006	136,535	136,931	1.003	Average			0.995
Average			1.003				
	132	144					
2004	142,388	141,589	0.994				
2005	133,781	133,464	0.998				
Average			0.996				

Notes:  
 Losses from Aggregate Financial Data.

# II 000024 STIP

Section II - Loss Development  
 Subsection B - Policy Year Data  
 7/1/2018

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 Exhibit 3  
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## Policy Year Aggregate Financial Data Calculation of Indemnity Paid Plus Case Loss Development Factors AIG

Policy Year	Losses (in 000's) Evaluated at Month		Loss Development Factor	Policy Year	Losses (in 000's) Evaluated at Month		Loss Development Factor
	24	36			132	144	
2010	39,114	61,321	1.568	2001	46,896	47,083	1.004
2011	36,914	57,265	1.551	2002	65,395	65,784	1.006
2012	22,989	36,309	1.579	2003	91,939	91,649	0.997
2013	27,367	43,211	1.579	2004	117,321	117,874	1.005
2014	26,079	40,520	1.554	2005	125,293	125,222	0.999
Average			1.566	Average			1.002
	36	48			144	156	
2009	51,605	62,423	1.210	2000	41,785	41,580	0.995
2010	61,321	74,805	1.220	2001	47,083	47,072	1.000
2011	57,265	68,632	1.198	2002	65,784	65,698	0.999
2012	36,309	44,476	1.225	2003	91,649	91,718	1.001
2013	43,211	50,955	1.179	2004	117,874	118,711	1.007
Average			1.206	Average			1.000
	48	60			156	168	
2008	83,194	89,378	1.074	1999	31,778	31,698	0.997
2009	62,423	64,504	1.033	2000	41,580	42,025	1.011
2010	74,805	78,268	1.046	2001	47,072	46,979	0.998
2011	68,632	71,411	1.040	2002	65,698	66,442	1.011
2012	44,476	48,095	1.081	2003	91,718	91,621	0.999
Average			1.055	Average			1.003
	60	72			168	180	
2007	103,421	106,949	1.034	1998	32,656	32,898	1.007
2008	89,378	92,249	1.032	1999	31,698	32,090	1.012
2009	64,504	64,498	1.000	2000	42,025	41,892	0.997
2010	78,268	80,386	1.027	2001	46,979	46,998	1.000
2011	71,411	73,448	1.029	2002	66,442	66,646	1.003
Average			1.024	Average			1.004
	72	84			180	192	
2006	107,483	107,730	1.002	1997	43,045	42,924	0.997
2007	106,949	106,890	0.999	1998	32,898	33,211	1.010
2008	92,249	91,793	0.995	1999	32,090	32,160	1.002
2009	64,498	64,254	0.996	2000	41,892	41,974	1.002
2010	80,386	80,017	0.995	2001	46,998	47,014	1.000
Average			0.998	Average			1.002
	84	96			192	204	
2005	126,335	124,383	0.985	1996	23,669	23,357	0.987
2006	107,730	107,499	0.998	1997	42,924	43,358	1.010
2007	106,890	107,007	1.001	1998	33,211	33,401	1.006
2008	91,793	91,401	0.996	1999	32,160	32,159	1.000
2009	64,254	63,957	0.995	2000	41,974	41,880	0.998
Average			0.995	Average			1.000
	96	108			204	216	
2004	115,359	116,557	1.010	1996	23,357	23,818	1.020
2005	124,383	125,461	1.009	1997	43,358	43,387	1.001
2006	107,499	107,453	1.000	1998	33,401	33,728	1.010
2007	107,007	106,620	0.996	1999	32,159	32,156	1.000
2008	91,401	90,873	0.994	Average			1.008
Average			1.002				
	108	120			216	228	
2003	92,030	91,705	0.996	1996	23,818	24,092	1.012
2004	116,557	116,749	1.002	1997	43,387	43,472	1.002
2005	125,461	125,467	1.000	1998	33,728	34,013	1.008
2006	107,453	107,848	1.004	Average			1.007
2007	106,620	106,680	1.001				
Average			1.000				
	120	132			228	240	
2002	65,679	65,395	0.996	1996	24,092	23,762	0.986
2003	91,705	91,939	1.003	1997	43,472	44,065	1.014
2004	116,749	117,321	1.005	Average			1.000
2005	125,467	125,293	0.999				
2006	107,848	107,538	0.997				
Average			1.000				
	132	144			240	252	
2002	65,679	65,395	0.996	1996	23,762	23,748	0.999
2003	91,705	91,939	1.003	Average			0.999
2004	116,749	117,321	1.005				
2005	125,467	125,293	0.999				
2006	107,848	107,538	0.997				
Average			1.000				

Notes:  
 Losses from Aggregate Financial Data.

# II 000025 STIP

Policy Year Aggregate Financial Data  
 Calculation of Medical Paid Plus Case Loss Development Factors  
 AIG

Policy Year	Losses (in 000's)		Loss Development Factor	Policy Year	Losses (in 000's)		Loss Development Factor
	Evaluated at Month				Evaluated at Month		
	24	36			132	144	
2010	30,932	34,008	1.099	2001	19,212	19,141	0.996
2011	30,782	38,174	1.240	2002	29,416	29,215	0.993
2012	18,778	20,801	1.108	2003	39,568	40,110	1.014
2013	20,492	22,913	1.118	2004	59,671	60,495	1.014
2014	20,625	22,644	1.098	2005	62,248	62,232	1.000
Average			1.133	Average			1.003
	36	48			144	156	
2009	34,957	35,830	1.025	2000	14,556	14,236	0.978
2010	34,008	35,733	1.051	2001	19,141	18,803	0.982
2011	38,174	42,785	1.121	2002	29,215	30,122	1.031
2012	20,801	21,697	1.043	2003	40,110	39,623	0.988
2013	22,913	22,947	1.001	2004	60,495	59,930	0.991
Average			1.048	Average			0.994
	48	60			156	168	
2008	43,082	42,771	0.993	1999	12,365	12,422	1.005
2009	35,830	35,102	0.980	2000	14,236	14,554	1.022
2010	35,733	35,225	0.986	2001	18,803	19,266	1.025
2011	42,785	42,941	1.004	2002	30,122	30,397	1.009
2012	21,697	22,037	1.016	2003	39,623	39,718	1.002
Average			0.996	Average			1.013
	60	72			168	180	
2007	49,561	48,876	0.986	1998	15,376	15,364	0.999
2008	42,771	42,425	0.992	1999	12,422	12,030	0.968
2009	35,102	35,414	1.009	2000	14,554	14,175	0.974
2010	35,225	34,076	0.967	2001	19,266	19,813	1.028
2011	42,941	40,573	0.945	2002	30,397	30,381	0.999
Average			0.980	Average			0.994
	72	84			180	192	
2006	60,322	59,721	0.990	1997	17,509	17,346	0.991
2007	48,876	48,290	0.988	1998	15,364	15,755	1.025
2008	42,425	41,855	0.987	1999	12,030	12,138	1.009
2009	35,414	34,916	0.986	2000	14,175	14,315	1.010
2010	34,076	33,859	0.994	2001	19,813	19,491	0.984
Average			0.989	Average			1.004
	84	96			192	204	
2005	65,570	63,977	0.976	1996	10,893	10,819	0.993
2006	59,721	61,524	1.030	1997	17,346	17,488	1.008
2007	48,290	47,263	0.979	1998	15,755	17,143	1.088
2008	41,855	39,430	0.942	1999	12,138	12,017	0.990
2009	34,916	33,165	0.950	2000	14,315	14,206	0.992
Average			0.975	Average			1.014
	96	108			204	216	
2004	61,150	59,904	0.980	1996	10,819	10,809	0.999
2005	63,977	63,888	0.999	1997	17,488	17,505	1.001
2006	61,524	64,968	1.056	1998	17,143	17,155	1.001
2007	47,263	47,201	0.999	1999	12,017	14,186	1.180
2008	39,430	38,789	0.984	Average			1.045
Average			1.003				
	108	120			216	228	
2003	39,803	39,321	0.988	1996	10,809	10,825	1.001
2004	59,904	59,932	1.000	1997	17,505	17,309	0.989
2005	63,888	63,760	0.998	1998	17,155	16,791	0.979
2006	64,968	65,824	1.013	Average			0.990
2007	47,201	46,953	0.995				
Average			0.999				
	120	132			228	240	
2002	29,528	29,416	0.996	1996	10,825	10,845	1.002
2003	39,321	39,568	1.006	1997	17,309	17,294	0.999
2004	59,932	59,671	0.996	Average			1.000
2005	63,760	62,248	0.976				
2006	65,824	65,189	0.990	1996	10,845	10,645	0.982
Average			0.993	Average			0.982

Notes:  
 Losses from Aggregate Financial Data.

## II 000026 STIP

Section II - Loss Development  
 Subsection C - Tail Factor Calculation  
 7/1/2018

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 Exhibit 1  
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### Paid Loss Tail Factors

#### Indemnity 252nd Month to Ultimate Loss Tail Development Factor

(1)	Valuation Date [Y]	12/31/2012	12/31/2013	12/31/2014	12/31/2015	12/31/2016
(2)	Prior to Policy Year 1996 at [Y]	9,790,271,640	9,811,763,191	9,831,335,822	9,846,163,790	9,860,186,749
(3)	Prior to Policy Year 1996 at [Y] - 1 yr	9,773,598,044	9,790,271,640	9,811,763,191	9,831,335,822	9,846,163,790
(4)	Difference = (2) - (3)	16,673,596	21,491,551	19,572,631	14,827,968	14,022,959
(5)	Policy Year 1996 at [Y]	211,733,480	212,028,936	213,085,974	213,394,447	213,662,298
(6)	Ratio = (4) / (5)	0.079	0.101	0.092	0.069	0.066
(7)	Growth Factor	0.500	0.500	0.500	0.500	0.500
(8)	Product = (6) x (7)	0.039	0.051	0.046	0.035	0.033
(9)	Factor to Ultimate = 1.000 + (8)	1.039	1.051	1.046	1.035	1.033
(10)	Month [M]	204	216	228	240	252
(11)	Factor to Ultimate = (9)	1.039	1.051	1.046	1.035	1.033
(12)	Factor from [252] to [M]	0.989	0.994	0.996	0.999	1.000
(13)	Indicated [252] to Ultimate Tail Factor = (11) x (12)	1.028	1.044	1.042	1.033	1.033
(14)	Five Year Average					1.036

#### Medical 252nd Month to Ultimate Loss Tail Development Factor

(15)	Valuation Date [Y]	12/31/2012	12/31/2013	12/31/2014	12/31/2015	12/31/2016
(16)	Prior to Policy Year 1996 at [Y]	3,118,340,197	3,135,688,170	3,150,519,623	3,164,288,842	3,176,552,690
(17)	Prior to Policy Year 1996 at [Y] - 1 yr	3,102,023,325	3,118,340,197	3,135,688,170	3,150,519,623	3,164,288,842
(18)	Difference = (16) - (17)	16,316,872	17,347,973	14,831,453	13,769,219	12,263,848
(19)	Policy Year 1996 at [Y]	104,210,881	105,110,447	105,973,765	106,968,943	107,592,359
(20)	Ratio = (18) / (19)	0.157	0.165	0.140	0.129	0.114
(21)	Growth Factor	0.500	0.500	0.500	0.500	0.500
(22)	Product = (20) x (21)	0.078	0.083	0.070	0.064	0.057
(23)	Factor to Ultimate = 1.000 + (22)	1.078	1.083	1.070	1.064	1.057
(24)	Month [M]	204	216	228	240	252
(25)	Factor to Ultimate = (23)	1.078	1.083	1.070	1.064	1.057
(26)	Factor from [252] to [M]	0.974	0.981	0.988	0.994	1.000
(27)	Indicated [252] to Ultimate Tail Factor = (25) x (26)	1.050	1.062	1.057	1.058	1.057
(28)	Five Year Average					1.057

**Notes:**

- (2), (3), (5): Indemnity Paid Losses from Aggregate Financial Data.  
 (16), (17), (19): Medical Paid Losses from Aggregate Financial Data.  
 (7), (21): Section II - C, Exhibit 1, Page 2.  
 (12), (26): 1.0 / Cumulative LDF from Section II - B, weighted average of Remainder of Industry and AIG

## II 000027 STIP

Section II - Loss Development  
 Subsection C - Tail Factor Calculation  
 7/1/2018

Section II - C  
 Exhibit 1  
 Page 2

### Growth Factor Adjustment Paid Losses

Policy Year (1)	Incurred Losses (2)	Relative Development for Report Interval (3)	Prior to 1996 Dollar Development (4)	On-Level Prior to 1996 Dollar Development (5)
1971	94,976,425	0.015%	14,403	44,060
1972	101,973,366	0.030%	30,927	88,120
1973	122,533,804	0.045%	55,744	132,180
1974	125,138,370	0.061%	75,905	176,240
1975	129,523,874	0.076%	98,207	220,299
1976	150,991,674	0.091%	137,381	264,359
1977	172,661,308	0.106%	183,280	308,419
1978	232,830,184	0.121%	282,457	352,479
1979	268,273,946	0.136%	366,137	396,539
1980	297,248,722	0.152%	450,757	440,599
1981	355,713,276	0.167%	593,356	484,659
1982	375,695,513	0.182%	683,660	528,719
1983	425,367,012	0.197%	838,552	572,778
1984	498,629,874	0.212%	1,058,593	616,838
1985	609,732,750	0.227%	1,386,927	660,898
1986	753,357,857	0.243%	1,827,865	704,958
1987	931,585,048	0.258%	2,401,564	749,018
1988	1,016,351,862	0.273%	2,774,210	793,078
1989	1,086,491,801	0.288%	3,130,421	837,138
1990	999,727,163	0.303%	3,032,035	881,198
1991	710,903,018	0.318%	2,263,875	925,257
1992	473,640,514	0.334%	1,580,135	969,317
1993	392,024,364	0.349%	1,367,299	1,013,377
1994	334,649,675	0.364%	1,217,936	1,057,437
1995	308,487,792	0.379%	1,169,501	1,101,497
<b>1996</b>	290,549,773			
	11,259,058,965		27,021,129	14,319,460
<b>(6) Indicated Growth Factor:</b>				<b>0.53</b>
<b>(7) Selected Growth Factor:</b>				<b>0.5</b>

**Notes:**

A growth factor of 0.500 has been selected.

(2): Losses from Aggregate Financial Data evaluated as of 108 months.

(3): Estimated % paid loss emergence for the report interval.

(4) = (2) x (3)

(5) = (3) x [(2) 1996]

(6) = [ Sum of (5) ] / [ Sum of (4) ]

(7): Rounded to the nearest tenth

# II 000028 STIP

## Paid Plus Case Loss Tail Factors

### Indemnity 252nd Month to Ultimate Loss Tail Development Factor

(1) Valuation Date [Y]	12/31/2012	12/31/2013	12/31/2014	12/31/2015	12/31/2016
(2) Prior to Policy Year 1996 at [Y]	9,929,921,275	9,943,866,723	9,951,706,280	9,960,650,655	9,968,607,453
(3) Prior to Policy Year 1996 at [Y] - 1 yr	9,920,348,445	9,929,921,275	9,943,866,723	9,951,706,280	9,960,650,655
(4) Difference = (2) - (3)	9,572,830	13,945,448	7,839,557	8,944,375	7,956,798
(5) Policy Year 1996 at [Y]	216,039,904	216,280,014	217,291,087	217,183,658	217,144,617
(6) Ratio = (4) / (5)	0.044	0.064	0.036	0.041	0.037
(7) Growth Factor	0.500	0.500	0.500	0.500	0.500
(8) Product = (6) x (7)	0.022	0.032	0.018	0.021	0.018
(9) Factor to Ultimate = 1.000 + (8)	1.022	1.032	1.018	1.021	1.018
(10) Month [M]	204	216	228	240	252
(11) Factor to Ultimate = (9)	1.022	1.032	1.018	1.021	1.018
(12) Factor from [252] to [M]	0.999	0.998	0.999	1.000	1.000
(13) Indicated [252] to Ultimate Tail Factor = (11) x (12)	1.021	1.030	1.017	1.021	1.018
(14) Five Year Average	1.022				

### Medical 252nd Month to Ultimate Loss Tail Development Factor

(15) Valuation Date [Y]	12/31/2012	12/31/2013	12/31/2014	12/31/2015	12/31/2016
(16) Prior to Policy Year 1996 at [Y]	3,317,156,719	3,321,365,844	3,331,667,936	3,343,340,240	3,341,532,292
(17) Prior to Policy Year 1996 at [Y] - 1 yr	3,313,598,280	3,317,156,719	3,321,365,844	3,331,667,936	3,343,340,240
(18) Difference = (16) - (17)	3,558,439	4,209,125	10,302,092	11,672,304	(1,807,948)
(19) Policy Year 1996 at [Y]	119,221,379	119,061,487	119,068,231	119,702,154	118,992,053
(20) Ratio = (18) / (19)	0.030	0.035	0.087	0.098	(0.015)
(21) Growth Factor	0.500	0.500	0.500	0.500	0.500
(22) Product = (20) x (21)	0.015	0.018	0.043	0.049	(0.008)
(23) Factor to Ultimate = 1.000 + (22)	1.015	1.018	1.043	1.049	0.992
(24) Month [M]	204	216	228	240	252
(25) Factor to Ultimate = (23)	1.015	1.018	1.043	1.049	0.992
(26) Factor from [252] to [M]	0.997	1.001	1.006	1.006	1.000
(27) Indicated [252] to Ultimate Tail Factor = (25) x (26)	1.011	1.019	1.049	1.055	0.992
(28) Five Year Average	1.025				

**Notes:**

- (2), (3), (5): Indemnity Paid Plus Case Losses from Aggregate Financial Data.
- (16), (17), (19): Medical Paid Plus Case Losses from Aggregate Financial Data.
- (7), (21): Exhibit 2, Page 2.
- (12), (26): 1.0 / Cumulative LDF from Section II - B, weighted average of Reminder of Industry and AIG

## II 000029 STIP

Section II - Loss Development  
 Subsection C - Tail Factor Calculation  
 7/1/2018

Section II - C  
 Exhibit 2  
 Page 2

### Growth Factor Adjustment Paid Plus Case Losses

Policy Year (1)	Incurred Losses (2)	Percent Development for Report Interval (3)	Prior to 1996 Dollar Development (4)	On-Level Prior to 1996 Dollar Development (5)
1976	150,991,674	0.011%	16,222	31,215
1977	172,661,308	0.021%	37,100	62,431
1978	232,830,184	0.032%	75,043	93,646
1979	268,273,946	0.043%	115,289	124,862
1980	297,248,722	0.054%	159,676	156,077
1981	355,713,276	0.064%	229,298	187,293
1982	375,695,513	0.075%	282,542	218,508
1983	425,367,012	0.086%	365,598	249,724
1984	498,629,874	0.097%	482,137	280,939
1985	609,732,750	0.107%	655,072	312,155
1986	753,357,857	0.118%	890,315	343,370
1987	931,585,048	0.129%	1,201,028	374,586
1988	1,016,351,862	0.140%	1,419,505	405,801
1989	1,086,491,801	0.150%	1,634,196	437,017
1990	999,727,163	0.161%	1,611,099	468,232
1991	710,903,018	0.172%	1,222,024	499,448
1992	473,640,514	0.183%	865,062	530,663
1993	392,024,364	0.193%	758,115	561,879
1994	334,649,675	0.204%	683,115	593,094
1995	308,487,792	0.215%	662,853	624,310
<b>1996</b>	290,549,773		-	-
	10,684,913,126		13,365,290	6,555,252
<b>(6) Indicated Growth Factor:</b>				<b>0.49</b>
<b>(7) Selected Growth Factor:</b>				<b>0.5</b>

**Notes:**

A growth factor of 0.500 has been selected.

(2): Losses from Aggregate Financial Data evaluated as of 108 months.

(3): Estimated % paid plus case loss emergence for the report interval.

(4) = (2) x (3)

(5) = (3) x [(2) 1996]

(6) = [ Sum of (5) ] / [ Sum of (4) ]

(7): Rounded to the nearest tenth

## II 000030 STIP

Section II - Loss Development  
 Subsection D - Adjustment for Escalation of Benefits  
 7/1/2018

Section II - D  
 Exhibit 1  
 Page 1

### Differential in Indemnity Loss Development

#### Paid Loss Development Method Calculation of Adjustment for Differential in Loss Development

Escalated or Unescalated (1)	Injury Type (2)	Implicit LDF to Ultimate From Month				
		168	180	192 (3)	204	216
Escalated	Fatal	3.036	2.859	2.703	2.562	2.433
Escalated	Permanent Total	4.073	3.719	3.417	3.157	2.929
Escalated	Other Indemnity	1.000	1.000	1.000	1.000	1.000
Escalated	Total Indemnity	1.102	1.098	1.095	1.091	1.088
Unescalated	Fatal	1.942	1.861	1.789	1.725	1.668
Unescalated	Permanent Total	2.452	2.295	2.160	2.043	1.941
Unescalated	Other Indemnity	1.000	1.000	1.000	1.000	1.000
Unescalated	Total Indemnity	1.040	1.038	1.036	1.034	1.032

Escalated or Unescalated (4)	Injury Type (5)	Differential in Loss Development at Month				
		168	180	192 (6)	204	216
Escalated	Fatal	1.563	1.536	1.511	1.485	1.459
Escalated	Permanent Total	1.661	1.620	1.582	1.545	1.509
Escalated	Other Indemnity	1.000	1.000	1.000	1.000	1.000
Escalated	Total Indemnity	<b>1.060</b>	<b>1.058</b>	<b>1.057</b>	<b>1.055</b>	<b>1.054</b>

Selected Differential in Indemnity Loss Development at Month 360 1.042

Notes:

(3) = [ (8) Exhibit 1, Page 2 ] / [ (9) Exhibit 1, Page 2 ]

(6) = [ (3) for Escalated ] / [ (3) for Unescalated ]



## II 000031 STIP

Section II - Loss Development  
 Subsection D - Adjustment for Escalation of Benefits  
 7/1/2018

Section II - D  
 Exhibit 1  
 Page 2

### Differential in Indemnity Loss Development

#### Paid Loss Development Method Calculation of Adjustment for Differential in Loss Development

Escalated or Unescalated (1)	Injury Type (2)	Losses at Month						Injury Type Weights @ Ultimate (5)
		Ultimate (3)	168	180	192 (4)	204	216	
Escalated	Fatal	874,958	288,217	306,023	323,680	341,550	359,626	1.50%
Escalated	Permanent Total	1,668,738	409,709	448,697	488,350	528,641	569,759	6.65%
Escalated	Other Indemnity							57.13%
Escalated	Total Indemnity							65.28%
Unescalated	Fatal	465,615	239,708	250,218	260,195	269,862	279,221	0.80%
Unescalated	Permanent Total	824,906	336,400	359,427	381,858	403,713	424,987	3.29%
Unescalated	Other Indemnity							57.13%
Unescalated	Total Indemnity							61.21%

Escalated or Unescalated (6)	Injury Type (7)	Estimated Losses at Month					
		Ultimate (8)	168	180	192 (9)	204	216
Escalated	Fatal	1,499	494	524	554	585	616
Escalated	Permanent Total	6,650	1,633	1,788	1,946	2,107	2,270
Escalated	Other Indemnity	57,128	57,128	57,128	57,128	57,128	57,128
Escalated	Total Indemnity	65,277	59,255	59,441	59,629	59,820	60,015
Unescalated	Fatal	797	411	429	446	462	478
Unescalated	Permanent Total	3,287	1,341	1,432	1,522	1,609	1,694
Unescalated	Other Indemnity	57,128	57,128	57,128	57,128	57,128	57,128
Unescalated	Total Indemnity	61,213	58,880	58,989	59,096	59,199	59,300

**Notes:**

Escalation calculation applied only to Fatal and Permanent Total Injury Types.

(4): Average discounted losses are calculated from Simulation Model loss flows using a 3.5% discount rate.

(5): Escalated: From Section IV-E, Exhibit 2. As a % of total losses, Indemnity and Medical.

Unescalated: [ (5) for Escalated ] x { [ (3) for Unescalated ] / [ (3) for Escalated ] }.

(8) = (5) x 100,000

(9) = (8) x [ (4) / (3) ]

## II 000032 STIP

Section II - Loss Development  
 Subsection D - Adjustment for Escalation of Benefits  
 7/1/2018

Section II - D  
 Exhibit 2  
 Page 1

### Differential in Indemnity Loss Development

#### Paid Plus Case Loss Development Method Calculation of Adjustment for Differential in Loss Development

Escalated or Unescalated (1)	Injury Type (2)	Implicit LDF to Ultimate From Month				
		168	180	192 (3)	204	216
Escalated	Fatal	1.364	1.340	1.317	1.295	1.274
Escalated	Permanent Total	1.398	1.368	1.340	1.313	1.288
Escalated	Other Indemnity	1.000	1.000	1.000	1.000	1.000
Escalated	Total Indemnity	1.036	1.034	1.032	1.030	1.029
Unescalated	Fatal	1.212	1.198	1.184	1.171	1.159
Unescalated	Permanent Total	1.253	1.234	1.215	1.198	1.183
Unescalated	Other Indemnity	1.000	1.000	1.000	1.000	1.000
Unescalated	Total Indemnity	1.013	1.012	1.012	1.011	1.010

Escalated or Unescalated (4)	Injury Type (5)	Differential in Loss Development at Month				
		168	180	192 (6)	204	216
Escalated	Fatal	1.125	1.119	1.112	1.105	1.099
Escalated	Permanent Total	1.115	1.109	1.102	1.096	1.089
Escalated	Other Indemnity	1.000	1.000	1.000	1.000	1.000
Escalated	Total Indemnity	<b>1.023</b>	<b>1.022</b>	<b>1.020</b>	<b>1.019</b>	<b>1.018</b>

Selected Differential in Indemnity Loss Development at Month 360 1.006

Notes:

(3) = [ (8) Exhibit 2, Page 2 ] / [ (9) Exhibit 2, Page 2 ]

(6) = [ (3) for Escalated ] / [ (3) for Unescalated ]

## II 000033 STIP

Section II - Loss Development  
 Subsection D - Adjustment for Escalation of Benefits  
 7/1/2018

Section II - D  
 Exhibit 2  
 Page 2

### Differential in Indemnity Loss Development

#### Paid Plus Case Loss Development Method Calculation of Adjustment for Differential in Loss Development

Escalated or Unescalated (1)	Injury Type (2)	Losses at Month						Injury Type Weights @ Ultimate (5)
		Ultimate (3)	168	180	192 (4)	204	216	
Escalated	Fatal	874,958	641,246	652,979	664,504	675,808	686,874	1.50%
Escalated	Permanent Total	1,668,738	1,193,905	1,219,988	1,245,595	1,270,688	1,295,221	6.65%
Escalated	Other Indemnity							57.13%
Escalated	Total Indemnity							65.28%
Unescalated	Fatal	465,615	384,035	388,719	393,217	397,535	401,676	0.80%
Unescalated	Permanent Total	824,906	658,201	668,658	678,696	688,321	697,538	3.29%
Unescalated	Other Indemnity							57.13%
Unescalated	Total Indemnity							61.21%

Escalated or Unescalated (6)	Injury Type (7)	Estimated Losses at Month					
		Ultimate (8)	168	180	192 (9)	204	216
Escalated	Fatal	1,499	1,098	1,118	1,138	1,157	1,176
Escalated	Permanent Total	6,650	4,758	4,861	4,964	5,064	5,161
Escalated	Other Indemnity	57,128	57,128	57,128	57,128	57,128	57,128
Escalated	Total Indemnity	65,277	62,984	63,108	63,230	63,349	63,466
Unescalated	Fatal	797	658	666	673	681	688
Unescalated	Permanent Total	3,287	2,623	2,665	2,705	2,743	2,780
Unescalated	Other Indemnity	57,128	57,128	57,128	57,128	57,128	57,128
Unescalated	Total Indemnity	61,213	60,409	60,459	60,506	60,552	60,596

**Notes:**

Escalation calculation applied only to Fatal and Permanent Total Injury Types.

(4): Average discounted losses are calculated from Simulation Model loss flows using a 3.5% discount rate.

(5): Escalated: From Section IV-E, Exhibit 2. As a % of total losses, Indemnity and Medical.

Unescalated: [ (5) for Escalated ] x { [ (3) for Unescalated ] / [ (3) for Escalated ] }.

(8) = (5) x 100,000

(9) = (8) x [ (4) / (3) ]

Accident Year Aggregate Financial Data  
 Summary of Loss Development Factors  
 Remainder of Industry

Months of Development	Loss Development Factors From																			Tail Factor	Escalation Factor	
	12-24	24-36	36-48	48-60	60-72	72-84	84-96	96-108	108-120	120-132	132-144	144-156	156-168	168-180	180-192	192-204	204-216	216-228	228-240			240-252
<u>(1) Indemnity Paid Losses</u>																						
2 Year Average	2.915	1.581	1.216	1.091	1.037	1.021	1.015	1.010	1.005	1.007	1.009	1.005	1.002	1.002	1.005	1.002	1.004	1.002	1.002	1.001	1.036	1.042
Cumulative	7.505	2.575	1.629	1.339	1.227	1.183	1.158	1.141	1.130	1.124	1.116	1.106	1.100	1.098	1.096	1.091	1.089	1.084	1.083	1.081	1.079	1.042
<u>(2) Medical Paid Losses</u>																						
2 Yr Average	1.949	1.141	1.052	1.023	1.021	1.010	1.010	1.010	1.009	1.007	1.008	1.008	1.009	1.008	1.009	1.010	1.006	1.007	1.009	1.006	1.057	1.000
Cumulative	2.928	1.502	1.316	1.251	1.222	1.198	1.186	1.174	1.162	1.152	1.144	1.134	1.125	1.115	1.107	1.097	1.087	1.080	1.073	1.063	1.057	1.000

Notes:  
 Tail Factors from Section II-C, Exhibit 1, page 1 (accident year tail factors, were approximated using policy year tail factors).  
 Escalation Factor from Section II-D, Exhibit 1, page 1.

II 000034 STIP

## II 00035 STIP

Section II - Loss Development  
 Subsection E - Accident Year Data  
 7/1/2018

Section II - E  
 Exhibit 1  
 Page 2

### Accident Year Aggregate Financial Data Calculation of Indemnity Paid Loss Development Factors Remainder of Industry

Accident Year	Losses (in 000's) Evaluated at Month		Loss Development Factor	Accident Year	Losses (in 000's) Evaluated at Month		Loss Development Factor
	12	24			132	144	
2014	50,937	147,096	2.888	2004	240,162	242,298	1.009
2015	56,958	167,536	2.941	2005	217,035	219,217	1.010
Average			2.915	Average			1.009
	24	36			144	156	
2013	149,375	236,334	1.582	2003	241,131	242,841	1.007
2014	147,096	232,390	1.580	2004	242,298	243,006	1.003
Average			1.581	Average			1.005
	36	48			156	168	
2012	201,661	248,548	1.233	2002	237,215	237,417	1.001
2013	236,334	283,621	1.200	2003	242,841	243,767	1.004
Average			1.216	Average			1.002
	48	60			168	180	
2011	247,031	269,168	1.090	2001	249,355	250,030	1.003
2012	248,548	271,652	1.093	2002	237,417	237,558	1.001
Average			1.091	Average			1.002
	60	72			180	192	
2010	233,183	240,480	1.031	2000	249,970	250,571	1.002
2011	269,168	280,725	1.043	2001	250,030	251,829	1.007
Average			1.037	Average			1.005
	72	84			192	204	
2009	233,203	238,120	1.021	1999	218,070	218,443	1.002
2010	240,480	245,717	1.022	2000	250,571	251,066	1.002
Average			1.021	Average			1.002
	84	96			204	216	
2008	238,018	242,939	1.021	1998	209,884	210,754	1.004
2009	238,120	240,570	1.010	1999	218,443	219,308	1.004
Average			1.015	Average			1.004
	96	108			216	228	
2007	226,245	228,550	1.010	1997	183,949	184,215	1.001
2008	242,939	245,185	1.009	1998	210,754	211,100	1.002
Average			1.010	Average			1.002
	108	120			228	240	
2006	207,625	208,415	1.004	1996	196,190	196,542	1.002
2007	228,550	230,051	1.007	1997	184,215	184,479	1.001
Average			1.005	Average			1.002
	120	132			240	252	
2005	216,105	217,035	1.004	1996	196,542	196,793	1.001
2006	208,415	210,413	1.010	Average			1.001
Average			1.007				

Notes:  
 Losses from Aggregate Financial Data.

# II 000036 STIP

Section II - Loss Development  
 Subsection E - Accident Year Data  
 7/1/2018

Section II - E  
 Exhibit 1  
 Page 3

## Accident Year Aggregate Financial Data Calculation of Medical Paid Loss Development Factors Remainder of Industry

Accident Year	Losses (in 000's) Evaluated at Month		Loss Development Factor	Accident Year	Losses (in 000's) Evaluated at Month		Loss Development Factor
	12	24			132	144	
2014	66,288	129,272	1.950	2004	129,651	130,801	1.009
2015	67,732	131,997	1.949	2005	116,710	117,638	1.008
Average			1.949	Average			1.008
	24	36			144	156	
2013	128,424	146,697	1.142	2003	132,931	134,078	1.009
2014	129,272	147,449	1.141	2004	130,801	131,758	1.007
Average			1.141	Average			1.008
	36	48			156	168	
2012	128,487	135,703	1.056	2002	125,315	126,459	1.009
2013	146,697	153,672	1.048	2003	134,078	135,213	1.008
Average			1.052	Average			1.009
	48	60			168	180	
2011	135,274	138,349	1.023	2001	116,127	116,850	1.006
2012	135,703	138,987	1.024	2002	126,459	127,638	1.009
Average			1.023	Average			1.008
	60	72			180	192	
2010	128,148	129,725	1.012	2000	123,203	124,704	1.012
2011	138,349	142,352	1.029	2001	116,850	117,449	1.005
Average			1.021	Average			1.009
	72	84			192	204	
2009	120,516	121,487	1.008	1999	117,186	118,066	1.008
2010	129,725	131,149	1.011	2000	124,704	126,219	1.012
Average			1.010	Average			1.010
	84	96			204	216	
2008	128,306	129,777	1.011	1998	103,760	104,299	1.005
2009	121,487	122,618	1.009	1999	118,066	118,792	1.006
Average			1.010	Average			1.006
	96	108			216	228	
2007	127,635	129,397	1.014	1997	91,353	91,902	1.006
2008	129,777	130,671	1.007	1998	104,299	105,158	1.008
Average			1.010	Average			1.007
	108	120			228	240	
2006	112,202	113,038	1.007	1996	97,542	98,805	1.013
2007	129,397	130,726	1.010	1997	91,902	92,351	1.005
Average			1.009	Average			1.009
	120	132			240	252	
2005	116,027	116,710	1.006	1996	98,805	99,402	1.006
2006	113,038	114,006	1.009	Average			1.006
Average			1.007				

Notes:  
 Losses from Aggregate Financial Data.

Accident Year Aggregate Financial Data  
 Summary of Loss Development Factors  
 AIG

Months of Development	Loss Development Factors From																			Tail Factor	Escalation Factor	
	12-24	24-36	36-48	48-60	60-72	72-84	84-96	96-108	108-120	120-132	132-144	144-156	156-168	168-180	180-192	192-204	204-216	216-228	228-240			240-252
<u>(1) Indemnity Paid Losses</u>																						
5 Yr Average	3.158	1.653	1.259	1.118	1.039	1.021	1.006	1.006	1.006	1.007	1.005	1.007	1.006	1.012	1.001	1.007	1.008	1.006	1.000	1.001	1.036	1.042
Cumulative	9.102	2.882	1.743	1.385	1.239	1.193	1.168	1.161	1.154	1.148	1.140	1.134	1.126	1.119	1.106	1.105	1.096	1.088	1.081	1.081	1.079	1.042
<u>(2) Medical Paid Losses</u>																						
5 Yr Average	2.153	1.182	1.072	1.033	1.021	1.004	1.011	1.013	1.013	1.010	1.010	1.010	1.011	1.011	1.007	1.008	1.010	1.003	1.003	1.006	1.057	1.000
Cumulative	3.470	1.612	1.364	1.272	1.231	1.206	1.201	1.188	1.172	1.156	1.145	1.133	1.121	1.109	1.097	1.089	1.081	1.069	1.066	1.063	1.057	1.000

Notes:  
 Tail Factors from Section II-C, Exhibit 1, page 1 (accident year tail factors, were approximated using policy year tail factors).  
 Escalation Factor from Section II-D, Exhibit 1, page 1.

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Section II - Loss Development  
Subsection E - Accident Year Data  
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## Accident Year Aggregate Financial Data Calculation of Indemnity Paid Loss Development Factors AIG

Accident Year	Losses (in 000's) Evaluated at Month		Loss Development Factor	Accident Year	Losses (in 000's) Evaluated at Month		Loss Development Factor
	12	24			132	144	
2011	10,660	33,057	3.101	2001	44,130	44,793	1.015
2012	8,140	25,108	3.084	2002	59,477	59,617	1.002
2013	6,325	20,955	3.313	2003	80,660	80,728	1.001
2014	7,147	21,564	3.017	2004	95,344	95,767	1.004
2015	7,585	24,831	3.274	2005	125,693	126,266	1.005
Average			3.158	Average			1.005
2010	26,795	45,084	1.683	2000	34,022	34,320	1.009
2011	33,057	53,291	1.612	2001	44,793	45,211	1.009
2012	25,108	39,518	1.574	2002	59,617	59,922	1.005
2013	20,955	36,497	1.742	2003	80,728	81,337	1.008
2014	21,564	35,730	1.657	2004	95,767	96,313	1.006
Average			1.653	Average			1.007
2009	46,479	59,799	1.287	1999	28,674	29,147	1.016
2010	45,084	57,092	1.266	2000	34,320	34,349	1.001
2011	53,291	67,222	1.261	2001	45,211	45,320	1.002
2012	39,518	47,756	1.208	2002	59,922	60,083	1.003
2013	36,497	46,410	1.272	2003	81,337	81,867	1.007
Average			1.259	Average			1.006
2008	84,313	92,224	1.094	1998	38,082	38,603	1.014
2009	59,799	68,037	1.138	1999	29,147	30,161	1.035
2010	57,092	64,373	1.128	2000	34,349	34,428	1.002
2011	67,222	76,710	1.141	2001	45,320	45,606	1.006
2012	47,756	51,940	1.088	2002	60,083	60,240	1.003
Average			1.118	Average			1.012
2007	97,750	101,280	1.036	1997	27,690	27,698	1.000
2008	92,224	96,776	1.049	1998	38,603	38,797	1.005
2009	68,037	70,336	1.034	1999	30,161	30,245	1.003
2010	64,373	66,047	1.026	2000	34,428	34,432	1.000
2011	76,710	80,360	1.048	2001	45,606	45,511	0.998
Average			1.039	Average			1.001
2006	111,473	112,469	1.009	1996	25,197	25,768	1.023
2007	101,280	105,601	1.043	1997	27,698	27,726	1.001
2008	96,776	99,860	1.032	1998	38,797	39,160	1.009
2009	70,336	71,462	1.016	1999	30,245	30,368	1.004
2010	66,047	66,467	1.006	2000	34,432	34,433	1.000
Average			1.021	Average			1.007
2005	120,709	122,358	1.014	1996	25,768	26,086	1.012
2006	112,469	113,231	1.007	1997	27,726	27,749	1.001
2007	105,601	106,448	1.008	1998	39,160	39,788	1.016
2008	99,860	99,620	0.998	1999	30,368	30,482	1.004
2009	71,462	71,913	1.006	Average			1.008
Average			1.006				
2004	93,130	94,330	1.013	1996	26,086	26,086	1.000
2005	122,358	123,895	1.013	1997	27,749	27,776	1.001
2006	113,231	113,506	1.002	1998	39,788	40,511	1.018
2007	106,448	106,455	1.000	Average			1.006
2008	99,620	99,626	1.000				
Average			1.006				
2003	79,756	80,640	1.011	1996	26,086	26,060	0.999
2004	94,330	94,859	1.006	1997	27,776	27,806	1.001
2005	123,895	124,043	1.001	Average			1.000
2006	113,506	114,235	1.006				
2007	106,455	106,933	1.004				
Average			1.006				
2002	58,982	59,477	1.008	1996	26,060	26,089	1.001
2003	80,640	80,660	1.000	Average			1.001
2004	94,859	95,344	1.005				
2005	124,043	125,693	1.013				
2006	114,235	115,011	1.007				
Average			1.007				

Notes:  
Losses from Aggregate Financial Data.



# II 000039 STIP

Section II - Loss Development  
 Subsection E - Accident Year Data  
 7/1/2018

Section II - E  
 Exhibit 1  
 Page 6

## Accident Year Aggregate Financial Data Calculation of Medical Paid Loss Development Factors AIG

Accident Year	Losses (in 000's) Evaluated at Month		Loss Development Factor	Accident Year	Losses (in 000's) Evaluated at Month		Loss Development Factor
	12	24			132	144	
2011	11,903	25,019	2.102	2001	16,162	16,235	1.005
2012	8,623	18,275	2.119	2002	23,721	24,077	1.015
2013	6,706	14,539	2.168	2003	31,086	31,365	1.009
2014	7,529	16,579	2.202	2004	43,340	43,797	1.011
2015	8,235	17,880	2.171	2005	58,346	59,064	1.012
Average			2.153	Average			1.010
	24	36			144	156	
2010	21,828	26,218	1.201	2000	11,433	11,537	1.009
2011	25,019	29,299	1.171	2001	16,235	16,387	1.009
2012	18,275	21,359	1.169	2002	24,077	24,467	1.016
2013	14,539	17,264	1.187	2003	31,365	31,577	1.007
2014	16,579	19,615	1.183	2004	43,797	44,242	1.010
Average			1.182	Average			1.010
	36	48			156	168	
2009	29,505	30,953	1.049	1999	11,798	12,027	1.019
2010	26,218	28,339	1.081	2000	11,537	11,647	1.010
2011	29,299	31,251	1.067	2001	16,387	16,495	1.007
2012	21,359	22,950	1.074	2002	24,467	24,868	1.016
2013	17,264	18,790	1.088	2003	31,577	31,694	1.004
Average			1.072	Average			1.011
	48	60			168	180	
2008	38,259	39,060	1.021	1998	12,745	12,843	1.008
2009	30,953	31,461	1.016	1999	12,027	12,243	1.018
2010	28,339	29,681	1.047	2000	11,647	11,767	1.010
2011	31,251	32,246	1.032	2001	16,495	16,571	1.005
2012	22,950	24,082	1.049	2002	24,868	25,203	1.013
Average			1.033	Average			1.011
	60	72			180	192	
2007	48,167	49,742	1.033	1997	12,917	12,968	1.004
2008	39,060	39,429	1.009	1998	12,843	12,941	1.008
2009	31,461	31,912	1.014	1999	12,243	12,423	1.015
2010	29,681	30,382	1.024	2000	11,767	11,873	1.009
2011	32,246	33,070	1.026	2001	16,571	16,599	1.002
Average			1.021	Average			1.007
	72	84			192	204	
2006	48,902	49,472	1.012	1996	9,738	9,754	1.002
2007	49,742	50,919	1.024	1997	12,968	13,050	1.006
2008	39,429	39,601	1.004	1998	12,941	13,032	1.007
2009	31,912	32,353	1.014	1999	12,423	12,542	1.010
2010	30,382	29,338	0.966	2000	11,873	12,057	1.015
Average			1.004	Average			1.008
	84	96			204	216	
2005	54,937	55,993	1.019	1996	9,754	9,792	1.004
2006	49,472	50,135	1.013	1997	13,050	13,228	1.014
2007	50,919	51,782	1.017	1998	13,032	13,068	1.003
2008	39,601	39,563	0.999	1999	12,542	12,812	1.021
2009	32,353	32,636	1.009	Average			1.010
Average			1.011				
	96	108			216	228	
2004	41,467	42,223	1.018	1996	9,792	9,823	1.003
2005	55,993	56,889	1.016	1997	13,228	13,274	1.003
2006	50,135	50,540	1.008	1998	13,068	13,101	1.002
2007	51,782	52,877	1.021	Average			1.003
2008	39,563	39,702	1.004				
Average			1.013				
	108	120			228	240	
2003	30,595	30,864	1.009	1996	9,823	9,853	1.003
2004	42,223	42,851	1.015	1997	13,274	13,315	1.003
2005	56,889	57,583	1.012	Average			1.003
2006	50,540	50,911	1.007				
2007	52,877	54,108	1.023				
Average			1.013				
	120	132			240	252	
2002	23,379	23,721	1.015	1996	9,853	9,908	1.006
2003	30,864	31,086	1.007	Average			1.006
2004	42,851	43,340	1.011				
2005	57,583	58,346	1.013				
2006	50,911	51,163	1.005				
Average			1.010				

Notes:  
 Losses from Aggregate Financial Data.

# III 000006 STIP

Section III - Premiums  
 Subsection A - Summary  
 7/1/2018

Section III - A  
 Exhibit 1  
 Page 1

Policy Year Aggregate Financial Data  
 Calculation of Adjusted On-Level Standard Premium plus Adjusted ARAP at Ultimate  
 Industrywide

Summary Exhibit

	Policy Year as of 12/31/2016	
	2014	2015
(1) Standard Earned Premium plus Adjusted ARAP Premium	1,089,030,715	1,152,664,308
(2) Adjustment for Experience and Merit Rating, ARAP, and Construction Credit Off-balance	1.036	1.045
(3) Adjustment Factor to Remove the Impact of Loading for Recoupment of Insolvency Fund Assessments	0.999	0.998
(4) Composite Adjustment Factor = (2) x (3)	1.035	1.043
(5) Adjusted Standard Earned Premium plus ARAP = (1) x (4)	1,127,034,967	1,201,727,724
(6) Cumulative Premium Development Factor to Ultimate (see Page 2)	1.000	1.010
(7) Rate On-Level Factor	1.015	1.015
(8) Factor to Remove Expense Constant	0.958	0.959
(9) Adjusted On-Level Standard Earned Premium plus Adjusted ARAP at Ultimate = (5) x (6) x (7) x (8)	1,095,560,696	1,181,786,575

Notes:

- (1): Section III-B, Exhibit 2
- (2): Section III-B, Exhibit 1
- (3): Section III-C, Exhibit 1
- (6): Premiums are deemed to be fully developed at 252 months.
- (7): Section III-D, Exhibit 1
- (8): Section VI-F, Exhibit 2.

Policy Year Aggregate Financial Data  
 Calculation of Standard Premium plus Adjusted ARAP Premium Development Factors  
 Industrywide

Premium Development Factors From:																			
Months of Development	24-36	36-48	48-60	60-72	72-84	84-96	96-108	108-120	120-132	132-144	144-156	156-168	168-180	180-192	192-204	204-216	216-228	228-240	240-252
2 Year Average	1.011	0.999	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	1.000	1.000	1.000	1.000
Cumulative Factor to 252	1.014	1.002	1.003	1.001	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	1.000	1.000
5 Year Average	1.010	0.998	1.001	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	1.000	1.000	1.000
Cumulative Factor to 252	1.010	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	1.000	1.000	1.000	1.000	1.000

Notes:  
 From Page 3

III 000007 STIP

# III 000008 STIP

Section III - Premiums  
Subsection A - Summary  
7/1/2018

Section III - A  
Exhibit 1  
Page 3

## Policy Year Aggregate Financial Data Calculation of Standard Premium plus Adjusted ARAP Premium Development Factors Industrywide

Policy Year	Premium (in 000's) Evaluated at Month		Premium Development Factor	Policy Year	Premium (in 000's) Evaluated at Month		Premium Development Factor
	24	36			132	144	
2010	603,653	609,530	1.010	2001	553,966	553,966	1.000
2011	655,779	662,620	1.010	2002	619,012	619,012	1.000
2012	699,675	706,230	1.009	2003	611,906	611,906	1.000
2013	722,507	729,822	1.010	2004	575,321	575,321	1.000
2014	767,773	777,428	1.013	2005	594,447	594,446	1.000
2 yr Average			1.011	2 yr Average			1.000
5 yr Average			1.010	5 yr Average			1.000
	36	48			144	156	
2009	567,594	567,109	0.999	2000	518,906	518,858	1.000
2010	609,530	610,063	1.001	2001	553,966	553,965	1.000
2011	662,620	658,748	0.994	2002	619,012	619,012	1.000
2012	706,230	705,512	0.999	2003	611,906	611,906	1.000
2013	729,822	728,976	0.999	2004	575,321	575,318	1.000
2 yr Average			0.999	2 yr Average			1.000
5 yr Average			0.998	5 yr Average			1.000
	48	60			156	168	
2008	554,180	554,012	1.000	1999	543,774	543,774	1.000
2009	567,109	567,089	1.000	2000	518,858	518,858	1.000
2010	610,063	609,824	1.000	2001	553,965	553,965	1.000
2011	658,748	662,568	1.006	2002	619,012	619,014	1.000
2012	705,512	705,409	1.000	2003	611,906	611,906	1.000
2 yr Average			1.003	2 yr Average			1.000
5 yr Average			1.001	5 yr Average			1.000
	60	72			168	180	
2007	633,981	633,905	1.000	1998	556,688	556,688	1.000
2008	554,012	554,192	1.000	1999	543,774	543,775	1.000
2009	567,089	567,071	1.000	2000	518,858	518,858	1.000
2010	609,824	610,266	1.001	2001	553,965	553,965	1.000
2011	662,568	662,492	1.000	2002	619,014	619,014	1.000
2 yr Average			1.000	2 yr Average			1.000
5 yr Average			1.000	5 yr Average			1.000
	72	84			180	192	
2006	636,039	636,090	1.000	1997	553,467	553,467	1.000
2007	633,905	633,869	1.000	1998	556,688	556,688	1.000
2008	554,192	554,185	1.000	1999	543,775	543,775	1.000
2009	567,071	567,132	1.000	2000	518,858	518,858	1.000
2010	610,266	610,258	1.000	2001	553,965	553,965	1.000
2 yr Average			1.000	2 yr Average			1.000
5 yr Average			1.000	5 yr Average			1.000
	84	96			192	204	
2005	594,420	594,433	1.000	1996	584,329	584,329	1.000
2006	636,090	636,097	1.000	1997	553,467	553,467	1.000
2007	633,869	633,865	1.000	1998	556,688	556,688	1.000
2008	554,185	554,291	1.000	1999	543,775	543,775	1.000
2009	567,132	567,130	1.000	2000	518,858	518,858	1.000
2 yr Average			1.000	2 yr Average			1.000
5 yr Average			1.000	5 yr Average			1.000
	96	108			204	216	
2004	575,313	575,321	1.000	1996	584,329	584,329	1.000
2005	594,433	594,426	1.000	1997	553,467	553,467	1.000
2006	636,097	636,096	1.000	1998	556,688	556,688	1.000
2007	633,865	633,872	1.000	1999	543,775	543,775	1.000
2008	554,291	554,372	1.000	2 yr Average			1.000
2 yr Average			1.000	5 yr Average			1.000
5 yr Average			1.000				
	108	120			216	228	
2003	611,850	611,911	1.000	1996	584,329	584,329	1.000
2004	575,321	575,320	1.000	1997	553,467	553,467	1.000
2005	594,426	594,439	1.000	1998	556,688	556,688	1.000
2006	636,096	636,095	1.000	2 yr Average			1.000
2007	633,872	633,859	1.000	5 yr Average			1.000
2 yr Average			1.000				
5 yr Average			1.000				
	120	132			228	240	
2002	619,012	619,012	1.000	1996	584,329	584,329	1.000
2003	611,911	611,906	1.000	1997	553,467	553,467	1.000
2004	575,320	575,321	1.000	2 yr Average			1.000
2005	594,439	594,447	1.000	5 yr Average			1.000
2006	636,095	636,096	1.000				
2 yr Average			1.000				
5 yr Average			1.000				
	132	144			240	252	
2002	619,012	619,012	1.000	1996	584,329	584,329	1.000
2003	611,911	611,906	1.000	2 yr Average			1.000
2004	575,320	575,321	1.000	5 yr Average			1.000
2005	594,439	594,447	1.000				
2006	636,095	636,096	1.000				
2 yr Average			1.000				
5 yr Average			1.000				

Adjustment for Experience and Merit Rating, ARAP and Construction Credit Off-Balance

Rate Level Effective Date (1)	Experience Mod for Non-Merit Rated Risks		Merit Rating Impact		Average Experience Mod and Merit Rating Factor (6)	ARAP Charge in Rates (7)	Construction Credit in Construction Rates (8)	Policy Year Written Weights		Calendar Year Earned Weights		
	Anticipated in Rates (2)	Percentage of Premium (3)	Anticipated in Rates (4)	Percentage of Premium (5)				2014 (9)	2015 (10)	2014 (11)	2015 (12)	2016 (13)
4/1/2014	1.000	0.841	-0.019	0.159	0.997	0.052	-0.032	70.6%	100.0%	30.5%	97.9%	86.7%
7/1/2016	1.000	0.845	-0.020	0.155	0.997	0.052	-0.042					13.3%

	Policy Year		Calendar Year Earned		
	2014 (9)	2015 (10)	2014 (11)	2015 (12)	2016 (13)
(14) Weighted Average Experience and Merit Rating factor anticipated in rates	0.997	0.997	0.997	0.997	0.997
(15) Weighted ARAP Charge anticipated in rates	0.051	0.052	0.050	0.052	0.052
(16) Percentage of Premium for CCPAP Eligible Classes	0.347	0.358	0.340	0.353	0.353
(17) Weighted Average Construction Credit anticipated in rates	-0.013	-0.011	-0.016	-0.011	-0.012
(18) Combined Weighted Average impact anticipated in rates = (14) x [ 1.0 + (15) ] x [ 1.0 + (17) ]	1.034	1.036	1.030	1.036	1.036
(19) Manual Premium	1,053,034,050	1,126,797,408	1,018,292,994	1,089,915,729	
(20) Standard Earned Premium at DSR Level, excluding Expense Constants	1,001,173,136	1,068,822,694	972,723,159	1,034,997,915	
(21) ARAP Premium	47,158,506	47,074,092	47,850,955	47,116,299	
(22) Adjustment Factor to Adjust from Company Level to DSR Level Premium	1.045	1.045	1.046	1.043	
(23) Standard Earned Premium plus Adjusted ARAP = (20) + [ (21) x (22) ]	1,050,438,718	1,118,015,596	1,022,760,550	1,084,160,484	
(24) Combined Actual impact = (23) / (19)	0.998	0.992	1.004	0.995	0.995
(25) Adjustment for Experience and Merit Rating, ARAP, and Construction Credit Off-balance = (18) / (24)	<b>1.036</b>	<b>1.045</b>	<b>1.026</b>	<b>1.042</b>	<b>1.042</b>

Notes:  
 (3) = 1.0 - (5)  
 (2), (4), (5), (7), (8): Previous filings.  
 (6) = [ (2) x (3) ] + [ 1.0 + (4) ] x (5)  
 (9),(10): Section III-D, Exhibit 2.  
 (11),(12): Section III-D, Exhibit 3.  
 (13): Section III-D, Exhibit 4.  
 (14) = Sum [ (6) x (9) through (13) ]  
 (15) = Sum [ (7) x (9) through (13) ]  
 (17) = Sum [ (8) x (9) through (13) ] x (16)  
 (16), (19), (20), (21): Unit Statistical Plan Data, Excluding Large Deductible Policies. CY 2016 uses CY 2015 values.  
 (22): from Section III-B, Exhibit 2.

III 000009 STIP

Policy Year Aggregate Financial Data  
 Calculation of Standard Premium plus ARAP Premium  
 Industrywide

	Policy Year valued as of 12/31/2016		Calendar Years		
	2014	2015	2014	2015	2016
(1) Aggregate Financial: Standard Earned Premium at DSR Level	1,040,185,123	1,104,804,922	1,004,210,253	1,058,511,885	1,151,953,085
(2) Aggregate Financial: Standard Earned Premium at Company Level	995,696,680	1,057,219,353	960,330,222	1,014,453,945	1,098,426,614
(3) Aggregate Financial: ARAP Premium	46,756,479	45,798,012	47,290,947	46,055,557	46,688,547
(4) Adjustment Factor to Adjust from Company Level to DSR Level Premium = (1) / (2)	1.045	1.045	1.046	1.043	1.049
(5) Adjusted ARAP Premium = (3) x (4)	48,845,592	47,859,386	49,451,796	48,055,759	48,963,686
(6) Standard Earned Premium plus adjusted ARAP Premium = (1) + (5)	1,089,030,715	1,152,664,308	1,053,662,049	1,106,567,644	1,200,916,771

Notes:

(1),(2),(3): Aggregate Financial Policy Year Calls

Factor to Remove the Impact of Loading for Recoupment of Insolvency Fund Assessments

Rate Level Effective Date (1)	Loading for Recoupment of Insolvency Fund Assessments (2)	Policy Year Weights		Calendar Year Earned Weights		
		2014 (3)	2015 (4)	2014 (5)	2015 (6)	2016 (7)
9/1/2010	0.02%	29.4%		69.5%	2.1%	
4/1/2014	0.19%	70.6%	100.0%	30.5%	97.9%	86.7%
7/1/2016	-0.23%					13.3%

Policy Year		Calendar Year Earned		
2014	2015	2014	2015	2016

(8) Weighted Average Loading for Recoupment of Insolvency Fund Assessment in the Rates = Sum [ (2) x (3) through (7) ]	0.0014	0.0019	0.0007	0.0019	0.0014
(9) Adjustment Factor to Remove the Impact of Loading for Recoupment of Insolvency Fund Assessments = [ 1.0 - (8) ]	<b>0.999</b>	<b>0.998</b>	<b>0.999</b>	<b>0.998</b>	<b>0.999</b>

- Notes:  
 (2): Previous filings.  
 (3),(4): Section III-D, Exhibit 2.  
 (5),(6): Section III-D, Exhibit 3.  
 (7): Section III-D, Exhibit 4.

III 000011 STIP

### III 000012 STIP

Section III - Premiums  
 Subsection D - Rate On-Level Factors  
 7/1/2018

Section III - D  
 Exhibit 1

#### Rate On-Level Factors

Rate Level Effective Date (1)	Rate Change (2)	Cumulative Rate Level Change (3)	Factor to Current Rate Level (4)	Policy Year Weights	
				2014 (5)	2015 (6)
9/1/2010		1.000	1.015	29.4%	
4/1/2014	1.000	1.000	1.015	70.6%	100.0%
7/1/2016	1.015	1.015	1.000		

(7) Rate On-Level Factor  
 = Sum [ (4) x (5) through (6) ]

Policy Year	
2014	2015
1.015	1.015

Notes:

(4): (3)<sub>latest rate level effective date</sub> / (3).

(5),(6): From Exhibit 2.



### III 000013 STIP

Section III - Premiums  
 Subsection D - Premium On-Level Factors  
 7/1/2018

Section III - D  
 Exhibit 2

Policy Year Weights for On-Leveling Earned Premium

Policy Year (1)	Policy Month (2)	Standard Earned Premium plus ARAP at Rate Level Effective			Earned Premiums (6)
		9/1/2010 (3)	4/1/2014 (4)	7/1/2016 (5)	
2014	1	172,057,261			172,057,261
2014	2	69,556,857			69,556,857
2014	3	79,033,223			79,033,223
2014	4		102,821,340		102,821,340
2014	5		80,811,187		80,811,187
2014	6		102,797,392		102,797,392
2014	7		112,750,331		112,750,331
2014	8		61,357,676		61,357,676
2014	9		82,102,710		82,102,710
2014	10		83,402,226		83,402,226
2014	11		59,213,815		59,213,815
2014	12		86,436,988		86,436,988
2014	Total	320,647,341	771,693,664		1,092,341,005

2015	1		184,014,392		184,014,392
2015	2		70,854,917		70,854,917
2015	3		85,729,144		85,729,144
2015	4		109,545,887		109,545,887
2015	5		83,578,681		83,578,681
2015	6		106,254,670		106,254,670
2015	7		125,027,561		125,027,561
2015	8		67,686,302		67,686,302
2015	9		89,409,432		89,409,432
2015	10		85,440,648		85,440,648
2015	11		61,071,378		61,071,378
2015	12		92,378,471		92,378,471
2015	Total		1,160,991,480		1,160,991,480

2016	1		193,329,439		193,329,439
2016	2		74,454,752		74,454,752
2016	3		90,068,984		90,068,984
2016	4		115,091,317		115,091,317
2016	5		87,809,601		87,809,601
2016	6		111,633,550		111,633,550
2016	7			133,326,922	133,326,922
2016	8			72,179,525	72,179,525
2016	9			95,344,421	95,344,421
2016	10			91,112,210	91,112,210
2016	11			65,125,201	65,125,201
2016	12			98,510,469	98,510,469
2016	Total		672,387,643	555,598,748	1,227,986,391

Rate Level Effective Date (7)	Policy Year Weights		
	2014 (8)	2015 (9)	2016 (10)
9/1/2010	29.4%		
4/1/2014	70.6%	100.0%	54.8%
7/1/2016			45.2%

**Notes:**

(3),(4),(5): From Unit Statistical Plan Data. PY 2016 based on PY 2015 data subject to adjustments for rate level, exposure growth, and wage changes.

(6) = (3) + (4) + (5)

(8),(9),(10) = [ PY Total of (3), (4) or (5) ] / [ PY Total of (6) ]

### III 000014 STIP

Section III - Premiums  
 Subsection D - Premium On-Level Factors  
 7/1/2018

Section III - D  
 Exhibit 3

Calendar Year ("CY") Weights for On-Leveling Earned Premium

Policy Year (1)	Policy Month (2)	CY in which Premium is Earned (3)	Standard Earned Premium plus ARAP at Rate Level Effective			Earned Premiums (7)
			9/1/2010 (4)	4/1/2014 (5)	7/1/2016 (6)	
2012	12	2014				0
2013	1	2014	1,713,407			1,713,407
2013	2	2014	6,277,144			6,277,144
2013	3	2014	14,340,860			14,340,860
2013	4	2014	24,464,706			24,464,706
2013	5	2014	24,801,828			24,801,828
2013	6	2014	42,108,281			42,108,281
2013	7	2014	53,156,645			53,156,645
2013	8	2014	37,899,172			37,899,172
2013	9	2014	53,054,367			53,054,367
2013	10	2014	60,690,195			60,690,195
2013	11	2014	49,042,892			49,042,892
2013	12	2014	79,179,177			79,179,177
2014	1	2014	170,231,700			170,231,700
2014	2	2014	62,493,062			62,493,062
2014	3	2014	64,066,142			64,066,142
2014	4	2014		75,892,269		75,892,269
2014	5	2014		54,144,205		54,144,205
2014	6	2014		57,688,214		57,688,214
2014	7	2014		56,153,190		56,153,190
2014	8	2014		24,947,228		24,947,228
2014	9	2014		25,400,125		25,400,125
2014	10	2014		19,737,709		19,737,709
2014	11	2014		8,684,818		8,684,818
2014	12	2014		3,222,943		3,222,943
Total		2014	743,519,580	325,870,701		1,069,390,280

2013	12	2015	1,897			1,897
2014	1	2015	1,835,339			1,835,339
2014	2	2015	7,065,951			7,065,951
2014	3	2015	14,968,907			14,968,907
2014	4	2015		26,930,740		26,930,740
2014	5	2015		26,667,855		26,667,855
2014	6	2015		45,109,278		45,109,278
2014	7	2015		56,596,434		56,596,434
2014	8	2015		36,409,555		36,409,555
2014	9	2015		56,700,426		56,700,426
2014	10	2015		63,661,975		63,661,975
2014	11	2015		50,526,917		50,526,917
2014	12	2015		83,210,590		83,210,590
2015	1	2015		182,066,352		182,066,352
2015	2	2015		63,565,065		63,565,065
2015	3	2015		69,217,363		69,217,363
2015	4	2015		80,602,333		80,602,333
2015	5	2015		54,756,089		54,756,089
2015	6	2015		59,931,552		59,931,552
2015	7	2015		62,104,563		62,104,563
2015	8	2015		27,206,061		27,206,061
2015	9	2015		27,163,924		27,163,924
2015	10	2015		20,330,545		20,330,545
2015	11	2015		9,059,784		9,059,784
2015	12	2015		3,415,905		3,415,905
Total		2015	23,872,094	1,105,233,305		1,129,105,399

Rate Level Effective Date (8)	Calendar Year Earned Weights	
	2014 (9)	2015 (10)
9/1/2010	69.5%	2.1%
4/1/2014	30.5%	97.9%
7/1/2016		

Notes:  
 (4),(5),(6): From Unit Statistical Plan Data.  
 (7) = (4) + (5) + (6)  
 (9),(10) = [ CY Total of (4), (5) or (6) ] / [ CY Total of (7) ]

# III 000015 STIP

Section III - Premiums  
 Subsection D - Premium On-Level Factors  
 7/1/2018

Section III - D  
 Exhibit 4

Calendar Year ("CY") Weights for On-Leveling Earned Premium

Policy Year (1)	Policy Month (2)	CY in which Premium is Earned (3)	Standard Earned Premium plus ARAP at Rate Level Effective			PY Premiums Earned During CY (7)
			9/1/2010 (4)	4/1/2014 (5)	7/1/2016 (6)	
2014	12	2016				0
2015	1	2016		1,932,433		1,932,433
2015	2	2016		7,287,389		7,287,389
2015	3	2016		16,510,123		16,510,123
2015	4	2016		28,942,830		28,942,830
2015	5	2016		28,823,168		28,823,168
2015	6	2016		46,325,797		46,325,797
2015	7	2016		62,930,121		62,930,121
2015	8	2016		40,484,412		40,484,412
2015	9	2016		62,253,900		62,253,900
2015	10	2016		65,118,699		65,118,699
2015	11	2016		52,017,332		52,017,332
2015	12	2016		88,972,921		88,972,921
2016	1	2016		191,344,333		191,344,333
2016	2	2016		66,827,630		66,827,630
2016	3	2016		72,925,470		72,925,470
2016	4	2016		84,921,083		84,921,083
2016	5	2016		57,687,330		57,687,330
2016	6	2016		63,140,215		63,140,215
2016	7	2016			66,421,053	66,421,053
2016	8	2016			29,094,423	29,094,423
2016	9	2016			29,052,152	29,052,152
2016	10	2016			21,742,634	21,742,634
2016	11	2016			9,688,917	9,688,917
2016	12	2016			3,654,198	3,654,198
	Total	2016		1,038,445,185	159,653,378	1,198,098,563

Rate Level Effective Date (8)	Calendar Year Earned Weights
	2016 (9)
9/1/2010	
4/1/2014	86.7%
7/1/2016	13.3%

Notes:

(4),(5),(6): From Unit Statistical Plan Data. PY 2016 based on PY 2015 data subject to adjustments for rate level, exposure growth, and wage changes.

(7) = (4) + (5) + (6)

(9) = [CY Total of (4), (5) or (6)] / [CY Total of (7)]

# III 000016 STIP

Section III - Premiums  
Subsection E - Premium Adjustment Factors  
7/1/2018

Section III - E  
Exhibit 1

## Calculation of Premium Adjustment Factor PY 2015 to Prospective Effective Period 7/1/2018 - 6/30/2019

(1)	Wage Trend from PY 2015 to Prospective Effective Period 7/1/2018 - 6/30/2019	1.106
(2)	Exposure Growth	1.076
(3)	Rate On-Level Factor	1.015
(4)	Overall Indicated Rate Change for Policies Effective 7/1/2018	0.871
(5)	Adjustment Factor to Balance Experience Rating, ARAP, and Construction Credits	1.045
(6)	Impact of Change in Indicated Loading for Recoupment of Insolvency Fund Assessments	1.001
(7)	Adjustment Factor = (1) x (2) x (3) x (4) x (5) x (6)	1.099
(8)	<b>Selected Factor</b>	<b>1.10</b>

### Notes:

(1):	Statewide Average Weekly Wage for PY 2015 (Section V-G, Exhibit 2)	1,303.66
	Statewide Average Weekly Wage for 10/1/2017, based on data period 4/1/16 to 4/1/17 (Section V-G, Exhibit 2)	1,338.05
	Statewide Average Weekly Wage at 7/1/2019 (using wage trend of 2.7%, Section V-A, Exhibit 1)	1,441.44
(2):	Exposure growth from PY 2015 to Prospective Effective Period 7/1/2018 - 6/30/2019 (Section V-H, Exhibit 3)	
(3):	Section III-D Exhibit 1.	
(4):	Section I-B Exhibit 1.	
(5):	Exhibit 2.	
(6):	PY 2015 factor to load for Recoupment of Insolvency Fund (Section III-C, Exhibit 1: [ 1.0 + (8) ]).	1.002
	Policy Effective factor to load for Recoupment of Insolvency Fund Assessments (Section IX-K, Exhibit 1).	1.003

# III 000017 STIP

Section III - Premiums  
Subsection E - Premium Adjustment Factors  
7/1/2018

Section III - E  
Exhibit 2

## Factor to Balance Experience Rating, ARAP, and Construction Credit

### Beginning Period - PY 2015

(1)	Anticipated Impact on Manual Rates of Experience Rating, ARAP, and Construction Credits	1.036
(2)	Actual Impact on Manual Rates of Experience Rating, ARAP, and Construction Credits	0.992
(3)	Ratio of Anticipated to Actual = (1) / (2)	1.045

### Ending Period - Prospective Effective Period 7/1/2018 - 6/30/2019

(4)	Anticipated Impact on Manual Rates of Experience Rating, ARAP, and Construction Credits	1.036
(5)	Actual is Assumed to be equal to the Anticipated, Since the Actual Impact has yet to be Determined	1.036
(6)	Ratio of Anticipated to Actual is Assumed to be 1.000	1.000
(7)	Adjustment Factor to Balance Experience Rating, ARAP, and Construction Credits = (3) / (6)	1.045

### Notes:

(1),(2): PY 2015, Section III-B, Exhibit 1.

(4),(5): Prospective Effective Period, Section IX-K, Exhibit 1.

# IV 000007 STIP

Section IV - Benefit Change Adjustments  
 Subsection A - Summary  
 7/1/2018

Section IV - A  
 Exhibit 1

## Benefit Level Adjustment Factors

### All Injury Types

Time Period		Indemnity					Medical	Total
Beginning Period	Ending Period	Death	Permanent Total	Permanent Partial	Temporary Total	All Injury Types	All Injury Types	All Injury Types
1/1/2018	Prosp. Eff. Period					1.010	1.000	
PY 2014	1/1/2018					1.029	1.000	
PY 2015	1/1/2018					1.021	1.000	
PY 2006	Prosp. Eff. Period	1.062	1.069	1.118	1.040	1.093	1.032	
PY 2007	Prosp. Eff. Period	1.056	1.061	1.102	1.036	1.081	1.032	
PY 2008	Prosp. Eff. Period	1.050	1.052	1.087	1.031	1.069	1.024	
PY 2009	Prosp. Eff. Period	1.047	1.049	1.081	1.029	1.064	1.002	
PY 2010	Prosp. Eff. Period	1.048	1.050	1.082	1.029	1.065	1.000	
PY 2011	Prosp. Eff. Period	1.044	1.045	1.073	1.027	1.059	1.000	
PY 2012	Prosp. Eff. Period	1.039	1.038	1.061	1.024	1.049	1.000	
PY 2013	Prosp. Eff. Period	1.037	1.035	1.056	1.022	1.045	1.000	
PY 2014	Prosp. Eff. Period	1.032	1.031	1.049	1.020	1.039	1.000	
PY 2015	Prosp. Eff. Period	1.020	1.025	1.038	1.016	1.031	1.000	
PY 2013	CPY 2014_07	1.012	1.007	1.012	1.004		1.000	
PY 2014	CPY 2015_07	1.014	1.010	1.016	1.005		1.000	
PY 2015	CPY 2016_07	1.009	1.011	1.017	1.007		1.000	
CPY 2014_07	Prosp. Eff. Period							1.023
CPY 2015_07	Prosp. Eff. Period							1.017
CPY 2016_07	Prosp. Eff. Period							1.011
CPY 2008_09	Prosp. Eff. Period							1.044
Prior Eff. Period (using benefit level projections from prior filing)	Prosp. Eff. Period					1.019	1.000	1.012

**Notes:**

1/1/2018 refers to a point in time. All other time periods refer to Policy Years.

Example: PY 2007 to Prosp. Eff. Period for Permanent Partial = 1.102 = 1.129 / 1.025

where 1.129 is the Index Factor for Prosp. Eff. Period and 1.025 is the Index Factor for PY 2007 for Indemnity Permanent Partial, from Exhibit 2.

Benefit Level Changes and Weights

Injury Type: Death																			
Date of Change	10/1/2005	10/1/2006	10/1/2007	10/1/2008	4/1/2009	10/1/2009	10/1/2010	10/1/2011	10/1/2012	10/1/2013	10/1/2014	3/24/2015	10/1/2015	10/1/2016	10/1/2017	10/1/2018	10/1/2019	Weighted Average Benefit Level	
Benefit Level Change	1.000	1.005	1.006	1.006	1.000	1.000	0.999	1.006	1.004	1.001	1.004	1.009	1.005	1.005	1.007	1.005	1.004		
Cumulative Benefit Level Change	1.000	1.005	1.011	1.017	1.017	1.017	1.016	1.022	1.026	1.027	1.031	1.041	1.046	1.052	1.059	1.064	1.069		
Time Period																			
PY 2006	0.341	0.631	0.027															1.003	
PY 2007		0.343	0.630	0.027														1.009	
PY 2008			0.350	0.417	0.208	0.025												1.015	
PY 2009				0.055	0.290	0.629	0.026											1.017	
PY 2010						0.333	0.640	0.027										1.017	
PY 2011							0.343	0.632	0.025									1.020	
PY 2012								0.341	0.634	0.025								1.025	
PY 2013									0.341	0.635	0.025							1.027	
PY 2014										0.341	0.408	0.227	0.025					1.032	
PY 2015											0.408	0.295	0.636	0.024				1.044	
CPY 2014_07										0.035	0.230	0.453	0.281					1.040	
CPY 2015_07												0.043	0.674	0.283				1.047	
CPY 2016_07													0.043	0.674	0.283			1.053	
CPY 2008_09			0.004	0.180	0.426	0.391												1.017	
Prior Eff. Period													0.043	0.674	0.283			1.053	
Prosp. Eff. Period															0.043	0.283	0.673	0.283	1.065
1/1/2018															1.000				1.059

Indemnity All Injury Types - Average Benefit Level for Current Policy Period, Estimated at 7/1/2016 (using benefit level projections from prior filing).																	
Date of Change	10/1/2005	10/1/2006	10/1/2007	10/1/2008	4/1/2009	10/1/2009	10/1/2010	10/1/2011	10/1/2012	10/1/2013	10/1/2014	3/24/2015	10/1/2015	10/1/2016	10/1/2017	Weighted Average Benefit Level	
Benefit Level Change	1.000	1.011	1.011	1.012	1.000	1.000	0.998	1.011	1.008	1.002	1.007	1.000	1.008	1.008	1.006		
Cumulative Level Change	1.000	1.011	1.022	1.034	1.034	1.034	1.032	1.044	1.052	1.054	1.062	1.062	1.071	1.079	1.086		

Medical All Injury Types - Average Benefit Level for Current Policy Period, Estimated at 7/1/2016 (using benefit level projections from prior filing).																	
Date of Change	10/1/2005	10/1/2006	10/1/2007	10/1/2008	4/1/2009	10/1/2009	10/1/2010	10/1/2011	10/1/2012	10/1/2013	10/1/2014	3/24/2015	10/1/2015	10/1/2016	10/1/2017	Weighted Average Benefit Level	
Benefit Level Change	1.000	1.000	1.000	1.000	1.032	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000		
Cumulative Level Change	1.000	1.000	1.000	1.000	1.032	1.032	1.032	1.032	1.032	1.032	1.032	1.032	1.032	1.032	1.032		

All Injury Types - Average Benefit Level for Current Policy Period, Estimated at 7/1/2016 (using benefit level projections from prior filing).																	
Date of Change	10/1/2005	10/1/2006	10/1/2007	10/1/2008	4/1/2009	10/1/2009	10/1/2010	10/1/2011	10/1/2012	10/1/2013	10/1/2014	3/24/2015	10/1/2015	10/1/2016	10/1/2017	Weighted Average Benefit Level	
Benefit Level Change	1.000	1.007	1.007	1.007	1.013	1.000	0.999	1.007	1.005	1.001	1.005	1.000	1.005	1.005	1.004		
Cumulative Level Change	1.000	1.007	1.014	1.021	1.034	1.034	1.033	1.041	1.046	1.047	1.052	1.052	1.058	1.063	1.067		

Time Period	Index Factors for All Injury Types					Medical All Injury Types	Total All Injury Types
	Death	Indemnity		Temporary Total	All Injury Types		
		Permanent Total	Permanent Partial				
PY 2006	1.003	1.005	1.010	1.003	1.008	1.000	1.005
PY 2007	1.009	1.013	1.025	1.007	1.019	1.000	1.012
PY 2008	1.015	1.021	1.039	1.012	1.030	1.007	1.022
PY 2009	1.017	1.024	1.045	1.014	1.034	1.030	1.034
PY 2010	1.017	1.024	1.044	1.013	1.033	1.032	1.034
PY 2011	1.020	1.029	1.052	1.016	1.040	1.032	1.038
PY 2012	1.025	1.035	1.064	1.019	1.049	1.032	1.044
PY 2013	1.027	1.038	1.069	1.021	1.054	1.032	1.047
PY 2014	1.032	1.042	1.077	1.023	1.059	1.032	1.050
PY 2015	1.044	1.049	1.087	1.027	1.068	1.032	1.056
CPY 2014_07	1.040	1.046	1.082	1.025	1.064	1.032	1.053
CPY 2015_07	1.047	1.052	1.094	1.029	1.073	1.032	1.059
CPY 2016_07	1.053	1.060	1.105	1.034	1.082	1.032	1.065
CPY 2008_09	1.017	1.024	1.045	1.014	1.034	1.026	1.032
Prior Eff. Period	1.053	1.060	1.105	1.034	1.082	1.032	1.065
Prosp. Eff. Period	1.065	1.075	1.129	1.043	1.101	1.032	1.077
1/1/2018	1.059	1.066	1.116	1.038	1.090	1.032	1.070

Notes:  
 1/1/2018 refers to a point in time. All other time periods refer to Policy Years.  
 Index Factors for All Injury Types Table is a Excel Data Table that repeats the calculation of the Weighted Average Benefit Level for all Injury Types.

## IV 000009 STIP

Section IV - Benefit Change Adjustments  
 Subsection A - Summary  
 7/1/2018

Section IV - A  
 Exhibit 3

### Historical and Estimated Benefit Level Changes

Effective Date (1)	Indemnity					Medical	Total
	Death (2)	Permanent Total (3)	Permanent Partial (4)	Temporary Total (5)	All Injury Types (6)	All Injury Types (7)	All Injury Types (8)
10/1/2005	0.5%	0.8%	1.5%	0.4%	1.1%	0.0%	0.7%
10/1/2006	0.5%	0.7%	1.5%	0.4%	1.1%	0.0%	0.7%
10/1/2007	0.6%	0.9%	1.4%	0.5%	1.1%	0.0%	0.7%
10/1/2008	0.6%	0.8%	1.5%	0.5%	1.2%	0.0%	0.7%
4/1/2009	0.0%	0.0%	0.0%	0.0%	0.0%	3.2%	1.3%
10/1/2009	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
10/1/2010	-0.1%	-0.1%	-0.2%	-0.1%	-0.2%	0.0%	-0.1%
10/1/2011	0.6%	0.8%	1.4%	0.4%	1.1%	0.0%	0.7%
10/1/2012	0.4%	0.6%	1.0%	0.3%	0.8%	0.0%	0.5%
10/1/2013	0.1%	0.1%	0.2%	0.1%	0.2%	0.0%	0.1%
10/1/2014	0.4%	0.5%	0.9%	0.3%	0.7%	0.0%	0.5%
3/24/2015	0.9%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
10/1/2015	0.5%	0.6%	1.1%	0.3%	0.8%	0.0%	0.5%
10/1/2016	0.5%	0.7%	1.0%	0.4%	0.8%	0.0%	0.5%
10/1/2017	0.7%	0.8%	1.3%	0.6%	1.0%	0.0%	0.7%
10/1/2018	0.5%	0.6%	1.0%	0.4%	0.8%	0.0%	0.5%
10/1/2019	0.4%	0.6%	1.0%	0.4%	0.8%	0.0%	0.5%

**Notes:**

Estimated changes for 10/1/2018 and 10/1/2019 use projected SAWW values for 10/1/2018 and 10/1/2019 .



Effects of SAWW Change

Person(s) Receiving Benefits (1)	Number of Cases (2)	Average Number of Dependents (3)	Average Arithmetic Age (4)	Annuity Symbol (5)	Annuity Value (6)	Effects of SAWW Change of 10/1/2016		Effects of SAWW Change of 10/1/2017		Effects of SAWW Change of 10/1/2018		Effects of SAWW Change of 10/1/2019	
						10/1/2015 Cost (7)	10/1/2016 Cost (8)	10/1/2016 Cost (9)	10/1/2017 Cost (10)	10/1/2017 Cost (11)	10/1/2018 Cost (12)	10/1/2018 Cost (13)	10/1/2019 Cost (14)
None	204	0	xxx	xxx	xxx	xxx	xxx	xxx	xxx	xxx	xxx	xxx	xxx
Spouse, No Children	212	1	40	$a_{40:\overline{L}f\overline{e} }$	25.70	200,820,213	201,865,351	206,343,260	207,685,276	212,317,915	213,372,854	202,311,657	203,103,769
Spouse with Children	407	1	38	$a_{38:\overline{L}f\overline{e} }$	25.71	385,709,050	387,716,413	396,316,992	398,894,560	407,792,324	409,818,511	388,573,619	390,095,005
Child(ren)		1.9	10	$a_{\overline{8} }$	7.41								
Orphan, No Sibling	21	1	13	$a_{13:\overline{5} }$	4.72	3,649,681	3,668,675	3,750,056	3,774,446	3,858,639	3,877,811	3,676,787	3,691,182
Orphan with Sibling(s)	15	2.5	12	$a_{\overline{6} }$	5.63	3,112,714	3,128,914	3,198,322	3,219,123	3,290,929	3,307,280	3,135,832	3,148,109
Other Dependents (No Spouse)	141	1.7	58	$a_{58:\overline{L}f\overline{e} }$	19.93	19,343,318	19,343,318	19,345,124	19,345,124	19,346,980	19,346,980	19,382,879	19,382,879
(15) Total Survivor Benefits	1,000					612,634,976	615,722,671	628,953,753	632,918,530	646,606,788	649,723,437	617,080,773	619,420,945
(16) Cost of Burial (1,000 cases)						10,051,760	10,333,920	10,333,920	10,704,400	10,704,400	10,998,072	10,998,072	11,299,800
(17) Total Monetary Cost [ = (15) + (16) ]						622,686,736	626,056,591	639,287,673	643,622,930	657,311,188	660,721,508	628,078,844	630,720,744
(18) Fatal Benefit Change Factors							1.005		1.007		1.005		1.004

Notes:

(2), (3): Section IV-D, Exhibit 2.

(4): Section IV-D, Exhibit 2, Column(4) rounded to nearest whole number.

(5): For two or more dependents, benefits are last-survivor contingent. An annuity certain is used to approximate the joint-survivor annuity for "Child(ren)" and "Orphan with Sibling(s)".

(6): Life annuity values from *Massachusetts Workers' Compensation Statistical Plan*, Part I, Section IX (Effective 7/1/2017).

Annuity certain values assume the same discount rate and elevation rate used in the derivation of the Pension Tables contained in the *Massachusetts Workers' Compensation Statistical Plan*.

(7), (9), (11), (13) = 52 x (2) x (6) x [ Page 2, (14) ] for Spouses and Orphans and = 52 x (2) x (3) x (6) x [ Page 2, (30) ] for All Others Dependents

(8), (10), (12), (14) = 52 x (2) x (6) x [ Page 2, (15) ] for Spouses and Orphans and = 52 x (2) x (3) x (6) x [ Page 2, (31) ] for All Others Dependents

(16) = 8 x SAWW

(18): Ratio of (17) for later date to (17) for earlier date.

# IV 000011 STIP

## Determination of the Average Weekly Survivor Benefit for Fatalities

### Fatal: Spouse and Orphans - Effective 10/1/2016

(1)	Nominal Rate of Compensation Based on Gross Wages ("Comp. Rate")	66.67%
(2)	Min Weekly Compensation	110.00
(3)	Max Weekly Compensation	1,291.74
(4)	Average Injured Worker Weekly Wage ("AIWWW") for 12 months starting 10/1/2016	1,121.75

Wage Intervals (5)		Benefit (6)	Wage Distribution Entry Ratios = (5) / (4) (7)		Percentage in Interval		Average Wage in Interval = (9) / (8) x (4) (10)	Average Benefit in Interval (11)
					Workers (8)	Wages (9)		
0.00	165.00	Statutory Minimum	0.00	0.15	1.19%	0.11%	99.70	110.00
165.00	1,937.61	Actual Wage x Comp. Rate	0.15	1.75	89.33%	78.72%	988.56	659.04
1,937.61	over	Statutory Maximum	1.75	over	9.48%	21.17%	2,505.24	1,291.74

(12) Average Weekly Benefit **712.47**

	Effects of SAWW Change			
	10/1/2016	10/1/2017	10/1/2018	10/1/2019
(13) Starting date of 12 month period for AIWWW	10/1/2016	10/1/2017	10/1/2018	10/1/2019
(14) Benefits Effective	10/1/2015	10/1/2016	10/1/2017	10/1/2018
Average Weekly Benefits	708.79	728.28	749.37	714.05
(15) Benefits Effective	10/1/2016	10/1/2017	10/1/2018	10/1/2019
Average Weekly Benefits	<b>712.47</b>	733.02	753.09	716.85
(16) Fatal: Spouse and Orphans Benefit Change Factors	1.005	1.007	1.005	1.004

### Fatal: All Others - Effective 10/1/2016

(17)	Nominal Rate of Compensation Based on Gross Wages ("Comp. Rate")	66.67%
(18)	Min Weekly Compensation	0.00
(19)	Max Weekly Compensation	80.00
(20)	Average Injured Worker Weekly Wage ("AIWWW") for 12 months starting 10/1/2016	1,121.75

Wage Intervals (21)		Benefit (22)	Wage Distribution Entry Ratios = (21) / (20) (23)		Percentage in Interval		Average Wage in Interval = (25) / (24) x (20) (26)	Average Benefit in Interval (27)
					Workers (24)	Wages (25)		
0.00	0.00	Statutory Minimum	0.00	0.00	0.00%	0.00%	0.00	0.00
0.00	120.00	Actual Wage x Comp. Rate	0.00	0.10	0.64%	0.04%	63.47	42.31
120.00	over	Statutory Maximum	0.10	over	99.36%	99.96%	1,128.58	80.00

(28) Average Weekly Benefit **79.76**

	Effects of SAWW Change			
	10/1/2016	10/1/2017	10/1/2018	10/1/2019
(29) Starting date of 12 month period for AIWWW	10/1/2016	10/1/2017	10/1/2018	10/1/2019
(30) Benefits Effective	10/1/2015	10/1/2016	10/1/2017	10/1/2018
Average Weekly Benefits	79.76	79.77	79.77	79.92
(31) Benefits Effective	10/1/2016	10/1/2017	10/1/2018	10/1/2019
Average Weekly Benefits	<b>79.76</b>	79.77	79.77	79.92
(32) Fatal: All Others Benefit Change Factors	1.000	1.000	1.000	1.000

**Notes:**

- (1)-(3), (17)-(19): Section IV-C, Exhibit 1.
- (4), (20): Section IV-D, Exhibit 3.
- (5), (21): Wage Intervals follow Massachusetts General Law.
- (7), (23): Rounded to nearest 0.05.
- (8), (24): Section IV-D, Exhibit 1, column (2).
- (9), (25): Section IV-D, Exhibit 1, column (3).
- (11), (27): Comp Rate x Average Wage in Interval, subject to a statutory maximum and statutory minimum.
- (12) = Sum [ (8) x (11) ]
- (14), (15): Average Weekly Benefits results from an Excel Data Table that repeats the calculation of (12) for different dates.
- (16) = (15) / (14)
- (28) = Sum [ (24) x (27) ]
- (30), (31): Average Weekly Benefits results from an Excel Data Table that repeats the calculation of (28) for different dates.
- (32) = (31) / (30)

# IV 000012 STIP

Section IV - Benefit Change Adjustments  
 Subsection B - Effects of SAWW Change  
 7/1/2018

Section IV-B  
 Exhibit 2

## Determination of the Average Weekly Benefit for Permanent Totals

### Permanent Total - Effective 10/1/2016

(1)	Nominal Rate of Compensation Based on Gross Wages ("Comp. Rate")	66.67%
(2)	Min Weekly Compensation	258.35
(3)	Max Weekly Compensation	1,291.74
(4)	Average Injured Worker Weekly Wage ("AIWW") for 12 months starting 10/1/2016	1121.75

Wage Intervals (5)	Benefit (6)	Wage Distribution Entry Ratios = (5) / (4) (7)		Percentage in Interval		Average Wage in Interval = (9) / (8) x (4) (10)	Average Benefit in Interval (11)
		Workers (8)	Wages (9)	Workers (8)	Wages (9)		
0.00	387.52	0.00	0.35	6.21%	1.46%	262.88	258.35
387.52	1,937.61	0.35	1.75	84.31%	77.37%	1,029.46	686.31
1,937.61	over	1.75	over	9.48%	21.17%	2,505.24	1,291.74

(12) Average Weekly Benefit **717.12**

	Effects of SAWW Change			
	10/1/2016	10/1/2017	10/1/2018	10/1/2019
(13) Starting date of 12 month period for AIWW	10/1/2016	10/1/2017	10/1/2018	10/1/2019
(14) Benefits Effective	10/1/2015	10/1/2016	10/1/2017	10/1/2018
Average Weekly Wage Loss Benefit	712.99	732.65	754.02	774.71
(15) Benefits Effective	10/1/2016	10/1/2017	10/1/2018	10/1/2019
Average Weekly Wage Loss Benefit	<b>717.12</b>	737.96	758.20	779.00
(16) Permanent Total Wage Loss Benefit Change Factors	1.006	1.007	1.006	1.006
(17) Specific Injury Benefits				
SAWW Effect on Specific Injury Benefits	1.028	1.036	1.027	1.027
(18) Benefit Proportions Associated with Permanent Total Claims				
(a) Permanent Total Wage Loss Benefits	96.50%	96.50%	96.50%	96.50%
(b) Specific Injury Benefits	3.50%	3.50%	3.50%	3.50%
(19) Permanent Total Benefit Change Factors	1.007	1.008	1.006	1.006
= [(16) x (18a)] + [(17) x (18b)]				

**Notes:**

(1), (2), (3): Section IV-C, Exhibit 1.

(4): Section IV-D, Exhibit 3.

(5): Wage Intervals follow Massachusetts General Law.

(7): Rounded to nearest 0.05.

(8): Section IV-D, Exhibit 1, column (2).

(9): Section IV-D, Exhibit 1, column (3).

(11): Comp Rate x Average Wage in Interval, subject to a statutory maximum and statutory minimum.

(12) = Sum [ (8) x (11) ]

(14), (15): Average Weekly Benefits results from an Excel Data Table that repeats the calculation of (12) for different dates.

(16) = (15) / (14)

(17): Ratio of SAWW from Section IV-D, Exhibit 3.

Example: Effect of SAWW Change of 10/1/2017 = SAWW 10/1/2017 / SAWW 10/1/2016 = 1.036 = 1,338.05 / 1,291.74

(18): Estimated Average Schedule Benefit compared to Average Indemnity Cost per Claim.

DCI data for Permanent Total Claims in Massachusetts.

# IV 000013 STIP

Section IV - Benefit Change Adjustments  
 Subsection B - Effects of SAWW Change  
 7/1/2018

Section IV-B  
 Exhibit 3

## Determination of the Average Weekly Benefit for Permanent Partials

### Permanent Partial - Effective 10/1/2016

(1)	Nominal Rate of Compensation Based on Gross Wages ("Comp. Rate")	37.20%
(2)	Min Weekly Compensation	0.00
(3)	Max Weekly Compensation	968.81
(4)	Average Injured Worker Weekly Wage ("AIWWW") for 12 months starting 10/1/2016	1,121.75
(5)	SAWW effective 10/1/2016	1,291.74

Wage Intervals (6)		Benefit (7)	Wage Distribution Entry Ratios = (6) / (4) (8)		Percentage in Interval		Average Wage in Interval =(10) / (9) x (4) (11)	Average Benefit in Interval (12)
					Workers (9)	Wages (10)		
0.00	2,604.31	Actual Wage x Comp. Rate	0.00	2.30	97.00%	91.62%	1,059.51	394.14
2,604.31	4,249.14	Statutory Maximum	2.30	3.80	2.85%	7.72%	3,040.93	968.81
4,249.14	6,798.63	Statutorily Reduced	3.80	6.05	0.15%	0.64%	4,836.02	745.79
6,798.63	over	Exceeds Statutory Limit	6.05	over	0.00%	0.02%	7,489.31	0.00

(13) Average Weekly Benefit 411.00

	Effects of SAWW Change			
	10/1/2016	10/1/2017	10/1/2018	10/1/2019
(14) Starting date of 12 month period for AIWWW	10/1/2016	10/1/2017	10/1/2018	10/1/2019
(15) Benefits Effective	10/1/2015	10/1/2016	10/1/2017	10/1/2018
Average Weekly Wage Loss Benefit	410.12	421.39	433.24	445.13
(16) Benefits Effective	10/1/2016	10/1/2017	10/1/2018	10/1/2019
Average Weekly Wage Loss Benefit	<b>411.00</b>	422.53	434.12	446.03
(17) Permanent Partial Wage Loss Benefit Change Factors	1.002	1.003	1.002	1.002
(18) Specific Injury Benefits				
SAWW Effect on Specific Injury Benefits	1.028	1.036	1.027	1.027
(19) Permanent Partial Healing Period				
Effect on Healing Period Benefits	1.004	1.006	1.004	1.004
(20) Benefit Proportions Associated with Permanent Partial Claims				
(a) Permanent Partial Wage Loss Benefits	27%	27%	27%	27%
(b) Specific Injury Benefits	26%	26%	26%	26%
(c) Healing Period - Temporary Total Benefits	47%	47%	47%	47%
(21) Permanent Partial Benefit Change Factors	1.010	1.013	1.010	1.010
= [(17) x (20a)] + [(18) x (20b)] + [(19) x (20c)]				

**Notes:**

- (1), (2), (3): Section IV-C, Exhibit 1.
- (4), (5): Section IV-D, Exhibit 3.
- (6): Wage Intervals follow Massachusetts General Law.
- (7): Statutory Maximum: Insurer may reduce benefit to level at which benefits + earnings = 2 x SAWW.
- (8): Rounded to nearest 0.05.
- (9): Section IV-D, Exhibit 1, column (2).
- (10): Section IV-D, Exhibit 1, column (3).
- (12): Comp Rate x Average Wage in Interval, subject to a statutory maximum and a statutory limitation.
- (13) = Sum [ (9) x (12) ]
- (15), (16): Average Weekly Benefits results from an Excel Data Table that repeats the calculation of (13) for different dates.
- (17) = (16) / (15)
- (18): Ratio of SAWW from Section IV-D, Exhibit 3.  
 Example: Effect of SAWW Change of 10/1/2017 = 1.036 = 1,338.05 / 1,291.74
- (19): Temporary Total Benefit Change Factors, Exhibit 4.
- (20): DCI data for Permanent Partial Claims in Massachusetts.

# IV 000014 STIP

Section IV - Benefit Change Adjustments  
 Subsection B - Effects of SAWW Change  
 7/1/2018

Section IV-B  
 Exhibit 4

## Determination of the Average Weekly Benefit for Temporary Totals

Temporary Total - Effective 10/1/2016

(1)	Nominal Rate of Compensation Based on Gross Wages ("Comp. Rate")	60.00%
(2)	Min Weekly Compensation	258.35
(3)	Max Weekly Compensation	1,291.74
(4)	Average Injured Worker Weekly Wage ("AIWW") for 12 months starting 10/1/2016	1,121.75

Wage Intervals (5)	Benefit (6)	Wage Distribution Entry Ratios = (5) / (4) (7)		Percentage in Interval		Average Wage in Interval = (9) / (8) x (4) (10)	Average Benefit in Interval (11)
				Workers (8)	Wages (9)		
0.00      258.35	Actual Wage	0.00	0.25	2.99%	0.48%	178.07	178.07
258.35      430.58	Statutory Minimum	0.25	0.40	5.58%	1.87%	375.54	258.35
430.58      2,152.90	Actual Wage x Comp. Rate	0.40	1.90	84.49%	81.12%	1,076.99	646.19
2,152.90      over	Statutory Maximum	1.90	over	6.93%	16.53%	2,675.13	1,291.74
(12) Average Weekly Benefit							<b>655.30</b>

	Effects of SAWW Change			
	10/1/2016	10/1/2017	10/1/2018	10/1/2019
(13) Starting date of 12 month period for AIWW				
(14) Benefits Effective	10/1/2015	10/1/2016	10/1/2017	10/1/2018
Average Weekly Benefits	652.44	670.40	689.69	708.61
(15) Benefits Effective	10/1/2016	10/1/2017	10/1/2018	10/1/2019
Average Weekly Benefits	<b>655.30</b>	674.10	692.60	711.60
(16) Temporary Total Benefit Change Factors	1.004	1.006	1.004	1.004

**Notes:**

- (1), (2), (3): Section IV-C, Exhibit 1.
- (4): Section IV-D, Exhibit 3.
- (5): Wage Intervals follow Massachusetts General Law.
- (7): Rounded to nearest 0.05.
- (8): Section IV-D, Exhibit 1, column (2).
- (9): Section IV-D, Exhibit 1, column (3).
- (11): Comp Rate x Average Wage in Interval, subject to a statutory maximum and statutory minimum, unless the actual wage is less than the statutory minimum.
- (12) = Sum [ (8) x (11) ]
- (14), (15): Average Weekly Benefits results from an Excel Data Table that repeats the calculation of (12) for different dates.
- (16) = (15) / (14)

Summary of Principal Benefit Changes Due to the Increase in the Maximum and Minimum Weekly Benefits

	10/1/2015	10/1/2016	10/1/2017	10/1/2018	10/1/2019
(1) Fatal					
% Rate of Compensation	66.67%	66.67%	66.67%	66.67%	66.67%
Minimum Weekly Benefit	\$251.29	\$258.35	\$267.61	<i>\$274.95</i>	<i>\$282.49</i>
Widow/Orphan	\$110.00	\$110.00	\$110.00	\$110.00	\$110.00
Others	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Maximum Weekly Benefit				<b>\$1,374.76</b>	<b>\$1,412.47</b>
Widow/Orphan	\$1,256.47	\$1,291.74	\$1,338.05	\$80.00	\$80.00
Others	\$80.00	\$80.00	\$80.00	\$80.00	\$80.00
Each Additional Child	\$6.00, if benefit under \$150.00	\$6.00, if benefit under \$150.00	\$6.00, if benefit under \$150.00	\$6.00, if benefit under \$150.00	\$6.00, if benefit under \$150.00
Maximum Aggregate Payable	250 x SAWW	250 x SAWW	250 x SAWW	250 x SAWW	250 x SAWW
Burial Allowance	8 X SAWW	8 X SAWW	8 X SAWW	8 X SAWW	8 X SAWW
Cost of Living Adjustment - benefits increase annually by:	Each October 1 after 2 years after injury. Based on the lesser of 5%, N.E. region urban area CPI, and the % change in the SAWW	Each October 1 after 2 years after injury. Based on the lesser of 5%, N.E. region urban area CPI, and the % change in the SAWW	Each October 1 after 2 years after injury. Based on the lesser of 5%, N.E. region urban area CPI, and the % change in the SAWW	Each October 1 after 2 years after injury. Based on the lesser of 5%, N.E. region urban area CPI, and the % change in the SAWW	Each October 1 after 2 years after injury. Based on the lesser of 5%, N.E. region urban area CPI, and the % change in the SAWW
(2) Total Disability					
Permanent Total					
% Rate of Compensation	66.67%	66.67%	66.67%	66.67%	66.67%
Minimum Weekly Benefit	\$251.29	\$258.35	\$267.61	<i>\$274.95</i>	<i>\$282.49</i>
Maximum Weekly Benefit	\$1,256.47	\$1,291.74	\$1,338.05	<b>\$1,374.76</b>	<b>\$1,412.47</b>
Duration	Lifetime	Lifetime	Lifetime	Lifetime	Lifetime
Cost of Living Adjustment - benefits increase annually by:	Same as Fatal	Same as Fatal	Same as Fatal	Same as Fatal	Same as Fatal
Temporary Total					
% Rate of Compensation	60.00%	60.00%	60.00%	60.00%	60.00%
Minimum Weekly Benefit	\$251.29	\$258.35	\$267.61	<i>\$274.95</i>	<i>\$282.49</i>
Maximum Weekly Benefit	\$1,256.47	\$1,291.74	\$1,338.05	<b>\$1,374.76</b>	<b>\$1,412.47</b>
Waiting Period/Retroactive After	5 days/21 days	5 days/21 days	5 days/21 days	5 days/21 days	5 days/21 days
(3) Permanent Partial Disability					
% Rate of Compensation	37.20%	37.20%	37.20%	37.20%	37.20%
Minimum Weekly Benefit	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Maximum Weekly Benefit	\$942.35	\$968.81	\$1,003.54	<b>\$1,031.07</b>	<b>\$1,059.36</b>
(4) Specific Injury Payments					
Scheduled Injuries	According to the injury, a scheduled number multiplied by the SAWW	According to the injury, a scheduled number multiplied by the SAWW	According to the injury, a scheduled number multiplied by the SAWW	According to the injury, a scheduled number multiplied by the SAWW	According to the injury, a scheduled number multiplied by the SAWW
Non-Scheduled Injuries	32 x SAWW	32 x SAWW	32 x SAWW	32 x SAWW	32 x SAWW
Disfigurement					
Maximum Benefit	\$15,000	\$15,000.00	\$15,000.00	\$15,000.00	\$15,000.00
Benefit	As determined by the reviewing board	As determined by the reviewing board	As determined by the reviewing board	As determined by the reviewing board	As determined by the reviewing board

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Notes:  
 Source: The General Laws of Massachusetts, Chapter 152, Sections 31-36.  
 (1), (2): Maximum Weekly Benefit for Fatalities and Total Disabilities is 100% of the SAWW.  
 (2): Minimum Weekly Benefit for Total Disability is 20% of the SAWW.  
 (3): Maximum Weekly Benefit for Permanent Partial is 75% of the SAWW. There is no Minimum Weekly Benefit for Permanent Partial Disability.  
 (3): Permanent Partial % Rate of Compensation is 60% of 62%, the lost wage-earning capacity, Section IV-D, Exhibit 4.

*Values in Italics are Projected*

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Section IV - Benefit Change Adjustments  
 Subsection D - Massachusetts Data  
 7/1/2018

Section IV-D  
 Exhibit 1

Standard Wage Distribution Table

R = Ratio to Average Wage  
 A = Cumulative Percentage of Workers  
 B = Cumulative Percentage of Wages

R (1)	A (2)	B (3)	R (1)	A (2)	B (3)	R (1)	A (2)	B (3)
0.05	0.2575	0.0069	2.40	97.5655	92.9442	4.75	99.9722	99.8509
0.10	0.6416	0.0363	2.45	97.8056	93.5264	4.80	99.9745	99.8618
0.15	1.1926	0.1060	2.50	98.0216	94.0607	4.85	99.9766	99.8719
0.20	1.9563	0.2406	2.55	98.2157	94.5509	4.90	99.9785	99.8812
0.25	2.9922	0.4750	2.60	98.3904	95.0005	4.95	99.9802	99.8897
0.30	4.3800	0.8583	2.65	98.5474	95.4128	5.00	99.9818	99.8977
0.35	6.2125	1.4559	2.70	98.6888	95.7907	5.05	99.9833	99.9050
0.40	8.5723	2.3431	2.75	98.8159	96.1372	5.10	99.9846	99.9118
0.45	11.5064	3.5926	2.80	98.9304	96.4548	5.15	99.9858	99.9181
0.50	15.0106	5.2593	2.85	99.0334	96.7458	5.20	99.9870	99.9239
0.55	19.0259	7.3693	2.90	99.1262	97.0125	5.25	99.9880	99.9293
0.60	23.4487	9.9139	2.95	99.2098	97.2570	5.30	99.9889	99.9343
0.65	28.1475	12.8515	3.00	99.2851	97.4810	5.35	99.9898	99.9389
0.70	32.9823	16.1152	3.05	99.3530	97.6863	5.40	99.9906	99.9432
0.75	37.8216	19.6235	3.10	99.4142	97.8745	5.45	99.9913	99.9471
0.80	42.5554	23.2915	3.15	99.4694	98.0469	5.50	99.9920	99.9508
0.85	47.1012	27.0409	3.20	99.5192	98.2050	5.55	99.9926	99.9542
0.90	51.4058	30.8063	3.25	99.5641	98.3500	5.60	99.9932	99.9574
0.95	55.4411	34.5379	3.30	99.6047	98.4828	5.65	99.9937	99.9603
1.00	59.1992	38.2009	3.35	99.6414	98.6047	5.70	99.9942	99.9630
1.05	62.6854	41.7731	3.40	99.6745	98.7165	5.75	99.9946	99.9656
1.10	65.9126	45.2413	3.45	99.7044	98.8190	5.80	99.9950	99.9679
1.15	68.8968	48.5975	3.50	99.7315	98.9131	5.85	99.9954	99.9701
1.20	71.6541	51.8365	3.55	99.7560	98.9994	5.90	99.9958	99.9721
1.25	74.1997	54.9540	3.60	99.7782	99.0786	5.95	99.9961	99.9740
1.30	76.5470	57.9460	3.65	99.7982	99.1514	6.00	99.9964	99.9757
1.35	78.7079	60.8084	3.70	99.8164	99.2181	6.05	99.9966	99.9773
1.40	80.6934	63.5378	3.75	99.8329	99.2795	6.10	99.9969	99.9789
1.45	82.5138	66.1312	3.80	99.8478	99.3358	6.15	99.9971	99.9803
1.50	84.1791	68.5868	3.85	99.8613	99.3876	6.20	99.9973	99.9816
1.55	85.6991	70.9043	3.90	99.8736	99.4352	6.25	99.9975	99.9828
1.60	87.0837	73.0845	3.95	99.8848	99.4789	6.30	99.9977	99.9839
1.65	88.3424	75.1293	4.00	99.8949	99.5191	6.35	99.9979	99.9850
1.70	89.4847	77.0422	4.05	99.9041	99.5561	6.40	99.9980	99.9860
1.75	90.5197	78.8273	4.10	99.9124	99.5902	6.45	99.9982	99.9869
1.80	91.4563	80.4893	4.15	99.9200	99.6215	6.50	99.9983	99.9877
1.85	92.3028	82.0338	4.20	99.9269	99.6503	6.55	99.9984	99.9885
1.90	93.0671	83.4665	4.25	99.9332	99.6768	6.60	99.9985	99.9893
1.95	93.7565	84.7934	4.30	99.9389	99.7013	6.65	99.9986	99.9899
2.00	94.3780	86.0206	4.35	99.9441	99.7238	6.70	99.9987	99.9906
2.05	94.9379	87.1541	4.40	99.9489	99.7445	6.75	99.9988	99.9912
2.10	95.4420	88.1999	4.45	99.9532	99.7637	6.80	99.9989	99.9918
2.15	95.8958	89.1639	4.50	99.9571	99.7813	6.85	99.9990	99.9923
2.20	96.3040	90.0517	4.55	99.9607	99.7975	6.90	99.9991	99.9928
2.25	96.6712	90.8686	4.60	99.9640	99.8125	6.95	99.9991	99.9932
2.30	97.0015	91.6198	4.65	99.9670	99.8264	7.00	99.9992	99.9936
2.35	97.2985	92.3101	4.70	99.9697	99.8391			

Notes:  
 Source: NCCI - The 2009 Standard Wage Distribution Table.

# IV 000017 STIP

Section IV - Benefit Change Adjustments  
 Subsection D - Massachusetts Data  
 7/1/2018

Section IV-D  
 Exhibit 2

Dependency Table

Dependency Class (1)	Number of Cases (2)	Average Number of Dependents (3)	Average Dependent Age (4)
No Dependents	<b>204</b>	<b>0</b>	N/A
Spouse, No Children	<b>212</b>	<b>1</b>	40
Spouse with Children	153	1	38
1 Child		1	11
Spouse with Children	166	1	38
2 Children		2	10
Spouse with Children	63	1	37
3 Children		3	10
Spouse with Children	18	1	37
4 Children		4	10
Spouse with Children	5	1	37
5 Children		5	10
Spouse with Children	2	1	38
More than 5 Children		7	10
<b>Spouse with Children</b>	<b>407</b>	<b>1</b>	38
<b>Summary</b>		<b>1.9</b>	10
<b>Orphan, No Sibling</b>	<b>21</b>	<b>1</b>	13
1 Child			
Orphans with Sibling(s)	10	2	12
2 Children		3	12
3 Children	3	3	12
4 Children	1	4	12
More than 4 Children	1	5	12
<b>Orphans with Sibling(s)</b>	<b>15</b>	<b>2.5</b>	12
<b>Summary</b>			
Other Dependents (No Spouse)	41	1	62
1 Parent			
2 Parents	91	2	58
Sibling	7	1	37
Other	2	2	31
<b>Other Dependents</b>	<b>141</b>	<b>1.7</b>	58
<b>Summary</b>			

Notes:

Source: NCCI, CPS data, 1989-1993, reweighted using DCI Data for Fatalities, 1984-1993.

(2): Dependent count includes working adult household members standardized to a total of 1,000 cases.



Derivation of Estimated SAWW (Statewide Average Weekly Wage) and AIWWW (Average Injured Worker Weekly Wage)

SAWW Effective Date (1)	SAWW Based on Data (2)	Midpoint of the SAWW Data (3)	Actual SAWW (4)	Estimated Annual SAWW Trend Factor (5)	Actual and Projected SAWW (6)	AIWWW Period (7)	Actual and Projected Effective AIWWW (8)
10/1/2015	4/1/14 to 4/1/15	10/1/2014	1,256.47		1,256.47	10/1/15 to 10/1/16	1,087.42
10/1/2016	4/1/15 to 4/1/16	10/1/2015	1,291.74		1,291.74	10/1/16 to 10/1/17	1,121.75
10/1/2017	4/1/16 to 4/1/17	10/1/2016	1,338.05		1,338.05	10/1/17 to 10/1/18	1,152.52
10/1/2018	4/1/17 to 4/1/18	10/1/2017		1.027	1,374.76	10/1/18 to 10/1/19	1,184.14
10/1/2019	4/1/18 to 4/1/19	10/1/2018		1.027	1,412.47	10/1/19 to 10/1/20	1,216.63

Notes:

(4): Section V-G, Exhibit 2.

(5): 2.7% Estimated Annual Trend in SAWW, Section V-A, Exhibit 1.

(6): For SAWW Effective Date 10/1/2015 - 10/1/2017, (6) = (4)

For SAWW Effective Date 10/1/2018 & 10/1/2019, (6) = (5) x (6 from Prior Period)

(8): For the AIWWW Period 10/1/15 to 10/1/16, (8) is the product of .827 and the average of the SAWWs effective 10/1/2016 and 10/1/2017, respectively.

For the AIWWW Period 10/1/16 to 10/1/17, (8) is the product of .827 and the average of the SAWWs effective 10/1/2017 and 10/1/2018, respectively.

For the AIWWW Period 10/1/17 to 10/1/18, (8) is the product of .827 and the average of the SAWWs effective 10/1/2018 and 10/1/2019, respectively.

For the AIWWW Periods 10/1/18 to 10/1/19 and 10/1/19 to 10/1/20, (8) = (5) x (8 from Prior Period).

Historical Relationship of .827 for the ratio of AIWWW to SAWW is selected based on DCI data.

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Section IV - Benefit Change Adjustments  
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Section IV-D  
 Exhibit 4

### Average Wage Loss for Permanent Partial Claimants

DCI Report Level	(Pre-Injury - Post-Injury) / Pre-Injury Wage					Average
	1979 (1)	1980 (2)	1981 (3)	1982 (4)	1983 (5)	
<b>Average Wage Loss for Major Permanent Partial Claimants</b>						
1	0.61	0.62	0.60	0.62	0.60	0.61
2	0.62	0.62	0.59	0.63	0.62	0.62
3	0.64	0.60	0.65	0.60		0.62
4	0.60	0.64	0.62			0.62
<b>(6) Selected Average Wage Loss for Major Permanent Partial Claimants</b>						<b>0.62</b>

<b>Average Wage Loss for Minor Permanent Partial Claimants</b>						
1	0.58	0.58	0.58	0.60	0.59	0.59
2	0.62	0.60	0.59	0.58	0.64	0.61
3	0.66	0.64	0.65	0.56		0.63
4	0.62	0.70	0.66			0.66
<b>(7) Selected Average Wage Loss for Minor Permanent Partial Claimants</b>						<b>0.62</b>

**Notes:**

Source: Detail Claim Information ("DCI") Data, compiled as of 10/1/1985.

(6), (7): These data were compiled prior to Chapter 398. To be consistent with Chapter 398, 62% will be used as the wage loss as a percent of pre-injury wage.

The percent of that that is paid is 60% subject to maximums.

Post-Chapter 398 Injury Type Weights at 5th Report

Injury Type (1)	Policy Year (2)	Indemnity - Likely to Develop			Indemnity - Not Likely to Develop			Indemnity On-level Losses at Fifth Report = (5) + (8) (9)	Weights at 5th report (10)
		Losses at Fifth Report (3)	Benefit On-Level Factor to Prosp. Eff. Period (4)	On-level Losses at Fifth Report = (3) x (4) (5)	Losses at Fifth Report (6)	Benefit On-Level Factor to Prosp. Eff. Period (7)	On-level Losses at Fifth Report = (6) x (7) (8)		
Death	2007	2,468,356	1.056	2,605,719	6,414,478	1.056	6,771,441	9,377,161	
Death	2008	4,210,956	1.050	4,419,657	5,014,691	1.050	5,263,226	9,682,883	
Death	2009	1,354,447	1.047	1,418,646	6,993,542	1.047	7,325,024	8,743,670	
Death	2010	1,811,505	1.048	1,898,281	4,451,222	1.048	4,664,447	6,562,727	
Death	2011	399,738	1.044	417,404	7,241,840	1.044	7,561,891	7,979,296	
Total Death		10,245,002		10,759,706	30,115,773		31,586,029	42,345,736	1.50%
Permanent Total	2007	30,565,556	1.061	32,419,690	0	1.061	0	32,419,690	
Permanent Total	2008	31,852,598	1.052	33,514,178	0	1.052	0	33,514,178	
Permanent Total	2009	35,861,920	1.049	37,628,845	0	1.049	0	37,628,845	
Permanent Total	2010	31,791,964	1.050	33,372,636	0	1.050	0	33,372,636	
Permanent Total	2011	41,440,402	1.045	43,290,290	0	1.045	0	43,290,290	
Total Permanent Total		171,512,440		180,225,639	0		0	180,225,639	6.38%
Permanent Partial	2007	97,333,496	1.102	107,267,468	114,757,556	1.102	126,469,848	233,737,315	
Permanent Partial	2008	85,558,700	1.087	92,974,679	119,596,998	1.087	129,963,317	222,937,996	
Permanent Partial	2009	78,811,154	1.081	85,203,872	117,002,427	1.081	126,493,007	211,696,879	
Permanent Partial	2010	81,905,717	1.082	88,630,039	129,821,447	1.082	140,479,569	229,109,608	
Permanent Partial	2011	86,978,753	1.073	93,334,618	124,156,888	1.073	133,229,499	226,564,117	
Total Permanent Partial		430,587,820		467,410,675	605,335,316		656,635,240	1,124,045,915	39.81%
Temporary Total	2007	26,368,929	1.036	27,309,925	61,167,245	1.036	63,350,045	90,659,970	
Temporary Total	2008	25,666,921	1.031	26,454,977	62,264,189	1.031	64,175,897	90,630,874	
Temporary Total	2009	27,258,036	1.029	28,046,766	57,482,697	1.029	59,145,998	87,192,764	
Temporary Total	2010	30,922,945	1.029	31,834,738	63,547,054	1.029	65,420,799	97,255,537	
Temporary Total	2011	32,344,653	1.027	33,223,128	77,358,314	1.027	79,459,352	112,682,480	
Total Temporary Total		142,561,484		146,869,533	321,819,499		331,552,092	478,421,625	16.94%
(11) Total Indemnity		754,906,746		805,265,553	957,270,588		1,019,773,362	1,825,038,915	64.63%

IV 000020 STIP

- (12) Aggregate Financial Policy Year Call, Indemnity Fifth to Ultimate Development Factor Paid + Case 1.040
- (13) Tail Development Attributed to Likely to Develop Claims 0.8
- (14) Percentage Likely to Develop 0.441
- (15) Indemnity Likely to Develop - Loss Development Factor from 5th Report to Ultimate =  $1.0 + \{ [(12) - 1.0] \times (13) \} / (14)$  1.073
- (16) Indemnity Not Likely to Develop - Loss Development Factor from 5th Report to Ultimate =  $1.0 + \{ [(12) - 1.0] \times [1.0 - (13)] \} / [1.0 - (14)]$  1.014

Post-Chapter 398 Injury Type Weights at 5th Report

Injury Type (1)	Policy Year (2)	Medical - Likely to Develop			Medical - Not Likely to Develop			Medical On-level Losses at Fifth Report = (5) + (8) (9)	Weights at 5th report (10)
		Losses at Fifth Report (3)	Benefit On-Level Factor to Prosp. Eff. Period (4)	On-level Losses at Fifth Report = (3) x (4) (5)	Losses at Fifth Report (6)	Benefit On-Level Factor to Prosp. Eff. Period (7)	On-level Losses at Fifth Report = (6) x (7) (8)		
Death	2007	3,926,760	1.032	4,052,416	713,159	1.032	735,980	4,788,396	
Death	2008	38,596	1.024	39,536	278,090	1.024	284,865	324,402	
Death	2009	777,286	1.002	778,623	378,555	1.002	379,206	1,157,829	
Death	2010	63,834	1.000	63,834	203,538	1.000	203,538	267,372	
Death	2011	13,739	1.000	13,739	271,119	1.000	271,119	284,858	
<b>Total Death</b>		<b>4,820,215</b>		<b>4,948,149</b>	<b>1,874,461</b>		<b>1,874,708</b>	<b>6,822,857</b>	<b>0.24%</b>
Permanent Total	2007	12,081,585	1.032	12,468,196	0	1.032	0	12,468,196	
Permanent Total	2008	14,227,715	1.024	14,574,350	0	1.024	0	14,574,350	
Permanent Total	2009	19,483,006	1.002	19,516,515	0	1.002	0	19,516,515	
Permanent Total	2010	32,148,026	1.000	32,148,026	0	1.000	0	32,148,026	
Permanent Total	2011	29,282,596	1.000	29,282,596	0	1.000	0	29,282,596	
<b>Total Permanent Total</b>		<b>107,222,928</b>		<b>107,989,683</b>	<b>0</b>		<b>0</b>	<b>107,989,683</b>	<b>3.82%</b>
Permanent Partial	2007	44,426,211	1.032	45,847,850	44,482,182	1.032	45,905,612	91,753,462	
Permanent Partial	2008	33,587,322	1.024	34,405,622	45,058,485	1.024	46,156,261	80,561,882	
Permanent Partial	2009	37,872,500	1.002	37,937,638	50,764,237	1.002	50,851,547	88,789,185	
Permanent Partial	2010	28,190,867	1.000	28,190,867	51,794,222	1.000	51,794,222	79,985,089	
Permanent Partial	2011	40,688,327	1.000	40,688,327	47,602,882	1.000	47,602,882	88,291,209	
<b>Total Permanent Partial</b>		<b>184,765,227</b>		<b>187,070,303</b>	<b>239,702,008</b>		<b>242,310,524</b>	<b>429,380,827</b>	<b>15.21%</b>
Temporary Total	2007	13,830,995	1.032	14,273,587	50,291,385	1.032	51,900,709	66,174,296	
Temporary Total	2008	14,348,179	1.024	14,697,749	46,279,932	1.024	47,407,466	62,105,215	
Temporary Total	2009	13,192,788	1.002	13,215,478	45,508,272	1.002	45,586,542	58,802,021	
Temporary Total	2010	15,099,908	1.000	15,099,908	48,473,726	1.000	48,473,726	63,573,634	
Temporary Total	2011	16,698,276	1.000	16,698,276	55,273,771	1.000	55,273,771	71,972,047	
<b>Total Temporary Total</b>		<b>73,170,146</b>		<b>73,984,998</b>	<b>245,827,086</b>		<b>248,642,215</b>	<b>322,627,213</b>	<b>11.43%</b>
Medical Only	2007	0	1.032	0	28,902,246	1.032	29,827,118	29,827,118	
Medical Only	2008	0	1.024	0	26,429,229	1.024	27,073,134	27,073,134	
Medical Only	2009	0	1.002	0	23,927,297	1.002	23,968,450	23,968,450	
Medical Only	2010	0	1.000	0	25,521,980	1.000	25,521,980	25,521,980	
Medical Only	2011	0	1.000	0	25,602,177	1.000	25,602,177	25,602,177	
<b>Total Medical Only</b>		<b>0</b>		<b>0</b>	<b>130,382,929</b>		<b>131,992,858</b>	<b>131,992,858</b>	<b>4.67%</b>
<b>(11) Total Medical</b>		<b>369,978,516</b>		<b>373,993,132</b>	<b>617,756,484</b>		<b>624,820,305</b>	<b>998,813,438</b>	<b>35.37%</b>
<b>(12) Total Medical &amp; Indemnity</b>		<b>1,124,885,262</b>		<b>1,179,258,685</b>	<b>1,575,027,072</b>		<b>1,644,593,667</b>	<b>2,823,852,352</b>	
<b>(13) Medical Only fraction of Total Medical</b>									<b>13.21%</b>

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- (14) Aggregate Financial Policy Year Call, Medical Fifth to Ultimate Development Factor Paid + Case 1.011
- (15) Tail Development Attributed to Likely to Develop Claims 0.8
- (16) Percentage Likely to Develop 0.374
- (17) Medical Likely to Develop - Loss Development Factor from 5th Report to Ultimate =  $1.0 + \{ [(14) - 1.0] \times (15) \} / (16)$  1.024
- (18) Medical Not Likely to Develop - Loss Development Factor from 5th Report to Ultimate =  $1.0 + \{ [(14) - 1.0] \times [1.0 - (15)] \} / [1.0 - (16)]$  1.004
- (19) Indemnity Likely Weight at 5th Report 28.52%
- (20) Indemnity Not Likely Weight at 5th Report 36.11%
- (21) Medical Likely Weight at 5th Report 13.24%
- (22) Medical Not Likely Weight at 5th Report 22.13%

Post-Chapter 398 Injury Type Weights at Ultimate

Injury Type (1)	Policy Year (2)	Indemnity - Likely to Develop			Indemnity - Not Likely to Develop			Indemnity Ult. On-level Losses at Ultimate = (5) + (8) (9)	Weights at Ultimate (10)
		On-level Losses at Fifth Report (3)	Development Factors 5th to Ultimate (4)	Est. Ult On-level Losses = (3) x (4) (5)	On-level Losses at Fifth Report (6)	Development Factors 5th to Ultimate (7)	Est. Ult On-level Losses = (6) x (7) (8)		
Death	2007	2,605,719	1.073	2,796,576	6,771,441	1.014	6,869,354	9,665,930	
Death	2008	4,419,657	1.073	4,743,377	5,263,226	1.014	5,339,330	10,082,707	
Death	2009	1,418,646	1.073	1,522,555	7,325,024	1.014	7,430,941	8,953,496	
Death	2010	1,898,281	1.073	2,037,321	4,664,447	1.014	4,731,893	6,769,214	
Death	2011	417,404	1.073	447,977	7,561,891	1.014	7,671,233	8,119,211	
Total Death		10,759,706		11,547,807	31,586,029		32,042,751	43,590,558	1.50%
Permanent Total	2007	32,419,690	1.073	34,794,288	0	1.014	0	34,794,288	
Permanent Total	2008	33,514,178	1.073	35,968,942	0	1.014	0	35,968,942	
Permanent Total	2009	37,628,845	1.073	40,384,990	0	1.014	0	40,384,990	
Permanent Total	2010	33,372,636	1.073	35,817,034	0	1.014	0	35,817,034	
Permanent Total	2011	43,290,290	1.073	46,461,111	0	1.014	0	46,461,111	
Total Permanent Total		180,225,639		193,426,366	0		0	193,426,366	6.65%
Permanent Partial	2007	107,267,468	1.073	115,124,333	126,469,848	1.014	128,298,553	243,422,886	
Permanent Partial	2008	92,974,679	1.073	99,784,661	129,963,317	1.014	131,842,537	231,627,198	
Permanent Partial	2009	85,203,872	1.073	91,444,677	126,493,007	1.014	128,322,047	219,766,725	
Permanent Partial	2010	88,630,039	1.073	95,121,795	140,479,569	1.014	142,510,850	237,632,645	
Permanent Partial	2011	93,334,618	1.073	100,170,964	133,229,499	1.014	135,155,946	235,326,910	
Total Permanent Partial		467,410,675		501,646,430	656,635,240		666,129,933	1,167,776,364	40.15%
Temporary Total	2007	27,309,925	1.073	29,310,255	63,350,045	1.014	64,266,063	93,576,318	
Temporary Total	2008	26,454,977	1.073	28,392,686	64,175,897	1.014	65,103,856	93,496,542	
Temporary Total	2009	28,046,766	1.073	30,101,067	59,145,998	1.014	60,001,227	90,102,294	
Temporary Total	2010	31,834,738	1.073	34,166,491	65,420,799	1.014	66,366,759	100,533,250	
Temporary Total	2011	33,223,128	1.073	35,656,575	79,459,352	1.014	80,608,304	116,264,878	
Total Temporary Total		146,869,533		157,627,074	331,552,092		336,346,208	493,973,282	16.98%
(11) Total Indemnity		805,265,553		864,247,677	1,019,773,362		1,034,518,893	1,898,766,570	65.28%

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Post-Chapter 398 Injury Type Weights at Ultimate

Injury Type (1)	Policy Year (2)	Medical - Likely to Develop			Medical - Not Likely to Develop			Medical On-level Losses at Ultimate = (5) + (8) (9)	Weights at Ultimate (10)
		On-level Losses at Fifth Report (3)	Development Factors 5th to Ultimate (4)	Est. Ult On-level Losses = (3) x (4) (5)	On-level Losses at Fifth Report (6)	Development Factors 5th to Ultimate (7)	Est. Ult On-level Losses = (6) x (7) (8)		
Death	2007	4,052,416	1.024	4,149,622	735,980	1.004	738,622	4,888,244	
Death	2008	39,536	1.024	40,485	284,865	1.004	285,888	326,372	
Death	2009	778,623	1.024	797,300	379,206	1.004	380,567	1,177,867	
Death	2010	63,834	1.024	65,365	203,538	1.004	204,269	269,634	
Death	2011	13,739	1.024	14,069	271,119	1.004	272,092	286,161	
Total Death		4,948,149		5,066,840	1,874,708		1,881,438	6,948,278	0.24%
Permanent Total	2007	12,468,196	1.024	12,767,272	0	1.004	0	12,767,272	
Permanent Total	2008	14,574,350	1.024	14,923,947	0	1.004	0	14,923,947	
Permanent Total	2009	19,516,515	1.024	19,984,661	0	1.004	0	19,984,661	
Permanent Total	2010	32,148,026	1.024	32,919,165	0	1.004	0	32,919,165	
Permanent Total	2011	29,282,596	1.024	29,985,002	0	1.004	0	29,985,002	
total Permanent Total		107,989,683		110,580,047	0		0	110,580,047	3.80%
Permanent Partial	2007	45,847,850	1.024	46,947,609	45,905,612	1.004	46,070,387	93,017,996	
Permanent Partial	2008	34,405,622	1.024	35,230,914	46,156,261	1.004	46,321,936	81,552,850	
Permanent Partial	2009	37,937,638	1.024	38,847,653	50,851,547	1.004	51,034,076	89,881,729	
Permanent Partial	2010	28,190,867	1.024	28,867,085	51,794,222	1.004	51,980,134	80,847,220	
Permanent Partial	2011	40,688,327	1.024	41,664,324	47,602,882	1.004	47,773,750	89,438,074	
total Permanent Partial		187,070,303		191,557,585	242,310,524		243,180,284	434,737,869	14.95%
Temporary Total	2007	14,273,587	1.024	14,615,969	51,900,709	1.004	52,087,004	66,702,973	
Temporary Total	2008	14,697,749	1.024	15,050,306	47,407,466	1.004	47,577,633	62,627,938	
Temporary Total	2009	13,215,478	1.024	13,532,480	45,586,542	1.004	45,750,173	59,282,653	
Temporary Total	2010	15,099,908	1.024	15,462,112	48,473,726	1.004	48,647,720	64,109,831	
Temporary Total	2011	16,698,276	1.024	17,098,820	55,273,771	1.004	55,472,173	72,570,993	
total Temporary Total		73,984,998		75,759,687	248,642,215		249,534,702	325,294,389	11.18%
Medical Only	2007	0	1.024	0	29,827,118	1.004	29,934,181	29,934,181	
Medical Only	2008	0	1.024	0	27,073,134	1.004	27,170,311	27,170,311	
Medical Only	2009	0	1.024	0	23,968,450	1.004	24,054,483	24,054,483	
Medical Only	2010	0	1.024	0	25,521,980	1.004	25,613,590	25,613,590	
Medical Only	2011	0	1.024	0	25,602,177	1.004	25,694,075	25,694,075	
Total Medical Only		0		0	131,992,858		132,466,639	132,466,639	4.55%
(11) Total Medical		373,993,132		382,964,160	624,820,305		627,063,062	1,010,027,222	34.72%
(12) Total Medical & Indemnity		1,179,258,685		1,247,211,837	1,644,593,667		1,661,581,955	2,908,793,792	
(13) Medical Only fraction of Total Medical									13.12%

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Ind & Med N/L Weights at Ult	
Indemnity Likely	29.71%
Indemnity Not Likely	35.57%
Medical Likely	13.17%
Medical Not Likely	21.56%

USL&HW Benefit Level Factors

All Injury Types

Time Period		Indemnity					Medical	Total
Beginning Period	Ending Period	Death	Permanent Total	Permanent Partial	Temporary Total	All Injury Types	All Injury Types	All Injury Types
PY 2011	Prosp. Eff. Period	1.033	1.027	1.010	1.027		1.000	
PY 2012	Prosp. Eff. Period	1.027	1.022	1.008	1.022		1.000	
PY 2013	Prosp. Eff. Period	1.023	1.019	1.007	1.019		1.000	
PY 2014	Prosp. Eff. Period	1.019	1.015	1.005	1.015		1.000	
PY 2015	Prosp. Eff. Period	1.015	1.011	1.004	1.011		1.000	
CPY 2014_07	Prosp. Eff. Period							1.004
CPY 2015_07	Prosp. Eff. Period							1.003
CPY 2016_07	Prosp. Eff. Period							1.002
Prior Eff. Period (using benefit level projections from prior filing)	Prosp. Eff. Period					1.002	1.000	1.000

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Notes:  
 All time periods refer to Policy Years.  
 Example: PY 2015 to Prosp. Eff. Period for Indemnity Permanent Partial = 1.004 = 1.012 / 1.008  
 where 1.012 is the Index Factor of Prosp. Eff. Period and 1.008 is the Index Factor of PY 2015 for Indemnity Permanent Partial, from Exhibit 2.

USL&HW Benefit Level Changes and Weights

Death											
Benefit Level Change	10/1/2010	10/1/2011	10/1/2012	10/1/2013	10/1/2014	10/1/2015	10/1/2016	10/1/2017	10/1/2018	10/1/2019	Weighted Average Benefit Level
Cumulative Benefit Level Change	1.000	1.006	1.012	1.015	1.019	1.023	1.027	1.031	1.036	1.040	
Time Period											
PY 2011	0.376	0.616	0.008								<b>1.004</b>
PY 2012		0.338	0.650	0.013							<b>1.010</b>
PY 2013			0.364	0.620	0.016						<b>1.014</b>
PY 2014				0.377	0.614	0.009					<b>1.018</b>
PY 2015					0.353	0.641	0.006				<b>1.022</b>
CPY 2014_07				0.008	0.472	0.521					<b>1.021</b>
CPY 2015_07					0.025	0.497	0.478				<b>1.025</b>
CPY 2016_07						0.025	0.497	0.478			<b>1.029</b>
Prior Eff. Period						0.025	0.497	0.478			<b>1.029</b>
Prosp. Eff. Period							0.025	0.496	0.479		<b>1.037</b>

Indemnity All Injury Types - Average Benefit Level for Current Policy Period, Estimated at 7/1/2016 (using benefit level projections from prior filing).

Date of Change	10/1/2010	10/1/2011	10/1/2012	10/1/2013	10/1/2014	10/1/2015	10/1/2016	10/1/2017	Weighted Average Benefit Level
Benefit Level Change	1.000	1.003	1.003	1.002	1.003	1.003	1.003	1.003	
Cumulative Level Change	1.000	1.003	1.006	1.008	1.011	1.014	1.017	1.020	<b>1.019</b>

Medical All Injury Types - Average Benefit Level for Current Policy Period, Estimated at 7/1/2016 (using benefit level projections from prior filing).

Date of Change	10/1/2010	10/1/2011	10/1/2012	10/1/2013	10/1/2014	10/1/2015	10/1/2016	10/1/2017	Weighted Average Benefit Level
Benefit Level Change	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	
Cumulative Level Change	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	<b>1.000</b>

All Injury Types - Average Benefit Level for Current Policy Period, Estimated at 7/1/2016 (using benefit level projections from prior filing).

Date of Change	10/1/2010	10/1/2011	10/1/2012	10/1/2013	10/1/2014	10/1/2015	10/1/2016	10/1/2017	Weighted Average Benefit Level
Benefit Level Change	1.000	1.001	1.002	1.001	1.002	1.002	1.002	1.002	
Cumulative Level Change	1.000	1.001	1.003	1.004	1.006	1.008	1.010	1.012	<b>1.011</b>

Index Factors for All Injury Types

Time Period	Indemnity					Medical	Total
	Death	Permanent Total	Permanent Partial	Temporary Total	All Injury Types	All Injury Types	All Injury Types
PY 2011	<b>1.004</b>	1.003	1.001	1.003	1.002	1.000	1.001
PY 2012	<b>1.010</b>	1.008	1.003	1.008	1.005	1.000	1.002
PY 2013	<b>1.014</b>	1.011	1.005	1.011	1.007	1.000	1.004
PY 2014	<b>1.018</b>	1.015	1.006	1.015	1.010	1.000	1.005
PY 2015	<b>1.022</b>	1.018	1.008	1.018	1.012	1.000	1.007
CPY 2014_07	<b>1.021</b>	1.018	1.008	1.018	1.012	1.000	1.007
CPY 2015_07	<b>1.025</b>	1.021	1.008	1.021	1.014	1.000	1.007
CPY 2016_07	<b>1.029</b>	1.024	1.009	1.024	1.016	1.000	1.008
Prior Eff. Period	<b>1.029</b>	1.024	1.009	1.024	1.016	1.000	1.008
Prosp. Eff. Period	<b>1.037</b>	1.030	1.012	1.030	1.020	1.000	1.011

Notes:  
 All time periods refer to Policy Years.  
 Index Factors for All Injury Types is an Excel Data Table that repeats the calculation of the Weighted Average Benefit Level for all Injury Types.

IV 000025 STIP



## IV 000026 STIP

Section IV - Benefit Change Adjustments  
 Subsection F - Effects of USL&HW Benefit Changes  
 7/1/2018

Section IV - F  
 Exhibit 3

### USL&HW Historical and Estimated Benefit Level Changes

Effective Date (1)	Indemnity					Medical	Total
	Death (2)	Permanent Total (3)	Permanent Partial (4)	Temporary Total (5)	All Injury Types (6)	All Injury Types (7)	All Injury Types (8)
10/1/2010	0.2%	0.2%	0.0%	0.2%	0.1%	0.0%	0.0%
10/1/2011	0.6%	0.5%	0.2%	0.5%	0.3%	0.0%	0.1%
10/1/2012	0.6%	0.4%	0.2%	0.4%	0.3%	0.0%	0.2%
10/1/2013	0.3%	0.3%	0.1%	0.3%	0.2%	0.0%	0.1%
10/1/2014	0.4%	0.4%	0.2%	0.4%	0.3%	0.0%	0.2%
10/1/2015	0.4%	0.3%	0.1%	0.3%	0.2%	0.0%	0.1%
10/1/2016	0.4%	0.3%	0.1%	0.3%	0.2%	0.0%	0.1%
10/1/2017	0.4%	0.3%	0.1%	0.3%	0.2%	0.0%	0.1%
10/1/2018	0.4%	0.3%	0.1%	0.3%	0.2%	0.0%	0.1%
10/1/2019	0.4%	0.3%	0.1%	0.3%	0.2%	0.0%	0.1%

**Notes:**

Values prior to 10/1/2016 are from NCCI's Annual Statistical Bulletin, 2017 Edition, Exhibit 3.

Values for 10/1/2016 are from NCCI CT-2017-04, Appendix C-IV.

Changes for 10/1/2017 - 10/1/2019 are assumed to be the same as 10/1/2016.

**Trend Summary**

		Indemnity		Medical				SAWW
		Severity	Frequency	Lost-Time Medical		Medical Only		
				Severity	Frequency	Severity	Frequency	
(1)	Massachusetts Trend	2.9%	-1.9%	2.7%	-1.9%	1.9%	-4.9%	2.7%
	5 Year	3.2%	-2.3%	1.9%	-2.3%	2.1%	-5.4%	3.2%
	6 Year	3.5%	-2.5%	2.9%	-2.5%	2.3%	-5.5%	2.8%
	7 Year	2.7%	-1.8%	2.4%	-1.8%	2.1%	-4.9%	2.7%
	8 Year	2.5%	-1.5%	3.4%	-1.5%	1.6%	-4.6%	2.8%
	9 Year	2.6%	-1.6%	3.1%	-1.6%	1.5%	-4.7%	2.6%
	10 Year	2.5%	-1.6%	2.7%	-1.6%	1.5%	-4.5%	2.4%
(2)	Complement of Credibility	-0.2%	-2.3%	1.6%	-2.3%	3.6%	-4.3%	2.8%
(3)	Credibility Weighted Trend	2.1%	-2.0%	2.2%	-2.0%	1.9%	-4.8%	2.7%
	5 Year	1.6%	-2.3%	1.7%	-2.3%	2.4%	-5.3%	3.2%
	6 Year	2.6%	-2.5%	2.1%	-2.5%	2.3%	-5.5%	2.8%
	7 Year	1.6%	-2.0%	2.0%	-2.0%	2.1%	-4.7%	2.7%
	8 Year	1.9%	-1.7%	2.5%	-1.7%	1.6%	-4.5%	2.8%
	9 Year	2.3%	-1.8%	2.5%	-1.8%	1.5%	-4.5%	2.6%
	10 Year	2.5%	-1.7%	2.2%	-1.7%	1.5%	-4.5%	2.4%
(4)	<b>Selected Trend</b>	<b>2.1%</b>	<b>-2.0%</b>	<b>2.2%</b>	<b>-2.0%</b>	<b>1.9%</b>	<b>-4.8%</b>	<b>2.7%</b>

	Lost-Time Medical	Medical Only
(5) Medical Loss Trend	0.1%	-3.0%
(6) Fraction of Total Medical	86.9%	13.1%
(7) Total Medical Loss Trend	-0.3%	

	Indemnity	Medical
(8) Total Loss Trend	0.0%	-0.3%
(9) SAWW Trend	2.7%	2.7%
(10) Total Net Trend	-2.6%	-2.9%

Notes:

- (1),(2),(3): Section V, Exhibit 2 Severity; Exhibit 3 Frequency and SAWW.
- (4) = Selected Trend
- (5) =  $[(1.0 + \text{Credibility Weighted Severity Trend}) \times (1.0 + \text{Credibility Weighted Frequency Trend})] - 1.0$
- (6) Medical Only = Medical Only Fraction of Total Medical from Section IV-E, Exhibit 2  
 Lost Time Medical =  $1.0 - \text{Medical Only}$
- (7) = Weighted Average of (5) using (6) as weights
- (8): Indemnity =  $(1.0 + \text{Credibility Weighted Severity Trend}) \times (1.0 + \text{Credibility Weighted Frequency Trend}) - 1.0$   
 Medical = Row (7)
- (9): (4) for SAWW.
- (10) =  $\{ [1.0 + (8)] / [1.0 + (9)] \} - 1.0$

Indemnity Severity Trend Calculation

Policy Year	Massachusetts Indemnity Severity	5 Year		6 Year		7 Year		8 Year		9 Year		10 Year		
		Exponential Fit	Difference Squared	Exponential Fit	Difference Squared	Exponential Fit	Difference Squared	Exponential Fit	Difference Squared	Exponential Fit	Difference Squared	Exponential Fit	Difference Squared	
2006	23,892											23,645	61,302	
2007	23,940									24,133	37,184	24,245	92,916	
2008	25,069							24,867	40,874	24,767	91,035	24,861	43,422	
2009	26,497					25,381	1,245,554	25,498	996,670	25,418	1,163,313	25,492	1,009,852	
2010	25,037			25,319	79,053	26,055	1,036,397	26,146	1,229,023	26,086	1,099,880	26,139	1,213,617	
2011	26,771	26,452	102,076	26,216	307,749	26,748	527	26,810	1,521	26,772	0	26,803	1,000	
2012	27,033	27,298	69,914	27,146	12,638	27,459	181,239	27,491	209,310	27,475	195,148	27,483	202,236	
2013	27,419	28,171	566,280	28,108	475,641	28,189	593,549	28,189	593,549	28,197	606,061	28,181	580,927	
2014	30,118	29,073	1,092,869	29,105	1,026,007	28,939	1,391,073	28,905	1,471,111	28,938	1,391,804	28,896	1,492,269	
2015	29,689	30,003	98,658	30,137	201,077	29,708	369	29,639	2,444	29,699	101	29,630	3,435	
(1)	<b>Massachusetts Trend</b>		<b>3.2%</b>		<b>3.5%</b>		<b>2.7%</b>		<b>2.5%</b>		<b>2.6%</b>		<b>2.5%</b>	
(2)	n		5		6		7		8		9		10	
(3)	s		802.04		724.94		943.26		870.30		809.28		766.57	
(4)	t		2.35		2.13		2.02		1.94		1.89		1.86	
(5)	m		5.49		6.00		6.49		7.00		7.50		8.00	
(6)	$[1 + 1/n + 12 \times m^2/(n^3-n)]^{.5}$		2.05		1.80		1.63		1.51		1.43		1.37	
(7)	Confidence Interval		3,877.10		2,774.48		3,093.61		2,559.71		2,194.02		1,952.29	
(8)	Projected Value Prospective Period		33,493.59		34,049.40		32,560.13		32,359.45		32,518.05		32,350.14	
(9)	CI/Projected Severity		0.12		0.08		0.10		0.08		0.07		0.06	
(10)	<b>Credibility - MA Trend (Z)</b>		<b>52%</b>		<b>74%</b>		<b>63%</b>		<b>76%</b>		<b>89%</b>		<b>99%</b>	
			NCCI Annual Statistical Bulletin		CW Indemnity Severity			On-Level Indemnity Severity						
					Indemnity Severity	On-Level Factors	Indemnity Severity							
					2013	2014	2015	2016	2017					
					21,639	21,525	21,399	21,800	21,657	1.048	1.048	1.042	1.036	1.036
										22,684	22,562	22,288	22,591	22,438
(11)	<b>Complement of Credibility</b>								<b>-0.2%</b>					
(12)	<b>Credibility Weighted Severity Trend</b>		<b>1.6%</b>		<b>2.6%</b>		<b>1.6%</b>		<b>1.9%</b>		<b>2.3%</b>		<b>2.5%</b>	

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Notes:  
 (1): Massachusetts Trend from exponential fit to Severities.  
 (2): Number of data points used in the exponential fitting of the severities.  
 (3):  $\sqrt{SSR/(n - 2)}$  where SSR is the sum of squared residuals and n is the number of data points used in the exponential fitting of the data.  
 (4): T-value based on a two-tailed t-test with probability parameter, p, of 90% and a t-distribution with n - 2 degrees of freedom.  
 (5): Number of years between midpoint of data and projected point.  
 (7) = (3) x (4) x (6)  
 (8): Severity projected to policy effective period using exponential fit to data.  
 (9) = (7) / (8)  
 (10): The credibility is the ratio of the target value, k, to the quotient of the confidence interval and the projected frequency, capped at 100%. Numerically, (10) = the minimum of k / (9) and 100%.  
 (11): Complement of credibility is based on a countrywide data for severities.  
 (12) = [ (1) x (10) ] + { (11) x [ 1.0 - (10) ] }

Lost Time Medical Severity Trend Calculation

Policy Year	Lost Time Medical Severity	5 Year		6 Year		7 Year		8 Year		9 Year		10 Year	
		Exponential Fit	Difference Squared	Exponential Fit	Difference Squared	Exponential Fit	Difference Squared	Exponential Fit	Difference Squared	Exponential Fit	Difference Squared	Exponential Fit	Difference Squared
2006	11,713											11,103	372,768
2007	11,403									11,130	74,887	11,398	32
2008	10,618							11,338	518,092	11,477	736,727	11,701	1,171,465
2009	12,435					12,170	70,506	11,722	508,646	11,834	360,962	12,012	179,360
2010	11,912			12,286	140,173	12,464	305,222	12,119	42,843	12,203	84,904	12,331	175,619
2011	12,747	12,955	43,135	12,638	11,904	12,766	355	12,529	47,595	12,584	26,797	12,659	7,855
2012	13,518	13,203	99,263	13,000	268,098	13,075	196,018	12,953	318,861	12,976	293,964	12,995	273,398
2013	13,058	13,455	158,236	13,372	99,077	13,392	111,570	13,392	111,570	13,380	103,948	13,340	79,906
2014	14,473	13,713	577,059	13,755	514,291	13,716	572,551	13,845	393,822	13,797	456,316	13,695	604,837
2015	13,544	13,975	185,793	14,149	366,158	14,048	253,686	14,314	591,987	14,227	466,147	14,059	264,717
(1)	<b>Massachusetts Trend</b>		<b>1.9%</b>		<b>2.9%</b>		<b>2.4%</b>		<b>3.4%</b>		<b>3.1%</b>		<b>2.7%</b>
(2)	n		5		6		7		8		9		10
(3)	s		595.40		591.54		549.53		649.80		609.99		625.50
(4)	t		2.35		2.13		2.02		1.94		1.89		1.86
(5)	m		5.49		6.00		6.49		7.00		7.50		8.00
(6)	[1 + 1/n + 12 x m^2/(n^3-n)]^0.5		2.05		1.80		1.63		1.51		1.43		1.37
(7)	Confidence Interval		2,878.18		2,263.94		1,802.29		1,911.18		1,653.74		1,593.02
(8)	Projected Value Prospective Period		14,932.57		15,620.37		15,272.78		16,083.84		15,838.56		15,411.90
(9)	CI/Projected Severity		0.19		0.14		0.12		0.12		0.10		0.10
(10)	<b>Credibility - MA Trend (Z)</b>		<b>31%</b>		<b>41%</b>		<b>51%</b>		<b>50%</b>		<b>57%</b>		<b>58%</b>
				NCCI Annual Statistical Bulletin		CW Lost Time ("LT") Medical Severity							
						LT Medical Severity	On-Level Factors	On-Level LT Medical Severity					
						2013	25,428	0.997	25,355				
						2014	25,484	1.008	25,697				
						2015	25,939	1.009	26,179				
						2016	26,218	1.012	26,535				
						2017	26,704	1.014	27,068				
(11)	<b>Complement of Credibility</b>							<b>1.6%</b>					
(12)	<b>Credibility Weighted Severity Trend</b>		<b>1.7%</b>		<b>2.1%</b>		<b>2.0%</b>		<b>2.5%</b>		<b>2.5%</b>		<b>2.2%</b>

- Notes:
- (1): Massachusetts Trend from exponential fit to Severities.
  - (2): Number of data points used in the exponential fitting of the severities.
  - (3):  $\sqrt{SSR/(n - 2)}$  where SSR is the sum of squared residuals and n is the number of data points used in the exponential fitting of the data.
  - (4): T-value based on a two-tailed t-test with probability parameter, p, of 90% and a t-distribution with n - 2 degrees of freedom.
  - (5): Number of years between midpoint of data and projected point.
  - (7) = (3) x (4) x (6)
  - (8): Severity projected to policy effective period using exponential fit to data.
  - (9) = (7) / (8)
  - (10): The credibility is the ratio of the target value, k, to the quotient of the confidence interval and the projected frequency, capped at 100%. Numerically, (10) = the minimum of k / (9) and 100%.
  - (11): Complement of credibility is based on a countrywide data for severities.
  - (12) = [ (1) x (10) ] + { (11) x [ 1.0 - (10) ] }

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Medical Only Severity Trend Calculation

Policy Year	Massachusetts Medical Only Severity	5 Year		6 Year		7 Year		8 Year		9 Year		10 Year	
		Exponential Fit	Difference Squared	Exponential Fit	Difference Squared	Exponential Fit	Difference Squared	Exponential Fit	Difference Squared	Exponential Fit	Difference Squared	Exponential Fit	Difference Squared
2006	767											775	66
2007	803									791	148	787	251
2008	823							796	704	802	418	799	551
2009	803					794	74	809	41	814	127	812	79
2010	799			805	30	811	127	822	518	826	694	824	608
2011	819	828	85	824	22	828	78	835	276	838	357	837	321
2012	853	845	52	843	103	845	59	849	14	850	8	850	9
2013	880	863	265	862	305	863	284	863	284	862	300	863	283
2014	865	881	256	882	275	881	235	877	126	875	87	876	112
2015	902	900	4	903	0	899	8	891	125	888	212	890	156
(1)	<b>Massachusetts Trend</b>		<b>2.1%</b>		<b>2.3%</b>		<b>2.1%</b>		<b>1.6%</b>		<b>1.5%</b>		<b>1.5%</b>
(2)	n		5		6		7		8		9		10
(3)	s		14.86		13.56		13.16		18.65		18.32		17.45
(4)	t		2.35		2.13		2.02		1.94		1.89		1.86
(5)	m		5.49		6.00		6.49		7.00		7.50		8.00
(6)	[1 + 1/n + 12 x m^2/(n^3-n)]^0.5		2.05		1.80		1.63		1.51		1.43		1.37
(7)	Confidence Interval		71.83		51.90		43.14		54.86		49.68		44.44
(8)	Projected Value Prospective Period		968.08		977.87		966.91		942.43		933.45		938.58
(9)	CI/Projected Severity		0.07		0.05		0.04		0.06		0.05		0.05
(10)	<b>Credibility - MA Trend (Z)</b>		<b>81%</b>		<b>100%</b>		<b>100%</b>		<b>100%</b>		<b>100%</b>		<b>100%</b>
				NCCI Annual Statistical Bulletin		CW Medical Only Severity							
						MO Medical Severity	On-Level Factors	MO Medical Severity					
				2013		1,128	0.997	1,125					
				2014		1,170	1.008	1,180					
				2015		1,196	1.009	1,207					
				2016		1,234	1.012	1,249					
				2017		1,284	1.014	1,301					
(11)	<b>Complement of Credibility</b>						<b>3.6%</b>						
(12)	<b>Credibility Weighted Severity Trend</b>		<b>2.4%</b>		<b>2.3%</b>		<b>2.1%</b>		<b>1.6%</b>		<b>1.5%</b>		<b>1.5%</b>

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- Notes:
- (1): Massachusetts Trend from exponential fit to Severities.
  - (2): Number of data points used in the exponential fitting of the severities.
  - (3):  $\sqrt{SSR/(n - 2)}$  where SSR is the sum of squared residuals and n is the number of data points used in the exponential fitting of the data.
  - (4): T-value based on a two-tailed t-test with probability parameter, p, of 90% and a t-distribution with n - 2 degrees of freedom.
  - (5): Number of years between midpoint of data and projected point.
  - (7) = (3) x (4) x (6)
  - (8): Severity projected to policy effective period using exponential fit to data.
  - (9) = (7) / (8)
  - (10): The credibility is the ratio of the target value, k, to the quotient of the confidence interval and the projected frequency, capped at 100%. Numerically, (10) = the minimum of k / (9) and 100%.
  - (11): Complement of credibility is based on a countrywide data for severities.
  - (12) = [ (1) x (10) ] + { (11) x [ 1.0 - (10) ] }

Lost Time Frequency Trend Calculation

Policy Year	Adjusted Claim Frequency	5 Year		6 Year		7 Year		8 Year		9 Year		10 Year	
		Exponential Fit	Difference Squared	Exponential Fit	Difference Squared	Exponential Fit	Difference Squared	Exponential Fit	Difference Squared	Exponential Fit	Difference Squared	Exponential Fit	Difference Squared
2006	199.56											200	0
2007	199.22									197	7	196	8
2008	187.97									193	29	193	28
2009	184.22									190	35	190	35
2010	194.26			193	2	188	39	186	62	187	51	187	52
2011	187.56	187	0	188	0	185	8	184	16	184	12	184	12
2012	181.39	183	2	183	4	181	0	181	0	181	0	181	0
2013	178.40	178	0	179	0	178	0	178	0	178	0	178	0
2014	176.17	174	4	174	4	175	1	176	0	175	1	175	1
2015	169.16	170	1	170	0	172	8	173	15	172	10	172	11
(1)	<b>Massachusetts Trend</b>		<b>-2.3%</b>		<b>-2.5%</b>		<b>-1.8%</b>		<b>-1.5%</b>		<b>-1.6%</b>		<b>-1.6%</b>
(2)	n		5		6		7		8		9		10
(3)	s		1.49		1.59		4.65		4.72		4.58		4.28
(4)	t		2.35		2.13		2.02		1.94		1.89		1.86
(5)	m		5.49		6.00		6.49		7.00		7.50		8.00
(6)	$[1 + 1/n + 12 \times m^2 / (n^3 - n)]^{.5}$		2.05		1.80		1.63		1.51		1.43		1.37
(7)	Confidence Interval		7.20		6.10		15.24		13.89		12.41		10.90
(8)	Projected Value Prospective Period		156.75		155.21		161.51		164.21		162.81		162.86
(9)	CI/Projected Frequency		0.05		0.04		0.09		0.08		0.08		0.07
(10)	<b>Credibility - MA Trend (Z)</b>		<b>100%</b>		<b>100%</b>		<b>64%</b>		<b>71%</b>		<b>79%</b>		<b>90%</b>
(11)	<b>Complement of Credibility</b>		<b>-2.3%</b>		<b>-2.3%</b>		<b>-2.3%</b>		<b>-2.3%</b>		<b>-2.3%</b>		<b>-2.3%</b>
(12)	<b>Credibility Weighted Frequency Trend</b>		<b>-2.3%</b>		<b>-2.5%</b>		<b>-2.0%</b>		<b>-1.7%</b>		<b>-1.8%</b>		<b>-1.7%</b>

Notes:

- (1): Massachusetts Trend from exponential fit to Adjusted Claim Frequencies
- (2): Number of data points used in the exponential fitting of the adjusted claim frequencies.
- (3):  $\sqrt{SSR / (n - 2)}$  where SSR is the sum of squared residuals and n is the number of data points used in the exponential fitting of the data.
- (4): T-value based on a two-tailed t-test with probability parameter, p, of 90% and a t-distribution with n - 2 degrees of freedom.
- (5): Number of years between midpoint of data and projected point.
- (7) = (3) x (4) x (6)
- (8): Frequency projected to policy effective period using exponential fit to data.
- (9) = (7) / (8)
- (10): The credibility is the ratio of the target value, k, to the quotient of the confidence interval and the projected frequency, capped at 100%. Numerically, (10) = the minimum of k / (9) and 100%.
- (11): Complement of credibility is based on a fifteen-year exponential fit to Adjusted Claim Frequencies.
- (12) = [ (1) x (10) ] + { (11) x [ 1.0 - (10) ] }

Medical Only Frequency Trend Calculation

Policy Year	Adjusted MedOnly Claim Frequency	5 Year		6 Year		7 Year		8 Year		9 Year		10 Year	
		Exponential Fit	Difference Squared	Exponential Fit	Difference Squared	Exponential Fit	Difference Squared	Exponential Fit	Difference Squared	Exponential Fit	Difference Squared	Exponential Fit	Difference Squared
2006	477.11											486	74
2007	469.95									467	6	464	38
2008	433.84							445	115	446	141	443	81
2009	416.77					430	176	424	53	425	67	423	37
2010	418.78			417	2	409	99	405	202	405	185	404	226
2011	396.13	393	8	394	3	389	56	386	104	386	97	386	112
2012	367.06	372	24	373	30	369	6	368	1	368	2	368	1
2013	352.35	352	0	352	0	351	1	351	1	351	1	352	1
2014	335.26	333	7	332	8	334	2	335	0	335	0	336	0
2015	313.41	315	1	314	0	317	16	320	39	319	34	320	50
(1)	<b>Massachusetts Trend</b>		<b>-5.4%</b>		<b>-5.5%</b>		<b>-4.9%</b>		<b>-4.6%</b>		<b>-4.7%</b>		<b>-4.5%</b>
(2)	n		5		6		7		8		9		10
(3)	s		3.67		3.29		8.44		9.27		8.73		8.80
(4)	t		2.35		2.13		2.02		1.94		1.89		1.86
(5)	m		5.49		6.00		6.49		7.00		7.50		8.00
(6)	$[1 + 1/n + 12 \times m^2/(n^3-n)]^{.5}$		2.05		1.80		1.63		1.51		1.43		1.37
(7)	Confidence Interval		17.73		12.60		27.69		27.26		23.66		22.42
(8)	Projected Value Prospective Period		258.69		257.54		265.96		271.13		270.19		272.70
(9)	CI/Projected Frequency		0.07		0.05		0.10		0.10		0.09		0.08
(10)	<b>Credibility - MA Trend (Z)</b>		<b>88%</b>		<b>100%</b>		<b>58%</b>		<b>60%</b>		<b>69%</b>		<b>73%</b>
(11)	<b>Complement of Credibility</b>		<b>-4.3%</b>		<b>-4.3%</b>		<b>-4.3%</b>		<b>-4.3%</b>		<b>-4.3%</b>		<b>-4.3%</b>
(12)	<b>Credibility Weighted Frequency Trend</b>		<b>-5.3%</b>		<b>-5.5%</b>		<b>-4.7%</b>		<b>-4.5%</b>		<b>-4.5%</b>		<b>-4.5%</b>

Notes:

- (1): Massachusetts Trend from exponential fit to Adjusted Claim Frequencies
- (2): Number of data points used in the exponential fitting of the adjusted claim frequencies.
- (3):  $\sqrt{SSR/(n - 2)}$  where SSR is the sum of squared residuals and n is the number of data points used in the exponential fitting of the data.
- (4): T-value based on a two-tailed t-test with probability parameter, p, of 90% and a t-distribution with n - 2 degrees of freedom.
- (5): Number of years between midpoint of data and projected point.
- (7) = (3) x (4) x (6)
- (8): Frequency projected to policy effective period using exponential fit to data.
- (9) = (7) / (8)
- (10): The credibility is the ratio of the target value, k, to the quotient of the confidence interval and the projected frequency, capped at 100%. Numerically, (10) = the minimum of k / (9) and 100%.
- (11): Complement of credibility is based on a fifteen-year exponential fit to Adjusted Claim Frequencies.
- (12) = [ (1) x (10) ] + { (11) x [ 1.0 - (10) ] }

V 000024 STIP

Statewide Average Weekly Wage Trend Calculation

Data Period	Statewide Average Weekly Wage	5 Year		6 Year		7 Year		8 Year		9 Year		10 Year	
		Exponential Fit	Difference Squared	Exponential Fit	Difference Squared	Exponential Fit	Difference Squared	Exponential Fit	Difference Squared	Exponential Fit	Difference Squared	Exponential Fit	Difference Squared
4/1/07 to 4/1/08	1,093.27											1,064.25	842.18
4/1/08 to 4/1/09	1,094.70											1,089.74	24.59
4/1/09 to 4/1/10	1,088.06											1,115.84	771.92
4/1/10 to 4/1/11	1,135.82					1,131.42	19.39	1,126.74	82.48	1,134.06	3.08	1,142.57	45.58
4/1/11 to 4/1/12	1,173.06			1,158.96	198.77	1,161.97	123.06	1,158.36	216.04	1,163.83	85.11	1,169.94	9.74
4/1/12 to 4/1/13	1,181.28	1,179.71	2.45	1,191.18	98.03	1,193.34	145.50	1,190.87	92.02	1,194.39	171.77	1,197.96	278.28
4/1/13 to 4/1/14	1,214.99	1,216.92	3.71	1,224.30	86.61	1,225.57	111.83	1,224.30	86.61	1,225.74	115.56	1,226.66	136.10
4/1/14 to 4/1/15	1,256.47	1,255.29	1.39	1,258.33	3.47	1,258.66	4.79	1,258.66	4.79	1,257.92	2.09	1,256.04	0.19
4/1/15 to 4/1/16	1,291.74	1,294.88	9.85	1,293.31	2.48	1,292.64	0.82	1,293.98	5.04	1,290.94	0.64	1,286.12	31.55
4/1/16 to 4/1/17	1,338.05	1,335.71	5.46	1,329.27	77.11	1,327.55	110.28	1,330.30	60.04	1,324.83	174.86	1,316.93	446.07
(1)	<b>Massachusetts Trend</b>		<b>3.2%</b>		<b>2.8%</b>		<b>2.7%</b>		<b>2.8%</b>		<b>2.6%</b>		<b>2.4%</b>
(2)	n		5		6		7		8		9		10
(3)	s		2.76		10.80		10.16		10.08		12.89		17.98
(4)	t		2.35		2.13		2.02		1.94		1.89		1.86
(5)	m		4.75		5.25		5.75		6.25		6.75		7.25
(6)	$[1 + 1/n + 12 \times m^2/(n^3-n)]^{\wedge}5$		1.86		1.66		1.52		1.43		1.37		1.32
(7)	Confidence Interval		12.08		38.12		31.19		28.08		33.40		44.07
(8)	Projected Value Prospective Period		1,454.77		1,433.52		1,428.47		1,435.65		1,422.68		1,405.60
(9)	CI/Projected Wage		0.01		0.03		0.02		0.02		0.02		0.03
(10)	<b>Credibility - MA Trend (Z)</b>		<b>100%</b>		<b>100%</b>		<b>100%</b>		<b>100%</b>		<b>100%</b>		<b>100%</b>
(11)	<b>Complement of Credibility</b>		<b>2.8%</b>		<b>2.8%</b>		<b>2.8%</b>		<b>2.8%</b>		<b>2.8%</b>		<b>2.8%</b>
(12)	<b>Credibility Weighted Wage Trend</b>		<b>3.2%</b>		<b>2.8%</b>		<b>2.7%</b>		<b>2.8%</b>		<b>2.6%</b>		<b>2.4%</b>

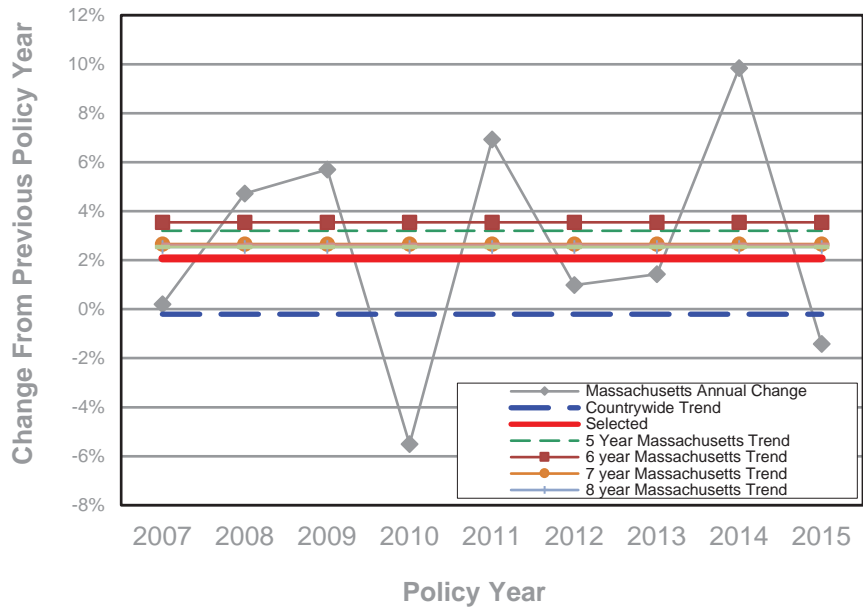
- Notes:
- (1): Massachusetts Trend from exponential fit to the SAWW.
  - (2): Number of data points used in the exponential fitting of the statewide average weekly wages.
  - (3):  $\sqrt{SSR/(n - 2)}$  where SSR is the sum of squared residuals and n is the number of data points used in the exponential fitting of the data.
  - (4): T-value based on a two-tailed t-test with probability parameter, p, of 90% and a t-distribution with n - 2 degrees of freedom.
  - (5): Number of years between midpoint of data and projected point.
  - (7) = (3) x (4) x (6)
  - (8): SAWW projected to policy effective period using exponential fit to data.
  - (9) = (7) / (8)
  - (10): The credibility is the ratio of the target value, k, to the quotient of the confidence interval and the projected frequency, capped at 100%. Numerically, (10) = the minimum of k / (9) and 100%.
  - (11): Complement of credibility is based on a fifteen-year exponential fit to the SAWWs.
  - (12) = [ (1) x (10) ] + { (11) x [ 1.0 - (10) ] }

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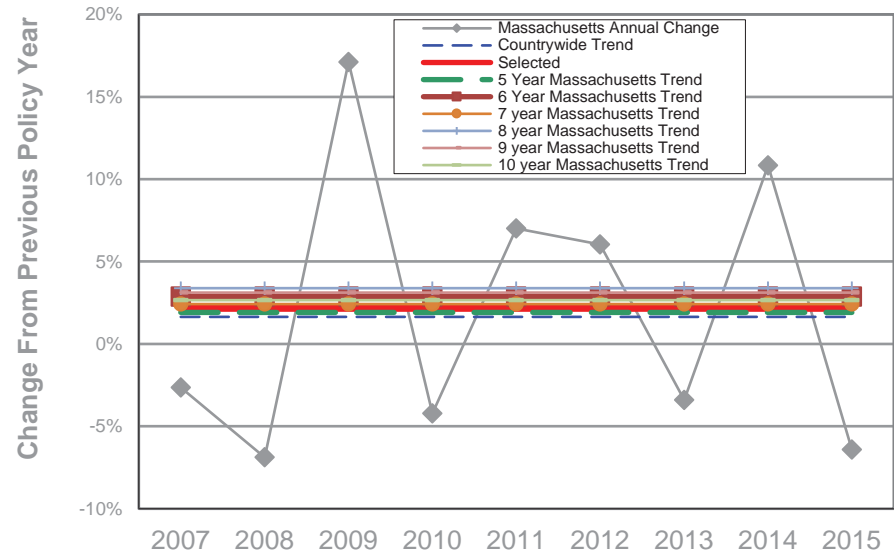


7/1/2018

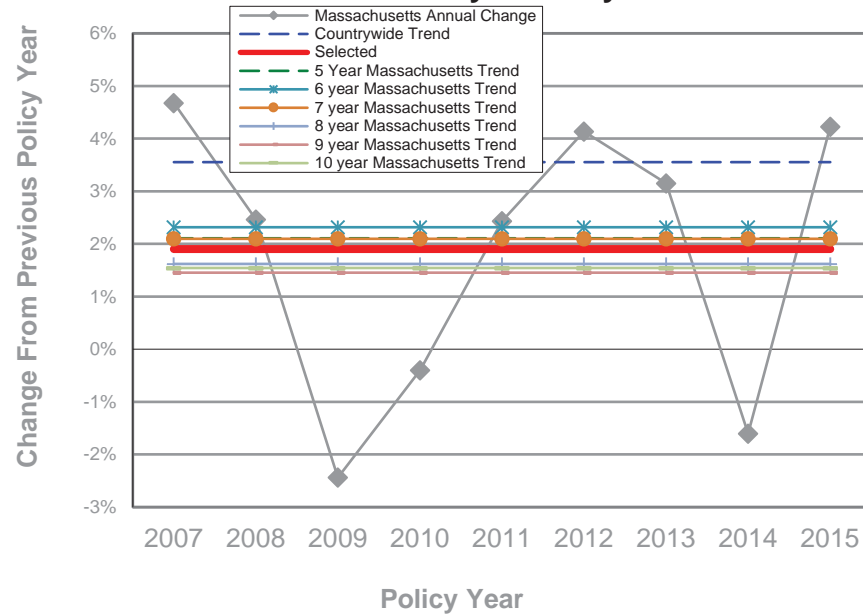
**Indemnity Severity Trend**



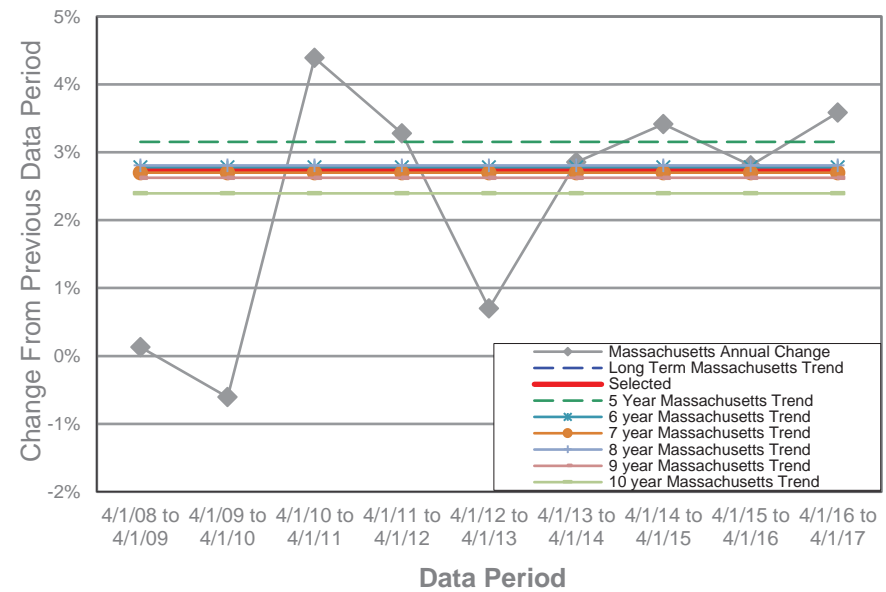
**Lost Time Medical Severity Trend**



**Medical Only Severity Trend**

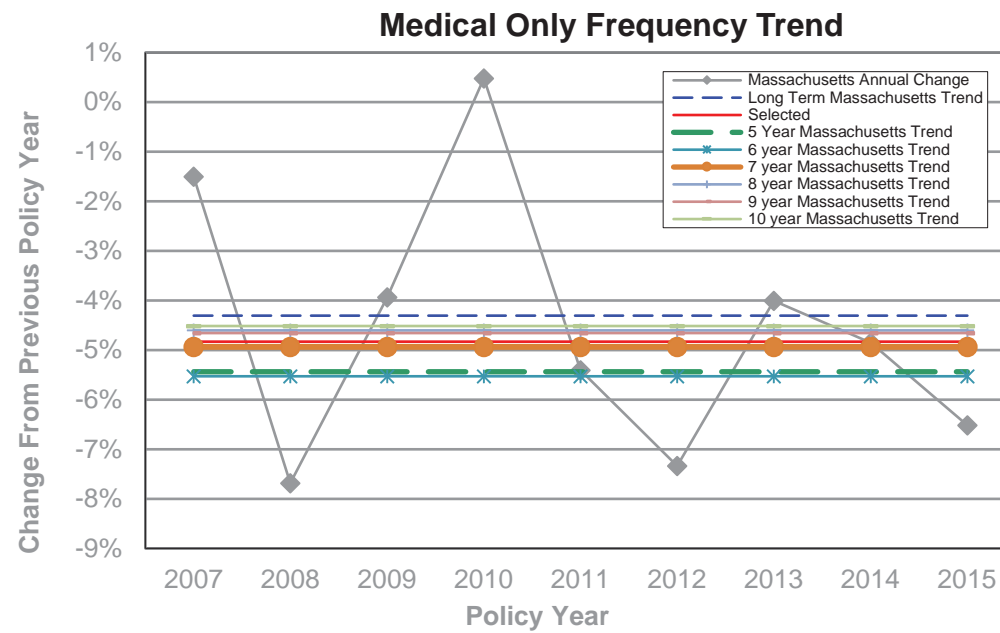
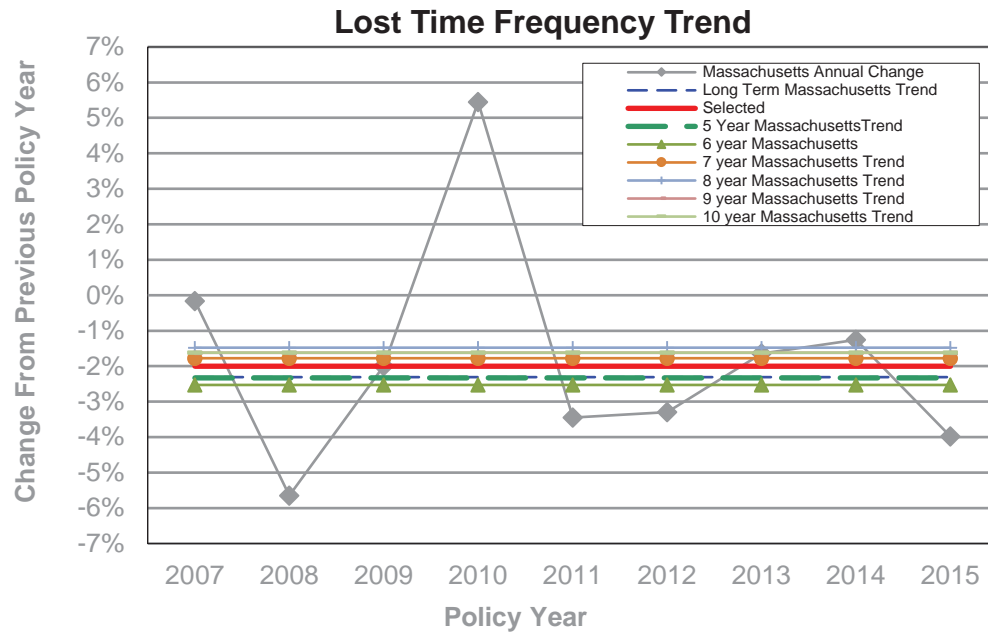


**SAWW Trend**



V 000026 STIP

7/1/2018



Lost Time Reported Claim Counts - Industrywide

Policy Year (1)	Lost Time Reported Claim Counts										Developed to Tenth Report (3)	Estimated Million Worker-Weeks (4)	Unadjusted Claim Frequency = (3) / (4) (5)	Class Mix Adjustment (6)	Adjusted Claim Frequency = (5) x (6) (7)
	Age of Development														
	18	30	42	54	66	78	90	102	114	126					
	(2)														
2001_01	20,823	21,129	21,287	21,307	21,322	21,330	21,336	21,343	21,349	21,348	21,348	77.06	277.02	0.888	246.00
2002_01	20,156	20,511	20,564	20,603	20,615	20,622	20,630	20,629	20,640	20,638	20,638	77.14	267.55	0.871	233.04
2003_01	18,948	19,162	19,234	19,274	19,304	19,319	19,328	19,336	19,345	19,344	19,344	74.30	260.36	0.855	222.67
2004_01	17,495	17,733	17,781	17,836	17,865	17,872	17,882	17,886	17,880	17,882	17,882	71.62	249.68	0.861	215.00
2005_01	16,774	17,058	17,138	17,174	17,199	17,208	17,215	17,218	17,230	17,237	17,237	73.57	234.29	0.891	208.66
2006_01	15,489	15,766	15,865	15,914	15,925	15,942	15,943	15,943	15,962	15,968	15,968	75.65	211.07	0.945	199.56
2007_01	15,211	15,548	15,655	15,698	15,720	15,729	15,733	15,740	15,746		15,752	78.30	201.17	0.990	199.22
2008_01	13,908	14,174	14,264	14,313	14,352	14,364	14,365	14,371			14,388	78.58	183.11	1.027	187.97
2009_01	12,975	13,210	13,270	13,305	13,317	13,327	13,334				13,356	75.29	177.38	1.039	184.22
2010_01	14,381	14,659	14,727	14,774	14,800	14,815					14,843	79.77	186.07	1.044	194.26
2011_01	14,459	14,689	14,782	14,821	14,858						14,900	82.98	179.56	1.045	187.56
2012_01	14,206	14,460	14,527	14,560							14,632	83.63	174.95	1.037	181.39
2013_01	14,410	14,672	14,748								14,857	85.11	174.55	1.022	178.40
2014_01	14,799	15,070									15,256	87.07	175.22	1.005	176.17
2015_01	14,817										15,274	90.29	169.16	1.000	169.16
	Age-to-Age Development Factors														
	18 - 30	30 - 42	42 - 54	54 - 66	66 - 78	78 - 90	90 - 102	102 - 114	114 - 126				15 Year Lost Time Frequency Trend	-2.3%	
2 Yr Weighted Average	1.018	1.005	1.002	1.002	1.001	1.000	1.000	1.001	1.000						
Selected	1.018	1.005	1.002	1.002	1.001	1.000	1.000	1.001	1.000						
Cumulative	1.031	1.012	1.007	1.005	1.003	1.002	1.002	1.001	1.000						

Notes:  
 Development factors are claim count weighted averages from latest two years.  
 (4): Section V-E, Exhibit 1.  
 (6): Section V-F, Exhibit 1.

Medical Only Reported Claim Counts - Industrywide

Policy Year (1)	Medical Only Reported Claim Counts										Developed to Tenth Report (3)	Estimated Million Worker-Weeks (4)	Unadjusted Claim Frequency = (3) / (4) (5)	Class Mix Adjustment (6)	Adjusted Claim Frequency = (5) x (6) (7)
	Age of Development														
	18	30	42	54	66	78	90	102	114	126					
	(2)														
2001_01	51,365	52,970	53,409	53,522	53,556	53,549	53,580	53,589	53,586	53,590	53,590	77.06	695.41	0.888	617.54
2002_01	47,699	49,556	49,805	49,856	49,894	49,892	49,897	49,914	49,919	49,923	49,923	77.14	647.20	0.871	563.73
2003_01	44,219	45,421	45,641	45,676	45,693	45,698	45,701	45,704	45,701	45,707	45,707	74.30	615.20	0.855	526.14
2004_01	41,844	42,823	42,924	42,980	42,989	42,998	43,004	43,003	43,008	43,016	43,016	71.62	600.61	0.861	517.18
2005_01	40,395	41,188	41,301	41,315	41,320	41,323	41,320	41,328	41,331	41,332	41,332	73.57	561.79	0.891	500.33
2006_01	37,304	38,011	38,090	38,118	38,117	38,118	38,123	38,146	38,177	38,176	38,176	75.65	504.63	0.945	477.11
2007_01	36,549	37,074	37,122	37,121	37,129	37,119	37,122	37,159	37,158		37,158	78.30	474.54	0.990	469.95
2008_01	32,712	33,075	33,139	33,154	33,175	33,172	33,191	33,194			33,207	78.58	422.61	1.027	433.84
2009_01	29,840	30,131	30,165	30,173	30,179	30,186	30,185				30,214	75.29	401.28	1.039	416.77
2010_01	31,537	31,909	31,960	31,967	31,960	31,958					31,998	79.77	401.13	1.044	418.78
2011_01	30,928	31,359	31,410	31,432	31,426						31,468	82.98	379.24	1.045	396.13
2012_01	29,119	29,500	29,553	29,576							29,609	83.63	354.04	1.037	367.06
2013_01	28,896	29,225	29,288								29,343	85.11	344.74	1.022	352.35
2014_01	28,525	28,922									29,033	87.07	333.47	1.005	335.26
2015_01	27,838										28,298	90.29	313.41	1.000	313.41
Age-to-Age Development Factors											15 Year Medical Only Frequency Trend				-4.3%
	18 - 30	30 - 42	42 - 54	54 - 66	66 - 78	78 - 90	90 - 102	102 - 114	114 - 126						
2 Yr Weighted Average	1.013	1.002	1.001	1.000	1.000	1.000	1.001	1.000	1.000						
Selected	1.013	1.002	1.001	1.000	1.000	1.000	1.001	1.000	1.000						
Cumulative	1.017	1.004	1.002	1.001	1.001	1.001	1.001	1.000	1.000						

Notes:  
 Development factors are claim count weighted averages from latest two years.  
 (4): Section V-E, Exhibit 1.  
 (6): Section V-F, Exhibit 1.

V 000029 STIP

Indemnity Paid + Case Losses (in 000's)

Policy Year (1)	Developed to Tenth Report (2)	Indemnity On-Level Factor (3)	On-Level Indemnity Losses (in 000's) Developed to Tenth Report = (2) x (3) (4)	Developed Claim Counts (5)	Severity = 1,000 x (4) / (5) (6)
2006_01	349,147	1.093	381,514	15,968	23,892
2007_01	348,912	1.081	377,112	15,752	23,940
2008_01	337,478	1.069	360,693	14,388	25,069
2009_01	332,464	1.064	353,878	13,356	26,497
2010_01	348,801	1.065	371,635	14,843	25,037
2011_01	376,790	1.059	398,876	14,900	26,771
2012_01	376,962	1.049	395,547	14,632	27,033
2013_01	389,839	1.045	407,363	14,857	27,419
2014_01	442,119	1.039	459,480	15,256	30,118
2015_01	439,858	1.031	453,452	15,274	29,689

Notes:

(2): (3) Exhibit 1, Page 2 + (3) Exhibit 1, Page 3.

(3): Section IV-A, Exhibit 1.

(5): Section V-B, Exhibit 1.

V 000030 STIP

Indemnity Paid + Case Losses (in 000's)  
 Remainder of Industry

Policy Year (1)	Age of Development										Developed to Tenth Report (3)
	18	30	42	54	66	78	90	102	114	126	
	(2)										
2004_01	152,544	201,434	219,967	230,840	235,133	238,539	240,804	241,677	243,255	242,610	
2005_01	148,633	187,024	203,004	212,951	218,402	218,924	221,316	221,097	222,066	222,429	
2006_01	137,012	186,997	207,357	217,635	221,888	224,111	227,039	228,366	229,508	230,838	230,838
2007_01	148,548	195,594	215,792	225,934	233,141	237,969	240,701	240,597	240,985		241,889
2008_01	149,438	199,642	218,746	234,387	242,413	243,208	243,031	243,870			245,584
2009_01	161,101	209,630	236,253	256,635	259,887	264,274	264,387				266,649
2010_01	156,736	210,732	244,794	259,562	264,407	265,442					267,680
2011_01	173,172	236,508	271,738	291,433	297,150						302,753
2012_01	186,577	262,147	295,933	315,472							327,582
2013_01	202,888	267,655	300,562								333,670
2014_01	224,473	310,474									388,063
2015_01	225,777										381,756

Age-to-Age Development Factors

	18 - 30	30 - 42	42 - 54	54 - 66	66 - 78	78 - 90	90 - 102	102 - 114	114 - 126
2 Yr Weighted Average	1.353	1.126	1.069	1.019	1.010	1.000	1.002	1.003	1.004
Selected	1.353	1.126	1.069	1.019	1.010	1.000	1.002	1.003	1.004
Cumulative	1.691	1.250	1.110	1.038	1.019	1.008	1.009	1.007	1.004

Notes:  
 Development factors are loss weighted average from latest two years.

Indemnity Paid + Case Losses (in 000's)  
 AIG

Policy Year (1)	Age of Development										Developed to Tenth Report (3)
	18	30	42	54	66	78	90	102	114	126	
	(2)										
2002_01	36,409	53,190	60,642	66,299	72,227	72,372	74,476	75,524	76,138	75,931	
2003_01	43,821	68,420	80,731	90,837	99,150	100,087	100,705	101,411	100,735	100,931	
2004_01	47,919	76,133	95,459	108,333	118,675	122,375	123,017	125,191	125,918	127,205	
2005_01	54,650	87,579	107,954	124,909	133,685	134,035	133,361	134,387	134,360	134,426	
2006_01	53,994	82,291	100,466	113,457	115,944	117,397	117,087	117,804	118,618	118,310	118,310
2007_01	48,586	77,897	90,937	101,775	105,793	106,952	107,014	106,728	106,825		107,023
2008_01	45,948	70,734	83,376	89,207	91,668	92,487	92,109	91,578			91,895
2009_01	31,461	50,250	61,038	63,507	64,532	65,025	65,235				65,815
2010_01	38,086	60,838	72,983	76,817	79,639	80,577					81,122
2011_01	36,413	55,547	66,056	70,192	72,766						74,037
2012_01	23,219	35,521	43,789	47,022							49,380
2013_01	27,605	42,790	50,478								56,169
2014_01	26,329	40,427									54,057
2015_01	28,027										58,103

Age-to-Age Development Factors

	18 - 30	30 - 42	42 - 54	54 - 66	66 - 78	78 - 90	90 - 102	102 - 114	114 - 126
5 Yr Weighted Average	1.550	1.202	1.060	1.032	1.011	0.998	1.005	1.002	1.002
Selected	1.550	1.202	1.060	1.032	1.011	0.998	1.005	1.002	1.002
Cumulative	2.073	1.337	1.113	1.050	1.017	1.007	1.009	1.003	1.002

Notes:  
 Development factors are loss weighted average from latest five years.

Lost Time Medical Paid + Case Losses (in 000's)

Policy Year (1)	Developed to Tenth Report (2)	Medical On-Level Factor (3)	On-Level Lost Time Medical Losses (in 000's) Developed to Tenth Report = (2) x (3) (4)	Developed Claim Counts (5)	Severity = 1,000 x (4) / (5) (6)
2006_01	181,238	1.032	187,038	15,968	11,713
2007_01	174,060	1.032	179,630	15,752	11,403
2008_01	149,143	1.024	152,777	14,388	10,618
2009_01	165,793	1.002	166,078	13,356	12,435
2010_01	176,810	1.000	176,810	14,843	11,912
2011_01	189,927	1.000	189,927	14,900	12,747
2012_01	197,790	1.000	197,790	14,632	13,518
2013_01	193,999	1.000	193,999	14,857	13,058
2014_01	220,794	1.000	220,794	15,256	14,473
2015_01	206,871	1.000	206,871	15,274	13,544

Notes:

- (2): (3) Exhibit 1, Page 2 + (3) Exhibit 1, Page 3.
- (3): Section IV-A, Exhibit 1.
- (5): Section V-B, Exhibit 1.



Lost Time Medical Paid + Case Losses (in 000's)  
 Remainder of Industry

Policy Year (1)	Age of Development										Developed to Tenth Report (3)
	18	30	42	54	66	78	90	102	114	126	
	(2)										
2004_01	106,767	112,777	121,463	121,354	122,571	123,857	124,388	125,967	125,461	125,910	
2005_01	93,918	99,129	104,028	107,227	111,585	112,988	113,097	113,217	113,888	113,993	
2006_01	95,718	104,141	109,449	111,397	113,469	115,724	117,128	116,593	118,754	118,013	118,013
2007_01	113,646	122,083	124,171	127,636	128,344	132,488	135,818	135,444	134,294		133,926
2008_01	103,732	111,716	115,502	118,121	117,810	115,664	116,140	115,649			115,795
2009_01	120,316	128,413	133,370	136,756	136,601	135,985	135,811				135,515
2010_01	125,974	135,982	143,410	143,737	146,461	147,637					147,493
2011_01	128,044	143,399	149,091	151,696	151,393						151,544
2012_01	154,568	171,490	174,045	177,629							179,264
2013_01	163,554	166,664	169,009								173,832
2014_01	187,403	191,784									200,114
2015_01	172,308										183,630
	Age-to-Age Development Factors										
	18 - 30	30 - 42	42 - 54	54 - 66	66 - 78	78 - 90	90 - 102	102 - 114	114 - 126		
2 Yr Weighted Average	1.021	1.014	1.019	1.008	1.002	1.001	0.997	1.004	0.997		
Selected	1.021	1.014	1.019	1.008	1.002	1.001	0.997	1.004	0.997		
Cumulative	1.066	1.043	1.029	1.009	1.001	0.999	0.998	1.001	0.997		

Notes:  
 Development factors are loss weighted average from latest two years.

Lost Time Medical Paid + Case Losses (in 000's)  
 AIG

Policy Year (1)	Age of Development										Developed to Tenth Report (3)
	18	30	42	54	66	78	90	102	114	126	
	(2)										
2002_01	23,634	26,109	28,763	31,026	33,040	33,414	30,977	31,742	30,830	30,487	
2003_01	31,184	35,047	39,176	42,506	44,773	43,925	42,026	39,541	39,628	39,725	
2004_01	35,081	43,887	48,865	57,885	60,525	60,098	57,589	59,569	59,481	59,271	
2005_01	42,152	48,433	54,893	60,015	64,158	62,309	62,119	62,785	60,676	60,917	
2006_01	44,790	49,521	54,128	57,554	57,283	57,018	56,674	63,755	63,934	63,225	63,225
2007_01	34,688	39,316	41,485	41,433	41,304	41,205	40,239	39,871	40,280		40,133
2008_01	31,386	35,972	36,850	36,641	36,135	36,133	34,386	33,663			33,348
2009_01	24,512	29,814	30,277	30,770	31,304	30,904	29,547				30,278
2010_01	25,342	28,071	29,976	30,192	29,446	29,199					29,316
2011_01	26,857	33,040	38,248	38,825	38,429						38,383
2012_01	15,692	17,685	18,717	18,679							18,526
2013_01	17,681	19,984	20,198								20,168
2014_01	17,607	19,381									20,680
2015_01	19,019										23,240

	Age-to-Age Development Factors								
	18 - 30	30 - 42	42 - 54	54 - 66	66 - 78	78 - 90	90 - 102	102 - 114	114 - 126
5 Yr Weighted Average	1.145	1.069	1.007	0.993	0.995	0.980	1.034	0.994	0.996
Selected	1.145	1.069	1.007	0.993	0.995	0.980	1.034	0.994	0.996
Cumulative	1.222	1.067	0.999	0.992	0.999	1.004	1.025	0.991	0.996

Notes:  
 Development factors are loss weighted average from latest five years.

V 000035 STIP

Medical Only Paid + Case Losses (in 000's)

Policy Year (1)	Developed to Tenth Report (2)	Medical On-Level Factor (3)	On-Level Medical Only Losses (in 000's) Developed to Tenth Report = (2) x (3) (4)	Developed Claim Counts (5)	Severity = 1,000 x (4) / (5) (6)
2006_01	28,373	1.032	29,281	38,176	767
2007_01	28,909	1.032	29,834	37,158	803
2008_01	26,669	1.024	27,319	33,207	823
2009_01	24,209	1.002	24,250	30,214	803
2010_01	25,579	1.000	25,579	31,998	799
2011_01	25,767	1.000	25,767	31,468	819
2012_01	25,249	1.000	25,249	29,609	853
2013_01	25,810	1.000	25,810	29,343	880
2014_01	25,128	1.000	25,128	29,033	865
2015_01	25,528	1.000	25,528	28,298	902

Notes:

(2): (3) Exhibit 2, Page 2 + (3) Exhibit 2, Page 3.

(3): Section IV-A, Exhibit 1.

(5): Section V-B, Exhibit 2.

V 000036 STIP

Medical Only Paid + Case Losses (in 000's)  
 Remainder of Industry

Policy Year (1)	Age of Development										Developed to Tenth Report (3)
	18	30	42	54	66	78	90	102	114	126	
	(2)										
2004_01	19,423	20,020	20,162	20,152	20,260	20,319	20,300	20,276	20,194	20,206	
2005_01	20,012	20,431	20,487	20,602	20,506	20,532	20,432	20,441	20,472	20,484	
2006_01	20,322	20,614	20,651	20,580	20,596	20,600	20,426	20,521	20,607	20,585	20,585
2007_01	21,212	21,696	21,760	21,884	21,887	21,786	21,788	21,840	21,834		20,585
2008_01	20,740	20,807	20,921	20,881	20,914	21,039	21,006	21,063			21,098
2009_01	19,861	19,846	19,795	19,820	19,901	20,107	20,061				20,146
2010_01	21,185	21,104	21,037	21,028	21,012	21,038					21,085
2011_01	21,743	21,701	21,654	21,848	21,629						21,801
2012_01	22,527	22,318	22,412	22,444							22,498
2013_01	23,622	23,023	22,858								23,031
2014_01	22,763	22,144									22,277
2015_01	23,005										22,535
	Age-to-Age Development Factors										
	18 - 30	30 - 42	42 - 54	54 - 66	66 - 78	78 - 90	90 - 102	102 - 114	114 - 126		
2 Yr Weighted Average	0.974	0.998	1.005	0.994	1.006	0.998	1.003	1.002	1.000		
Selected	0.974	0.998	1.005	0.994	1.006	0.998	1.003	1.002	1.000		
Cumulative	0.980	1.006	1.008	1.002	1.008	1.002	1.004	1.002	1.000		

Notes:  
 Development factors are loss weighted average from latest two years.

V 000037 STIP

Medical Only Paid + Case Losses (in 000's)  
 AIG

Policy Year (1)	Age of Development										Developed to Tenth Report (3)	
	18	30	42	54	66	(2)	78	90	102	114		126
2002_01	3,856	4,115	4,248	4,191	4,214		4,296	4,348	4,384	4,269	4,262	
2003_01	5,262	5,395	5,474	5,440	5,422		5,561	5,510	5,512	5,610	5,590	
2004_01	6,949	7,715	7,485	7,353	7,358		7,358	7,335	7,334	7,334	7,339	
2005_01	8,176	8,431	8,421	8,484	8,487		8,462	8,403	8,397	8,395	8,395	
2006_01	7,519	7,784	7,795	7,779	7,812		7,769	7,768	7,768	7,788	7,788	7,788
2007_01	6,848	6,920	6,944	6,946	6,946		6,940	6,973	7,005	7,085	7,085	7,080
2008_01	5,122	5,398	5,421	5,475	5,493		5,462	5,483	5,545			5,571
2009_01	3,754	3,947	3,961	4,000	4,019		4,046	4,034				4,063
2010_01	4,382	4,471	4,461	4,494	4,497		4,464					4,493
2011_01	3,790	3,917	3,982	3,971	3,952							3,967
2012_01	2,672	2,719	2,682	2,738								2,750
2013_01	2,699	2,706	2,743									2,778
2014_01	2,766	2,804										2,851
2015_01	2,888											2,992
	Age-to-Age Development Factors											
	18 - 30	30 - 42	42 - 54	54 - 66	66 - 78	78 - 90	90 - 102	102 - 114	114 - 126			
5 Yr Weighted Average	1.019	1.004	1.008	1.001	0.997	0.999	1.002	1.005	0.999			
Selected	1.019	1.004	1.008	1.001	0.997	0.999	1.002	1.005	0.999			
Cumulative	1.036	1.017	1.013	1.004	1.004	1.007	1.007	1.005	0.999			

Notes:  
 Development factors are loss weighted average from latest five years.

V 000038 STIP

Worker Weeks by Policy Year

Policy Year (1)	Payroll (in millions of dollars)										Developed to Tenth Report (3)	State Average Weekly Wage (4)	Estimated Million Worker-Weeks = (3) / (4) (5)	
	Age of Development													
	18	30	42	54	66	78	90	102	114	126				
	(2)													
2001_01											68,074	68,074	883.36	77.06
2002_01											68,965	68,965	894.05	77.14
2003_01											69,014	69,014	928.90	74.30
2004_01										69,408	69,408	69,408	969.11	71.62
2005_01								74,392	74,392	74,399	74,399	74,399	1,011.25	73.57
2006_01							79,893	79,893	79,901	79,901	79,901	79,901	1,056.18	75.65
2007_01						85,512	85,512	85,512	85,512	85,512	85,512	85,512	1,092.12	78.30
2008_01					85,857	85,858	85,857	85,859			85,867	85,867	1,092.79	78.58
2009_01				82,945	82,946	82,945	82,942				82,952	82,952	1,101.70	75.29
2010_01			91,437	91,385	91,319	91,313					91,321	91,321	1,144.80	79.77
2011_01		97,533	97,506	97,435	97,427						97,431	97,431	1,174.21	82.98
2012_01	99,353	99,683	99,610	99,600							99,565	99,565	1,190.50	83.63
2013_01	104,347	104,387	104,396								104,316	104,316	1,225.60	85.11
2014_01	110,287	110,264									110,146	110,146	1,265.09	87.07
2015_01	117,826										117,709	117,709	1,303.66	90.29
	Age-to-Age Development Factors													
	18 - 30	30 - 42	42 - 54	54 - 66	66 - 78	78 - 90	90 - 102	102 - 114	114 - 126					
2 Yr Weighted Average	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000					
Selected	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000					
Cumulative	0.999	0.999	0.999	1.000	1.000	1.000	1.000	1.000	1.000					

Notes:  
 Development factors are payroll weighted average from latest two years.  
 (4): Section V-G, Exhibit 2.  
 For all policy years the following class codes are excluded from reported Schedule Z payrolls: 0059, 0065, 0066, 0067, 0088, 0770, 0773, 0774, 0775, 0776, 0779, 0799, 0908, 0909, 0912, 0913, 7445, 7453, and 9985.

# V 000040 STIP

Section V - Trend  
Subsection F - Calculation of Class Mix Adjustment Factor  
7/1/2018

Section V - F  
Exhibit 1

## Class Mix Adjustment Factors

Policy Year (1)	Average Rates Based on Rates Effective 7/1/16 (2)	Class Mix Adjustment Factor = 0.978 / (2) (3)
2001_01	1.102	0.888
2002_01	1.123	0.871
2003_01	1.144	0.855
2004_01	1.136	0.861
2005_01	1.098	0.891
2006_01	1.035	0.945
2007_01	0.988	0.990
2008_01	0.953	1.027
2009_01	0.942	1.039
2010_01	0.937	1.044
2011_01	0.937	1.045
2012_01	0.944	1.037
2013_01	0.957	1.022
2014_01	0.973	1.005
2015_01	0.978	1.000

Notes:

(2): Current rates (Effective 7/1/16) averaged over class payrolls (excluding large deductibles) by Policy Year.

(3): Adjustment to 2015\_01 Policy Year level.

Periods from which NCCI Data is Taken

State	Annual Statistical Bulletin - Weights					Annual Statistical Bulletin - Policy Period Beginning Dates					
	2013	2014	2015	2016	2017	2013	2014	2015	2016	2017	
Alabama	1.9%	1.4%	1.7%	1.5%	1.5%	5/1/2009	5/1/2010	5/1/2011	5/1/2012	5/1/2013	
Alaska	0.8%	0.8%	0.8%	0.8%	1.0%	4/1/2009	4/1/2010	4/1/2011	4/1/2012	4/1/2013	
Arizona	2.2%	2.3%	2.3%	2.5%	2.4%	3/1/2009	3/1/2010	3/1/2011	3/1/2012	3/1/2013	
Arkansas	0.8%	0.8%	0.8%	0.8%	0.6%	2/1/2010	2/1/2011	2/1/2012	2/1/2013	2/1/2014	
Colorado	3.3%	3.6%	3.5%	3.7%	4.0%	3/1/2009	3/1/2010	3/1/2011	3/1/2012	3/1/2013	
Connecticut	3.5%	3.5%	3.3%	3.3%	2.9%	8/1/2009	8/1/2010	8/1/2011	8/1/2012	8/1/2013	
District Of Columbia	0.3%	0.3%	0.5%	0.4%	0.4%	2/1/2009	2/1/2010	2/1/2011	2/1/2012	2/1/2013	
Florida	8.9%	8.8%	8.6%	9.0%	10.1%	1/1/2009	1/1/2010	1/1/2011	1/1/2012	1/1/2013	
Georgia	4.7%	4.6%	4.9%	5.6%	5.7%	7/1/2009	7/1/2010	7/1/2011	7/1/2012	7/1/2013	
Hawaii	0.7%	0.7%	0.7%	0.7%	0.8%	6/1/2009	6/1/2010	6/1/2011	6/1/2012	6/1/2013	
Idaho	1.2%	1.1%	1.2%	1.3%	1.3%	7/1/2009	7/1/2010	7/1/2011	7/1/2012	7/1/2013	
Illinois	12.0%	12.2%	11.1%	10.3%	10.2%	4/1/2009	4/1/2010	4/1/2011	4/1/2012	4/1/2013	
Indiana	3.0%	3.1%	3.2%	3.2%	3.2%	7/1/2009	7/1/2010	7/1/2011	7/1/2012	7/1/2013	
Iowa	2.9%	2.8%	2.8%	2.8%	2.9%	3/1/2009	3/1/2010	3/1/2011	3/1/2012	3/1/2013	
Kansas	1.9%	2.0%	1.7%	1.5%	1.7%	7/1/2009	7/1/2010	7/1/2011	7/1/2012	7/1/2013	
Kentucky	2.2%	2.1%	1.7%	1.7%	1.7%	5/1/2009	5/1/2010	5/1/2011	5/1/2012	5/1/2013	
Louisiana	3.0%	3.0%	3.3%	3.1%	3.2%	9/1/2009	9/1/2010	9/1/2011	9/1/2012	9/1/2013	
Maine	0.8%	0.7%	0.9%	0.7%	0.6%	6/1/2009	6/1/2010	6/1/2011	6/1/2012	6/1/2013	
Maryland	3.2%	3.3%	3.4%	2.9%	2.9%	4/1/2009	4/1/2010	4/1/2011	4/1/2012	4/1/2013	
Mississippi	1.4%	1.3%	1.3%	1.3%	1.3%	9/1/2009	9/1/2010	9/1/2011	9/1/2012	9/1/2013	
Missouri	3.2%	3.5%	3.5%	3.7%	3.6%	7/1/2009	7/1/2010	7/1/2011	7/1/2012	7/1/2013	
Montana	1.2%	0.9%	0.8%	0.7%	0.8%	1/1/2010	1/1/2011	1/1/2012	1/1/2013	1/1/2014	
Nebraska	1.4%	1.2%	1.2%	1.5%	1.3%	8/1/2009	8/1/2010	8/1/2011	8/1/2012	8/1/2013	
Nevada	1.3%	1.2%	1.2%	1.1%	1.2%	1/1/2009	1/1/2010	1/1/2011	1/1/2012	1/1/2013	
New Hampshire	1.2%	1.0%	1.0%	0.9%	1.0%	4/1/2009	4/1/2010	4/1/2011	4/1/2012	4/1/2013	
New Mexico	1.1%	1.1%	1.2%	1.2%	1.0%	7/1/2009	7/1/2010	7/1/2011	7/1/2012	7/1/2013	
North Carolina	5.8%	5.6%	6.3%	6.0%	5.2%	1/1/2009	1/1/2010	1/1/2011	1/1/2012	1/1/2013	
Oklahoma	3.7%	3.5%	3.4%	3.0%	2.7%	6/1/2009	6/1/2010	6/1/2011	6/1/2012	6/1/2013	
Oregon	2.6%	2.5%	2.3%	2.4%	2.3%	1/1/2009	1/1/2010	1/1/2011	1/1/2012	1/1/2013	
Rhode Island	0.8%	0.7%	0.7%	0.6%	0.6%	1/1/2009	1/1/2010	1/1/2011	1/1/2012	1/1/2013	
South Carolina	2.7%	3.0%	2.8%	2.8%	2.9%	5/1/2009	5/1/2010	5/1/2011	5/1/2012	5/1/2013	
South Dakota	0.5%	0.6%	0.5%	0.5%	0.6%	1/1/2010	1/1/2011	1/1/2012	1/1/2013	1/1/2014	
Tennessee	3.6%	3.7%	3.6%	3.6%	3.3%	6/1/2009	6/1/2010	6/1/2011	6/1/2012	6/1/2013	
Texas	6.8%	7.1%	7.9%	7.9%	8.3%	1/1/2009	1/1/2010	1/1/2011	1/1/2012	1/1/2013	
Utah	1.2%	1.6%	1.5%	1.7%	1.4%	7/1/2009	7/1/2010	7/1/2011	7/1/2012	7/1/2013	
Vermont	0.6%	0.7%	0.6%	0.6%	0.7%	7/1/2009	7/1/2010	7/1/2011	7/1/2012	7/1/2013	
Virginia	3.5%	3.4%	3.7%	3.6%	4.1%	2/1/2009	2/1/2010	2/1/2011	2/1/2012	2/1/2013	
West Virginia				0.9%	0.6%				7/1/2012	7/1/2013	
TOTAL	100.0%	100.0%	100.0%	100.0%	100.0%						
						Policy Period Start Date	4/15/2009	4/15/2010	4/13/2011	4/14/2012	4/14/2013
						Average Earned Date	4/15/2010	4/15/2011	4/13/2012	4/14/2013	4/14/2014
						Years	1.00	2.00	3.00	4.00	5.00

Notes:  
 Weights are derived from data obtained from NCCI that underlies the NCCI Annual Statistical Bulletins.

V 000041 STIP



# V 000042 STIP

Section V - Trend  
 Subsection G - External Data  
 7/1/2018

Section V - G  
 Exhibit 2

## Summary of Statewide Average Weekly Wage (SAWW) Data

Date Promulgated by DUA (1)	Period of Data Used by DUA (2)	SAWW (3)
10/1/99	4/1/98 to 4/1/99	749.69
10/1/00	4/1/99 to 4/1/00	830.89
10/1/01	4/1/00 to 4/1/01	890.94
10/1/02	4/1/01 to 4/1/02	882.57
10/1/03	4/1/02 to 4/1/03	884.46
10/1/04	4/1/03 to 4/1/04	918.78
10/1/05	4/1/04 to 4/1/05	958.58
10/1/06	4/1/05 to 4/1/06	1,000.43
10/1/07	4/1/06 to 4/1/07	1,043.54
10/1/08	4/1/07 to 4/1/08	1,093.27
10/1/09	4/1/08 to 4/1/09	1,094.70
10/1/10	4/1/09 to 4/1/10	1,088.06
10/1/11	4/1/10 to 4/1/11	1,135.82
10/1/12	4/1/11 to 4/1/12	1,173.06
10/1/13	4/1/12 to 4/1/13	1,181.28
10/1/14	4/1/13 to 4/1/14	1,214.99
10/1/15	4/1/14 to 4/1/15	1,256.47
10/1/16	4/1/15 to 4/1/16	1,291.74
10/1/17	4/1/16 to 4/1/17	1,338.05
<b>15 Year Exponential Fit, Trend =</b>		<b>2.8%</b>

Policy Year (4)	SAWW (5)
2001_01	883.36
2002_01	894.05
2003_01	928.90
2004_01	969.11
2005_01	1,011.25
2006_01	1,056.18
2007_01	1,092.12
2008_01	1,092.79
2009_01	1,101.70
2010_01	1,144.80
2011_01	1,174.21
2012_01	1,190.50
2013_01	1,225.60
2014_01	1,265.09
2015_01	1,303.66

Notes:

(5):  $SAWW \text{ for Policy Year } i = [ 0.03125 \times SAWW \text{ during period } 4/1/(i-1) \text{ to } 4/1/i ] + [ 0.6875 \times SAWW \text{ during period } 4/1/i \text{ to } 4/1/(i+1) ] + [ 0.28125 \times SAWW \text{ during period } 4/1/(i+1) \text{ to } 4/1/(i+2) ]$   
 The DUA is the Department of Unemployment Assistance; previously this data was compiled by the DET (Division of Employment and Training).

# V 000043 STIP

Section V - Trend  
 Subsection H - Expense Trends  
 7/1/2018

Section V - H  
 Exhibit 1

## Calculation of Expense Trend Index

Time Interval (1)	Time Index (2)	Expense Trend Index (3)	Expense Trend Factors		
			PY2014 (4)	PY2015 (5)	7/1/2018 (6)
CY2002	7/1/2002	58.15			
CY2003	7/1/2003	62.19			
CY2004	7/1/2004	67.87			
CY2005	7/1/2005	76.04			
CY2006	7/1/2006	74.42			
CY2007	7/1/2007	82.04			
CY2008	7/1/2008	87.23			
CY2009	7/1/2009	87.59			
CY2010	7/1/2010	90.07			
CY2011	7/1/2011	86.83			
CY2012	7/1/2012	87.06			
CY2013	7/1/2013	92.29			
CY2014	7/1/2014	92.66	1.031	1.070	1.163
CY2015	7/1/2015	98.34	0.971	1.008	1.096
CY2016	7/1/2016	100.00	0.955	0.992	1.078

**15 Year Exponential Fit, Trend:** 3.4%

PY2014	1/1/2015	95.50			1.129
PY2015	1/1/2016	99.17			1.087
7/1/2017	7/1/2018	105.12			1.025
7/1/2018	7/1/2019	107.78			

**Notes:**

- (1): 7/1/17 and 7/1/18 are time intervals comparable to the policy years.
- (2): Midpoint of the time interval used for determination of Expense Trend Index exponential trend rate of 2.5%.
- (3): Calendar Years: Exhibit 2, Page 2, col (17), Converted to Index with 2016 = 100  
 PY2014 - Average of indices for CY2014 and CY2015.  
 PY2015 - Average of indices for CY2015 and CY2016.  
 The exponential trend rate derived from an exponential regression of the Expense Trend Index for CY2010 - CY2016 is applied to the CY2016 Expense Trend Index value to derive the Expense Trend Index values for 7/1/2017 and 7/1/2018.
- (4) = [ (3) for PY2014 ] / (3)
- (5) = [ (3) for PY2015 ] / (3)
- (6) = [ (3) for 7/1/2018 ] / (3)

# V 000044 STIP

Section V - Trend  
 Subsection H - Expense Trends  
 7/1/2018

Section V - H  
 Exhibit 2  
 Page 1

## Calculation of Credibility Weighted Expense Trend

Calendar Year (1)	Expense Index (2)	7 Year Exponential Fit (3)	Difference Squared (4)
2010	90.07	86.36	13.72
2011	86.83	88.31	2.19
2012	87.06	90.31	10.51
2013	92.29	92.34	0.00
2014	92.66	94.43	3.11
2015	98.34	96.56	3.15
2016	100.00	98.74	1.59

(5)	7 Year Expense Index Trend	2.3%
(6)	n	7
(7)	s	2.62
(8)	t	2.02
(9)	m	6.00
(10)	$[1 + 1/n + 12 \times m^2 / (n^3 - n)]^{.5}$	1.56
(11)	Confidence Interval	8.22
(12)	Projected Value Prospective Period	105.58
(13)	CI/Projected Expense Index	0.08
(14)	<b>Credibility - 7 Year Expense Index Trend (Z)</b>	<b>77%</b>
(15)	<b>Complement of Credibility - 15 year</b>	<b>3.4%</b>
(16)	<b>Credibility Weighted Expense Trend</b>	<b>2.5%</b>

**Notes:**

- (2): Exhibit 1.
- (5): 7 Year Massachusetts Trend from seven-year exponential fit to expense trend indices.
- (6): Number of data points used in the exponential fitting of the 7 Year Massachusetts Trend.
- (7):  $\sqrt{SSR/(n-2)}$  where SSR is the sum of squared residuals and n is the number of data points used in the exponential fitting of the data.
- (8): T-value based on a two-tailed t-test with probability parameter, p, of 90% and a t-distribution with 5 (= n - 2) degrees of freedom.
- (9): Number of years between midpoint of data and projected point.
- (11) = (7) x (8) x (10)
- (12): Projected to prospective effective period using exponential fit to data.
- (13) = (11) / (12)
- (14): The credibility is the ratio of the target value, k, to the quotient of the confidence interval and the projected frequency, capped at 100%.  
 Numerically, (14) = the minimum of k / (13) and 100%.
- (15): Complement of credibility is based on a 15-year exponential fit, Exhibit 1.
- (16) = [ (5) x (14) ] + { (15) x [ 1.0 - (14) ] }

# V 000045 STIP

Section V - Trend  
Subsection H - Expense Trends  
7/1/2018

Section V - H  
Exhibit 2  
Page 2

Calculation of Expense Trend Index

Economic Indices							
Calendar Year (1)	Average Weekly Earnings (2)	Food (3)	Private Transportation (4)	Phone (5)	Postage (6)	Machines & Equipment (7)	Paper (8)
2002	1,166.00	178.20	149.00	99.90	182.60	112.50	144.70
2003	1,265.00	182.00	153.50	98.50	191.70	112.30	146.10
2004	1,406.00	187.40	158.80	96.00	191.70	113.20	149.40
2005	1,609.00	193.30	170.30	95.00	191.70	115.10	159.60
2006	1,559.00	199.10	177.50	95.90	201.90	114.70	167.40
2007	1,752.00	206.41	181.50	98.37	206.88	114.60	169.30
2008	1,865.00	215.61	192.49	100.50	213.86	122.10	184.30
2009	1,873.00	223.38	173.49	102.34	224.22	123.50	179.60
2010	1,940.00	226.20	189.26	102.09	230.14	121.00	182.10
2011	1,842.00	231.50	209.94	100.63	239.40	122.20	191.20
2012	1,846.00	238.19	215.46	100.96	247.83	121.20	191.60
2013	1,985.00	243.13	214.71	100.64	263.37	117.60	190.80
2014	1,990.00	249.00	212.77	99.93	274.08	118.80	192.70
2015	2,136.00	256.18	193.84	97.74	274.84	122.70	189.80
2016	2,180.00	262.91	188.94	97.17	276.56	123.10	186.70

Economic Indices, Percentage Changes from Prior Calendar Year								
Calendar Year (9)	Average Weekly Earnings (10)	Food (11)	Private Transportation (12)	Phone (13)	Postage (14)	Machines & Equipment (15)	Paper (16)	Weighted Average (17)
2002								
2003	8.5%	2.1%	3.0%	-1.4%	5.0%	-0.2%	1.0%	6.9%
2004	11.1%	3.0%	3.5%	-2.5%	0.0%	0.8%	2.3%	9.1%
2005	14.4%	3.1%	7.2%	-1.0%	0.0%	1.7%	6.8%	12.0%
2006	-3.1%	3.0%	4.2%	0.9%	5.3%	-0.3%	4.9%	-2.1%
2007	12.4%	3.7%	2.3%	2.6%	2.5%	-0.1%	1.1%	10.2%
2008	6.4%	4.5%	6.1%	2.2%	3.4%	6.5%	8.9%	6.3%
2009	0.4%	3.6%	-9.9%	1.8%	4.8%	1.1%	-2.6%	0.4%
2010	3.6%	1.3%	9.1%	-0.2%	2.6%	-2.0%	1.4%	2.8%
2011	-5.1%	2.3%	10.9%	-1.4%	4.0%	1.0%	5.0%	-3.6%
2012	0.2%	2.9%	2.6%	0.3%	3.5%	-0.8%	0.2%	0.3%
2013	7.5%	2.1%	-0.3%	-0.3%	6.3%	-3.0%	-0.4%	6.0%
2014	0.3%	2.4%	-0.9%	-0.7%	4.1%	1.0%	1.0%	0.4%
2015	7.3%	2.9%	-8.9%	-2.2%	0.3%	3.3%	-1.5%	6.1%
2016	2.1%	2.6%	-2.5%	-0.6%	0.6%	0.3%	-1.6%	1.7%

Weights							
Calendar Year (18)	Average Weekly Earnings (19)	Food (20)	Private Transportation (21)	Phone (22)	Postage (23)	Machines & Equipment (24)	Paper (25)
2002	79.5%	2.2%	2.2%	2.4%	2.4%	9.5%	1.9%
2003	80.2%	2.1%	2.1%	2.1%	2.1%	9.4%	1.9%
2004	79.9%	2.1%	2.1%	1.8%	1.8%	10.4%	1.8%
2005	79.8%	2.1%	2.1%	2.0%	2.0%	10.0%	2.0%
2006	80.9%	2.1%	2.1%	1.8%	1.8%	9.3%	1.8%
2007	79.9%	2.1%	2.1%	1.8%	1.8%	10.4%	1.8%
2008	78.3%	2.1%	2.1%	1.9%	1.9%	11.9%	1.8%
2009	79.5%	1.6%	1.6%	1.8%	1.8%	12.3%	1.4%
2010	80.3%	1.8%	1.8%	2.0%	2.0%	10.7%	1.4%
2011	81.8%	1.8%	1.8%	1.7%	1.7%	9.9%	1.1%
2012	82.0%	1.8%	1.8%	1.6%	1.6%	10.0%	1.1%
2013	81.2%	1.9%	1.9%	1.5%	1.5%	11.0%	0.9%
2014	80.9%	2.1%	2.1%	1.5%	1.5%	10.9%	0.9%
2015	80.7%	1.9%	1.9%	1.4%	1.4%	12.0%	0.8%
2016	80.0%	1.7%	1.7%	1.3%	1.3%	13.3%	0.7%

Notes:

- (2): Average Weekly Earnings, Covered Employment and Wages, Private Fire, Marine, and Casualty Insurers - Massachusetts  
Unadjusted for Seasonality  
Years CY2010 - CY2016: Bureau of Labor Statistics, Series ID ENU25000405524126 (Direct Property and Casualty Insurers Average Weekly Wage.)
- (3): Food Away From Home, Consumer Price Index, Urban Wage Earners and Clerical Workers - U.S.  
Unadjusted for Seasonality, Base: 1982 - 1984 = 100. Bureau of Labor Statistics, Series ID CWUR0000SEFV.
- (4): Private Transportation, Consumer Price Index, Urban Wage Earners and Clerical Workers - U.S.  
Unadjusted for Seasonality, Base: 1982 - 1984 = 100. Bureau of Labor Statistics, Series ID CWUR0000SAT1.
- (5): Telephone Services, Consumer Price Index, Urban Wage Earners and Clerical Workers - U.S.  
Unadjusted for Seasonality, Base: December 1997= 100. Bureau of Labor Statistics, Series ID CWUR0000SEED.
- (6): Postage, Consumer Price Index, Urban Wage Earners and Clerical Workers - U.S.  
Unadjusted for Seasonality, Base: 1982 - 1984 = 100. Bureau of Labor Statistics, Series ID CWUR0000SEEC01.
- (7): Office and Store Machines and Equipment, Producer Price Index  
Unadjusted for Seasonality, Base: 1982 = 100. Bureau of Labor Statistics, Series ID WPU1193.
- (8): Paper, Producer Price Index  
Unadjusted for Seasonality, Base: 1982 - 1984 = 100. Bureau of Labor Statistics, Series ID WPU0913.
- (17) Weighted average of (10)-(16) using weights for prior year from columns (19)-(25)
- (19)-(25): Section V-H, Exhibit 2, for Calendar Year 2015-2016. Prior Filings for all other years.

# V 000046 STIP

Section V - Trend  
 Subsection H - Expense Trends  
 7/1/2018

Section V - H  
 Exhibit 2  
 Page 3

Calendar Year 2015  
 Weights for Expense Trends

Expense Component (1)	Percentage of Net Written Premium (2)	% of Total = (2) / Total (2) (3)	Corresponding Index (4)	Weights (5)
Salaries	7.40%	64.5%	Average Weekly Earnings Covered Employment and Wages; Private Fire, Marine, Casualty Massachusetts	80.7%
Payroll Taxes	0.50%	4.4%		
Employee Relations	1.36%	11.9%		
Travel & Travel Items	0.43%	3.7%	Food Away From Home-CPI-US	1.9%
			Private Transportation-CPI-US	1.9%
Postage & Telephone	0.31%	2.7%	Postage-CPI-US	1.4%
			Telephone-CPI-US	1.4%
Equipment	1.38%	12.0%	Office & Stores Machines & Equipment-PPI	12.0%
Printing & Stationery	0.09%	0.8%	Paper-PPI	0.8%
<b>Total</b>	<b>11.47%</b>	<b>100.0%</b>		<b>100.0%</b>

Notes:

(2): 2017 Best's Aggregates and Averages, Property-Casualty, Totals for Commercial Casualty Companies with Written Premium Net of Reinsurance Ceded over \$15 million.

(5) = Based on (3)

# V 000047 STIP

Section V - Trend  
 Subsection H - Expense Trends  
 7/1/2018

Section V - H  
 Exhibit 2  
 Page 4

Calendar Year 2016  
 Weights for Expense Trends

Expense Component (1)	Percentage of Net Written Premium (2)	% of Total = (2) / Total (2) (3)	Corresponding Index (4)	Weights (5)
Salaries	8.09%	63.7%	Average Weekly Earnings Covered Employment and Wages; Private Fire, Marine, Casualty Massachusetts	80.0%
Payroll Taxes	0.61%	4.8%		
Employee Relations	1.46%	11.5%		
Travel & Travel Items	0.44%	3.5%	Food Away From Home-CPI-US	1.7%
			Private Transportation-CPI-US	1.7%
Postage & Telephone	0.32%	2.5%	Postage-CPI-US	1.3%
			Telephone-CPI-US	1.3%
Equipment	1.69%	13.3%	Office & Stores Machines & Equipment-PPI	13.3%
Printing & Stationery	0.09%	0.7%	Paper-PPI	0.7%
<b>Total</b>	<b>12.70%</b>	<b>100.0%</b>		<b>100.0%</b>

Notes:

(2): 2017 Best's Aggregates and Averages, Property-Casualty, Totals for Commercial Casualty

Companies with Written Premium Net of Reinsurance Ceded over \$15 million.

(5) = Based on (3)

# V 000048 STIP

Section V - Trend  
 Subsection H - Expense Trends  
 7/1/2018

Section V - H  
 Exhibit 3

## Exposure Growth Estimate Based on Trend in Million Worker-Weeks

Policy Year (1)	Estimated Million Worker-Weeks (2)	5 Year Exponential Fit (3)	Difference Squared (4)
2001	77.06		
2002	77.14		
2003	74.30		
2004	71.62		
2005	73.57		
2006	75.65		
2007	78.30		
2008	78.58		
2009	75.29		
2010	79.77		
2011	82.98	82.26	0.51
2012	83.63	84.00	0.13
2013	85.11	85.78	0.44
2014	87.07	87.59	0.27
2015	90.29	89.44	0.72

15 Year Million Worker-Weeks Trend

1.3%

(5)	<b>5 Year MA Trend</b>	<b>2.1%</b>
(6)	n	5
(7)	s	0.83
(8)	t	2.35
(9)	m	5.49
(10)	$[1 + 1/n + 12 \times m^2 / (n^3 - n)]^{.5}$	2.05
(11)	Confidence Interval	4.03
(12)	Projected	96.22
(13)	CI / Projected	0.04
(14)	<b>Credibility - 5 Year MA Trend (Z)</b>	<b>100%</b>
(15)	<b>Complement of Credibility</b>	<b>1.3%</b>
(16)	<b>Credibility-Weighted Overall Exposure Growth</b>	<b>2.1%</b>

### Notes:

(2): Section V-E, Exhibit 1.

(5): 5 Year Massachusetts Trend from five-year exponential fit to estimated million worker-weeks.

(6): Number of data points used in the exponential fitting of the 5 Year Massachusetts Trend.

(7):  $\sqrt{SSR/(n-2)}$  where SSR is the sum of squared residuals and n is the number of data points used in the exponential fitting of the data.

(8): T-value based on a two-tailed t-test with probability parameter, p, of 90% and a t-distribution with 3 (= n - 2) degrees of freedom.

(9): Number of years between midpoint of data and projected point.

(11) = (7) x (8) x (10)

(12): Million Worker-Weeks projected to prospective effective period using exponential fit to data.

(13) = (11) / (12)

(14): The credibility is the ratio of the target value, k, to the quotient of the confidence interval and the projected frequency, capped at 100%.

Numerically, (14) = the minimum of k / (13) and 100%.

(15): Complement of credibility is based on a 15-year exponential fit.

(16) = [ (5) x (14) ] + { (15) x [ 1.0 - (14) ] }

# VI 000011 STIP

Section VI - Expenses  
Subsection A - Summary  
7/1/2018

Section VI - A  
Exhibit 1

## Summary of Expense Ratios

(1)	Commission and Other Acquisition Expense Ratio	12.6%
(2)	Average Premium Discount as a % of Standard Premium + ARAP	5.1%
(3)	Premium Tax Ratio = 2.28% x [ 1.0 - (2) ]	2.2%
(4)	Variable Expense Ratio = (1) + (2) + (3)	19.9%
(5)	Fixed Expense Ratio	4.3%
(6)	Total Loss Adjustment Expense Ratio (LAE / Loss)	18.5%

### Notes:

(1): Section VI-G, Exhibit 1.

(2): Section VI-E, Exhibit 1.

(3): 2.28% from Section VI-B, Exhibit 3.

(5): Section VI-B, Exhibit 1.

(6): Section VI-H, Exhibit 1.



Calculation of Fixed Expenses

Calendar Year (1)	General Expense Exclusive of Expense Constant Premium (2)	Total Pool Expenses for non-Large Deductible (3)	Total General Expense = (2) + (3) (4)	Projected to PY 2014			Projected to PY 2015		
				Expense Trend Factor (5)	Exposure Growth Factor (6)	Projected General Expense = (4) x (5) x (6) (7)	Expense Trend Factor (8)	Exposure Growth Factor (9)	Projected General Expense = (4) x (8) x (9) (10)
2014	33,563,566	1,724,709	35,288,275	1.031	1.011	36,750,749	1.070	1.032	38,969,052
2015	30,403,565	1,820,871	32,224,436	0.971	0.990	30,969,398	1.008	1.011	32,838,734
2016	34,457,199	1,819,888	36,277,087	0.955	0.969	33,574,400	0.992	0.990	35,600,975
Average			34,596,599			33,764,849			35,802,920

Policy Year (11)	Three Year Average Projected General Expense to PY (12)	Provision for Other Taxes (13)	Provision for Fixed Expenses = (12) + (13) (14)	Expense Trends from PYs to 7/1/2019 (15)	Trended Fixed Expenses = (14) x (15) (16)	Standard Earned Premium plus ARAP Projected to Prospective Effective Period (17)	Fixed Expense Ratio to Standard Earned Premium plus ARAP = (16) / (17) (18)
2014	33,764,849	3,749,394	37,514,243	1.129	42,338,034	990,393,027	4.3%
2015	35,802,920	3,975,710	39,778,630	1.087	43,233,073	1,023,022,921	4.2%
Average							4.3%

- Notes:
- (2): Exhibit 2, Page 1.
  - (3): Exhibit 2, Page 3.
  - (5): Section V-H, Exhibit 1.
  - (6): 2.1% annual growth in worker-weeks, from Section V-H, Exhibit 3; 0.5 years from CY 2014 to PY 2014, -0.5 years from CY 2015 to PY 2014, -1.5 years from CY 2016 to PY 2014.
  - (8): Section V-H, Exhibit 1.
  - (9): 2.1% annual growth in worker-weeks, from Section V-H, Exhibit 3; 1.5 years from CY 2014 to PY 2015, 0.5 years from CY 2015 to PY 2015, -0.5 years from CY 2016 to PY 2015.
  - (13): Section VI-C, Exhibit 1.
  - (15): Section V-H, Exhibit 1.
  - (17): These premium amounts do not match those displayed in Section I. This is due to the exclusion of data from a company group included in the Section I data. The premium amounts displayed have been adjusted by the same development, trend, and premium level factors shown in Section I and off-balance factors shown in Section III. The ARAP premium has been adjusted from company level to DSR level premium using the policy year adjustment factors from Section III-B, Exhibit 2.

# VI 000013 STIP

Section VI - Expenses  
 Subsection B - Fixed Expenses  
 7/1/2018

Section VI - B  
 Exhibit 2  
 Page 1

## General Expense Exclusive of Proposed Expense Constant

	Calendar Year		
	2014	2015	2016
(1) Standard Earned Premium Including Expense Constant Premium	799,136,131	846,498,292	905,150,102
(2) ARAP Premium at Company Level	36,346,462	35,041,168	35,273,932
(3) Adjustment Factor to Adjust from Company Level to DSR Level Premium	1.046	1.043	1.049
(4) Standard Earned Premium plus Adjusted ARAP = (1) + [ (2) x (3) ]	837,143,359	883,061,305	942,142,937
(5) Adjustment for Experience and Merit Rating, ARAP, and Construction Credit Off-balance	1.026	1.042	1.042
(6) Adjustment Factor to Remove the Impact of Loading for Recoupment of Insolvency Fund Assessments	0.999	0.998	0.999
(7) Adjusted Standard Earned Premium plus ARAP = (4) x (5) x (6)	857,898,184	918,323,149	980,055,992
(8) Ratio of Adjusted General Expense to Adjusted Standard Earned Premium plus ARAP	5.8%	5.3%	5.4%
(9) General Expenses = (7) x (8)	49,694,314	48,247,589	52,603,096
(10) Expense Constant Premium	35,624,503	36,890,076	37,078,756
(11) General Expense Portion of Expense Constant	51.0%	51.0%	51.0%
(12) Average Expense Constant in Effect	233.18	231.64	232.82
(13) Proposed Average Expense Constant	240.92	240.92	240.92
(14) Expense Trend Factor - Calendar Year XXXX to 7/1/19, the midpoint of the Prospective Effective Period	1.163	1.096	1.078
(15) Trend Factor to Adjust Proposed Average Expense Constant to Calendar Year XXXX = 1.0 / (14)	0.860	0.912	0.928
(16) Detrended Proposed Average Expense Constant = (13) x (15)	207.13	219.81	223.53
(17) Adjusted General Expenses Generated by the Expense Constant = [ (10) x (11) ] x [ (16) / (12) ]	16,130,749	17,844,024	18,145,897
(18) General Expenses Exclusive of Expense Constant Premium = (9) - (17)	33,563,566	30,403,565	34,457,199

**Notes:**

- (1),(2): Aggregate Financial Policy Year Call, excludes large deductible policies.
- (3): Section III-B, Exhibit 2.
- (5): Section III-B, Exhibit 1.
- (6): Section III-C, Exhibit 1.
- (8): Page 2.
- (10): Calculated expense constant premium based on historical Unit Statistical Plan Data.
- (11): Exhibit 3.
- (12): Calculated average expense constant in effect based on historical Unit Statistical Plan Data.
- (13): Section VI-D, Exhibit 1.
- (14): Section V-H, Exhibit 1.

# VI 000014 STIP

Section VI - Expenses  
 Subsection B - Fixed Expenses  
 7/1/2018

Section VI - B  
 Exhibit 2  
 Page 2

## Calculation of General Expense

		Calendar Year		
		2014	2015	2016
(1)	Standard Earned Premium Including Expense Constant Premium	906,769,995	966,011,869	1,044,940,146
(2)	ARAP Premium at Company Level	40,789,042	40,496,339	41,073,233
(3)	Adjustment Factor to Adjust from Company Level to DSR Level Premium	1.046	1.043	1.049
(4)	Standard Earned Premium plus Adjusted ARAP = (1) + [ (2) x (3) ]	949,422,796	1,008,266,972	1,088,014,883
(5)	Adjustment for Experience, Merit, ARAP and CCPAP Off-Balance	1.026	1.042	1.042
(6)	Adjustment for Insolvency Fund Recoupment	0.999	0.998	0.999
(7)	Adjusted Standard Earned Premium plus ARAP = (4) x (5) x (6)	972,961,302	1,048,528,449	1,131,798,015
(8)	Actual WCRIBMA Expenses	9,843,354	9,796,899	11,523,179
(9)	General Expenses (excluding Boards & Bureaus Expenses)	46,516,067	45,291,519	49,224,452
(10)	Adjusted General Expense = (8) + (9)	56,359,421	55,088,418	60,747,631
(11)	Ratio of Adjusted General Expense to Adjusted Standard Earned Premium plus ARAP (including expense constants) = (10) / (7)	5.8%	5.3%	5.4%

**Notes:**

- (1),(2): Aggregate Financial Reconciliation Report Calls, Calendar Years 2014 - 2016, including large deductible policies.
- (3): Section III-B, Exhibit 2.
- (5): Section III-B, Exhibit 1.
- (6): Section III-C, Exhibit 1.
- (8): WCRIBMA Financial Statements and Expense Analysis Report. Excludes Workers' Compensation Bureau Pool Expenses.
- (9): Aggregate Financial Expense Calls, Calendar Years 2014 - 2016.

# VI 000015 STIP

Section VI - Expenses  
 Subsection B - Fixed Expenses  
 7/1/2018

Section VI - B  
 Exhibit 2  
 Page 3

## Calculation of Pool Expense

	Calendar Year		
	2014	2015	2016
(1) Administrative Expenses	499,150	516,159	507,781
(2) Other Expense Allowances	-	-	-
(3) Workers' Compensation Bureau Pool Expenses	2,306,965	2,460,911	2,552,578
(4) Total Pool Expenses = (1) + (2) + (3)	2,806,115	2,977,070	3,060,359
(5) Target Pool Expenses for Excluded Companies	556,358	601,877	686,448
(6) Total Pool Expenses, excluding 2 company(ies) = (4) - (5)	2,249,758	2,375,193	2,373,911
(7) Proportion of Voluntary Assessable Premium Not from Large Deductibles " u "	0.767	0.767	0.767
(8) Total Pool Expenses for Non-Large Deductibles = (6) x (7)	1,724,709	1,820,871	1,819,888

**Notes:**

- (1),(2): Massachusetts Workers' Compensation Assigned Risk Pool Annual Report and WCRIBMA Financial Statements and Expense Analysis Report, adjusted for non-large deductible policies.
- (3): From the WCRIB Financial Statements and Expense Analysis Report
- (7): Section I-D, Exhibit 2.

# VI 000016 STIP

Section VI - Expenses  
Subsection B - Fixed Expenses  
7/1/2018

Section VI - B  
Exhibit 3

## Expense Constant Components

(1)	Portion of Expense Constant for General Expenses Loaded for Premium Taxes	52.2%
(2)	Current Premium Tax Rate	2.28%
(3)	General Expense Portion of Expense Constant = (1) x [ 1.0 - (2) ]	51.0%
(4)	Other Acquisition Portion of Expense Constant = [ 1.0 - (1) ] x [ 1.0 - (2) ]	46.7%

### Notes:

(1): NCCI 1991 Calendar Year Expense database.

(2): Massachusetts Department of Revenue, 2016 Form 63-23P.

2.28% is Premium Tax as % of Net Premium.

# VI 000017 STIP

Section VI - Expenses  
 Subsection C - Other Taxes  
 7/1/2018

Section VI - C  
 Exhibit 1

## Calculation of Other Taxes

(1)	Calendar Year 2016 Standard Earned Premium Including Expense Constant Premium	905,150,102	
(2)	Calendar Year 2016 ARAP Premium at Company Level	35,273,932	
(3)	Adjustment Factor to Adjust from Company Level to DSR Level Premium	1.049	
(4)	Calendar Year 2016 Standard Earned Premium plus Adjusted ARAP = (1) + [ (2) x (3) ]	942,142,937	
(5)	Calendar Year 2016 Other Taxes Ratio	0.43%	
(6)	Calendar Year 2016 Other Taxes = (4) x (5)	4,051,215	
		<u>PY2014</u>	<u>PY2015</u>
(7)	Other Tax Trend Factor from CY 2016 to PY XXXX	0.955	0.992
(8)	Annual Exposure Growth	2.1%	2.1%
(9)	Trend Length	-1.5	-0.5
(10)	Provision for Other Taxes = (6) x (7) x { [ 1.0 + (8) ] ^ (9) }	3,749,394	3,975,710

**Notes:**

(1),(2): Based on from Aggregate Financial Policy Year Call.

(3): Section III-B, Exhibit 2.

(5): 2017 Best's Aggregates and Averages. Page 651.

(7): Section V-H, Exhibit 1.

(8): Section V-H, Exhibit 3.

(9): -1.5 years from CY 2016 to PY 2014, -0.5 years from CY 2016 to PY 2015.

# VI 000018 STIP

Section VI - Expenses  
 Subsection D - Expense Constant  
 7/1/2018

Section VI - D  
 Exhibit 1

## Calculation of Expense Constant

Standard Premium Ranges		PY 2015 Adjusted Policy Count	Adjusted Policy Distribution	Current Expense Constant	Trend Factor from 7/1/18 to 7/1/19	Selected Trend Factor	Proposed Expense Constant = (5) x (7) (8)
Unadjusted	Adjusted						
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Less than \$200	Less Than \$182	71,838	45%	\$159.00	1.025	1.000	\$159.00
\$200 to \$1,000	\$182 to \$909	30,068	19%	\$250.00	1.025	1.000	\$250.00
\$1,000 or more	\$909 or more	57,812	36%	\$338.00	1.025	1.000	\$338.00
Total		159,718	100%	\$240.92			\$240.92

**Notes:**

Unit Statistical Plan Data PY 2015 (excluding Large Deductible policies).

Risk sizes in terms of Massachusetts Standard Premium.

(2): Instead of projecting the premiums for all policies forward to the prospective effective period, the end points of the Standard Premium

Ranges are adjusted. This is done by dividing the end points by the Premium Adjustment Factor, 1.10, from Section III-E, Exhibit 1.

(4) = (3) / Total (3)

TOTAL (5) = (5) weighted by (4)

(6): Section V-H, Exhibit 1.

Total (8) = (8) weighted by (4)

# VI 000019 STIP

Section VI - Expenses  
Subsection E - Expenses Net of Premium Discount  
7/1/2018

Section VI - E  
Exhibit 1

## Calculation of Average Premium Discount

### Elected Premium Discount Table

	<u>Type A</u>	<u>Type B</u>
(1) Average Premium Discount as a % of Standard Premium	7.5%	4.2%
(2) Percentage of Voluntary Written Premium by Discount Type	74.3%	25.7%
(3) Weighted Average Premium Discount as a % of Standard Premium in Voluntary Market = (1) weighted by (2)	<hr/>	
	6.7%	
(4) Voluntary Market Share	81.3%	
(5) Average Premium Discount in Total Market = (3) x (4)	5.4%	
(6) Average ARAP Surcharge for Prospective Effective Period as a % of Standard Premium	5.1%	
(7) Average Premium Discount as a % of Standard Premium + ARAP = (5) / [ 1.0 + (6) ]	5.1%	

#### Notes:

(1): Type "A" - Exhibit 2, Total (10).

Type "B" - Exhibit 3, Total (10).

(2): Exhibit 4.

(4): Special Bulletin 12/19/17. Market Share is estimated using Standard Premium plus ARAP.

(6): Section IX-K, Exhibit 3.



# VI 00020 STIP

Section VI - Expenses  
 Subsection E - Expenses Net of Premium Discount  
 7/1/2018

Section VI - E  
 Exhibit 2

## Average Premium Discount Voluntary Market Risks - Type "A" Discounts

Intrastate Intervals					
Layer of Standard Premium (1)	Standard Premium Ranges - PY 2015				Total = [ Sum of (2) ] (3)
	0 - 10,000	10,000 - 200,000	200,000 - 1,750,000	1,750,000 & Over	
0 - 10,000	99,735,024	67,530,000	2,240,000	10,000	169,515,024
10,000 - 200,000		157,251,793	42,560,000	190,000	200,001,793
200,000 - 1,750,000			44,355,534	1,550,000	45,905,534
1,750,000 - & Over				3,763,030	3,763,030
Total	99,735,024	224,781,793	89,155,534	5,513,030	419,185,381

Interstate Intervals					
Layer of Standard Premium (4)	Standard Premium Ranges - PY 2015				Total Premium in Layer (6)
	0 - 10,000	10,000 - 200,000	200,000 - 1,750,000	1,750,000 & Over	
0 - 10,000	156,666	3,651,674	1,583,378	214,832	5,606,550
10,000 - 200,000		22,888,430	30,084,179	4,081,817	57,054,426
200,000 - 1,750,000			52,415,701	33,299,031	85,714,732
1,750,000 - & Over				83,075,481	83,075,481
Total	156,666	26,540,104	84,083,258	120,671,161	231,451,189

Total		Proportion of Premium in Layer (9)	% Premium Discount Type A Company (10)
Layer of Standard Premium (7)	Total = (3) + (6) (8)		
0 - 10,000	175,121,574	26.9%	0.0%
10,000 - 200,000	257,056,219	39.5%	9.1%
200,000 - 1,750,000	131,620,266	20.2%	11.3%
1,750,000 - & Over	86,838,511	13.3%	12.3%
Total	650,636,570	100.0%	<b>7.5%</b>

**Notes:**

Unit Statistical Plan Data.

Layers correspond to the Premium Discount layers.

For interstate rated policies, the ratio of Massachusetts Standard Premium to Countrywide Standard Premium is assumed to equal the ratio of Massachusetts Expected Losses (used in an interstate experience modification) to Countrywide Expected Losses.

(9) = (8) / Total (8)

Total (10) = (10) weighted by (9)

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## Average Premium Discount Voluntary Market Risks - Type "B" Discounts

Intrastate Intervals					
Layer of Standard Premium (1)	Standard Premium Ranges - PY 2015				Total = [ Sum of (2) ] (3)
	0 - 10,000	10,000 - 200,000	200,000 - 1,750,000	1,750,000 & Over	
0 - 10,000	57,225,523	28,550,000	550,000	10,000	86,335,523
10,000 - 200,000		48,585,957	10,450,000	190,000	59,225,957
200,000 - 1,750,000			14,632,637	1,550,000	16,182,637
1,750,000 - & Over				3,987,986	3,987,986
Total	57,225,523	77,135,957	25,632,637	5,737,986	165,732,103

Interstate Intervals					
Layer of Standard Premium (4)	Standard Premium Ranges - PY 2015				Total Premium in Layer (6)
	0 - 10,000	10,000 - 200,000	200,000 - 1,750,000	1,750,000 & Over	
0 - 10,000	57,626	1,281,868	428,194	69,814	1,837,502
10,000 - 200,000		7,581,449	8,135,678	1,326,465	17,043,592
200,000 - 1,750,000			15,952,189	10,821,159	26,773,348
1,750,000 - & Over				54,036,325	54,036,325
Total	57,626	8,863,317	24,516,061	66,253,763	99,690,767

Total		Proportion of Premium in Layer (9)	% Premium Discount Type B Company (10)
Layer of Standard Premium (7)	Total = (3) + (6) (8)		
0 - 10,000	88,173,025	33.2%	0.0%
10,000 - 200,000	76,269,549	28.7%	5.1%
200,000 - 1,750,000	42,955,985	16.2%	6.5%
1,750,000 - & Over	58,024,311	21.9%	7.5%
Total	265,422,870	100.0%	<b>4.2%</b>

**Notes:**

Unit Statistical Plan Data.

Layers correspond to the Premium Discount layers.

For interstate rated policies, the ratio of Massachusetts Standard Premium to Countrywide Standard Premium is assumed to equal the ratio of Massachusetts Expected Losses (used in an interstate experience modification) to Countrywide Expected Losses.

(9) = (8) / Total (8)

Total (10) = (10) weighted by (9)

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NAIC Company Number (1)	Company Name (2)	Elected Discount Schedule (3)	Direct Written Premium (4)	Residual Market Written Premium (5)	Adjusted Voluntary Written Premium		
					Total Written Premium (6)	Type A Written Premium (7)	Type B Written Premium (8)
33758	ASSOCIATED INDUSTRIES OF MASS. MUTUAL INS. CO.	A	100,608,037	62,005,356	38,602,681	38,602,681	0
22667	ACE AMERICAN INSURANCE COMPANY	A	53,810,583	26,609,604	27,200,979	27,200,979	0
23841	NEW HAMPSHIRE INSURANCE COMPANY	B	49,779,184	0	49,779,184	0	49,779,184
25666	TRAVELERS INDEMNITY COMPANY OF AMERICA	A	42,934,961	36,673,580	6,261,381	6,261,381	0
25682	TRAVELERS INDEMNITY COMPANY OF CONNECTICUT	A	41,792,102	0	41,792,102	41,792,102	0
25658	TRAVELERS INDEMNITY COMPANY	A	40,170,643	-14,133	40,184,776	40,184,776	0
44326	ATLANTIC CHARTER INSURANCE COMPANY	A	36,639,300	13,392,556	23,246,744	23,246,744	0
42390	AMGUARD INSURANCE COMPANY	A	36,197,354	21,055,594	15,141,760	15,141,760	0
25674	TRAVELERS PROPERTY CASUALTY COMPANY OF AMERICA	A	33,932,672	28,932,209	5,000,463	5,000,463	0
16535	ZURICH AMERICAN INSURANCE COMPANY	A	32,814,738	0	32,814,738	32,814,738	0
30104	HARTFORD UNDERWRITERS INSURANCE COMPANY	A	30,502,673	21,130,640	9,372,033	9,372,033	0
11104	ASSOCIATED EMPLOYERS INSURANCE COMPANY	B	30,361,937	0	30,361,937	0	30,361,937
40142	AMERICAN ZURICH INSURANCE COMPANY	A	26,906,823	12,358,704	14,548,119	14,548,119	0
23035	LIBERTY MUTUAL FIRE INSURANCE COMPANY	A	25,732,609	15,911,927	9,820,682	9,820,682	0
29459	TWIN CITY FIRE INSURANCE COMPANY	B	25,612,427	0	25,612,427	0	25,612,427
33600	LM INSURANCE CORPORATION	A	24,730,112	22,806,109	1,924,003	1,924,003	0
31325	ACADIA INSURANCE COMPANY	B	24,176,483	9,797,984	14,378,499	0	14,378,499
25011	WESCO INSURANCE COMPANY	A	24,157,165	0	24,157,165	24,157,165	0
31470	NORGUARD INSURANCE COMPANY	A	20,697,526	0	20,697,526	20,697,526	0
11984	INDEPENDENCE CASUALTY INSURANCE COMPANY	A	20,378,819	0	20,378,819	20,378,819	0
42404	LIBERTY INSURANCE CORPORATION	A	18,734,059	0	18,734,059	18,734,059	0
19445	NATIONAL UNION FIRE INS. CO. OF PITTSBURGH PA	B	16,884,257	0	16,884,257	0	16,884,257
19682	HARTFORD FIRE INSURANCE COMPANY	B	16,863,090	0	16,863,090	0	16,863,090
12886	MASSACHUSETTS EMPLOYERS INSURANCE COMPANY	A	13,786,653	0	13,786,653	13,786,653	0
19429	INSURANCE COMPANY OF THE STATE OF PENNSYLVANIA	A	12,888,774	0	12,888,774	12,888,774	0
28258	CONTINENTAL INDEMNITY COMPANY	B	12,165,088	0	12,165,088	0	12,165,088
13083	NEW HAMPSHIRE EMPLOYERS INSURANCE COMPANY	A	12,164,172	0	12,164,172	12,164,172	0
20281	FEDERAL INSURANCE COMPANY	A	11,860,860	0	11,860,860	11,860,860	0
18023	STAR INSURANCE COMPANY	A	11,796,753	0	11,796,753	11,796,753	0
37478	HARTFORD INSURANCE COMPANY OF THE MIDWEST	B	11,595,848	0	11,595,848	0	11,595,848
41360	ARBELLA PROTECTION INSURANCE COMPANY, INC.	A	11,319,053	0	11,319,053	11,319,053	0
22357	HARTFORD ACCIDENT AND INDEMNITY COMPANY	A	11,272,471	0	11,272,471	11,272,471	0
42376	TECHNOLOGY INSURANCE COMPANY INC.	A	10,676,437	0	10,676,437	10,676,437	0
29424	HARTFORD CASUALTY INSURANCE COMPANY	B	10,646,024	0	10,646,024	0	10,646,024
41343	HDI GLOBAL INSURANCE COMPANY	A	8,709,976	0	8,709,976	8,709,976	0
24147	OLD REPUBLIC INSURANCE COMPANY	A	8,661,992	0	8,661,992	8,661,992	0
12777	CHUBB INDEMNITY INSURANCE COMPANY	A	8,654,611	0	8,654,611	8,654,611	0
21458	EMPLOYERS INSURANCE COMPANY OF WAUSAU	B	7,876,134	0	7,876,134	0	7,876,134
23809	GRANITE STATE INSURANCE COMPANY	B	7,083,118	11,151	7,071,967	0	7,071,967
24198	PEERLESS INSURANCE COMPANY	A	7,073,857	0	7,073,857	7,073,857	0
12262	PENNSYLVANIA MANUFACTURERS' ASSOCIATION INS. CO.	A	7,019,317	0	7,019,317	7,019,317	0
22292	HANOVER INSURANCE COMPANY (THE)	A	6,915,048	0	6,915,048	6,915,048	0
23965	NORFOLK & DEDHAM MUTUAL FIRE INSURANCE COMPANY	A	6,855,642	0	6,855,642	6,855,642	0
14788	NGM INSURANCE COMPANY	A	6,841,890	0	6,841,890	6,841,890	0
11030	MEMIC INDEMNITY COMPANY	A	6,649,467	0	6,649,467	6,649,467	0
25224	GREAT DIVIDE INSURANCE COMPANY	A	6,429,792	0	6,429,792	6,429,792	0
11150	ARCH INSURANCE COMPANY	A	6,417,470	0	6,417,470	6,417,470	0
13803	FARM FAMILY CASUALTY INSURANCE COMPANY	A	6,399,869	0	6,399,869	6,399,869	0
20443	CONTINENTAL CASUALTY COMPANY	B	5,789,864	2,995,831	2,794,033	0	2,794,033
21113	UNITED STATES FIRE INSURANCE COMPANY	A	5,635,471	0	5,635,471	5,635,471	0
24139	OLD REPUBLIC GENERAL INSURANCE CORPORATION	A	5,557,280	0	5,557,280	5,557,280	0
13374	ARROW MUTUAL LIABILITY INSURANCE COMPANY	B	5,179,872	0	5,179,872	0	5,179,872
21784	FIREMEN'S INSURANCE COMPANY OF WASHINGTON, D.C.	B	5,118,511	0	5,118,511	0	5,118,511
39926	SELECTIVE INSURANCE COMPANY OF THE SOUTHEAST	A	5,066,747	0	5,066,747	5,066,747	0

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NAIC Company Number (1)	Company Name (2)	Elected Discount Schedule (3)	Direct Written Premium (4)	Residual Market Written Premium (5)	Adjusted Voluntary Written Premium		
					Total Written Premium (6)	Type A Written Premium (7)	Type B Written Premium (8)
20346	PACIFIC INDEMNITY COMPANY	A	4,839,017	0	4,839,017	4,839,017	0
10664	ENDEAVOUR INSURANCE COMPANY	B	4,599,371	0	4,599,371	0	4,599,371
38318	STARR INDEMNITY & LIABILITY COMPANY	A	4,455,062	0	4,455,062	4,455,062	0
21261	ELECTRIC INSURANCE COMPANY	A	4,407,519	0	4,407,519	4,407,519	0
25623	PHOENIX INSURANCE COMPANY, (THE)	A	4,407,453	0	4,407,453	4,407,453	0
13935	FEDERATED MUTUAL INSURANCE COMPANY	A	4,397,302	0	4,397,302	4,397,302	0
19038	TRAVELERS CASUALTY AND SURETY COMPANY	A	4,363,714	0	4,363,714	4,363,714	0
23817	ILLINOIS NATIONAL INSURANCE COMPANY	B	4,352,679	0	4,352,679	0	4,352,679
20052	NATIONAL LIABILITY & FIRE INSURANCE COMPANY	A	4,195,991	0	4,195,991	4,195,991	0
25976	UTICA MUTUAL INSURANCE COMPANY	A	4,110,740	0	4,110,740	4,110,740	0
37257	PRAETORIAN INSURANCE COMPANY	A	4,099,329	0	4,099,329	4,099,329	0
24082	OHIO SECURITY INSURANCE COMPANY	A	4,048,358	0	4,048,358	4,048,358	0
15105	SAFETY NATIONAL CASUALTY CORPORATION	A	3,689,739	0	3,689,739	3,689,739	0
10017	ARBELLA INDEMNITY INSURANCE COMPANY, INC.	A	3,615,894	0	3,615,894	3,615,894	0
21172	VANLINER INSURANCE COMPANY	A	3,500,490	0	3,500,490	3,500,490	0
24988	SENTRY INSURANCE A MUTUAL COMPANY	A	3,405,273	0	3,405,273	3,405,273	0
31534	CITIZENS INSURANCE COMPANY OF AMERICA	A	3,351,002	0	3,351,002	3,351,002	0
21105	NORTH RIVER INSURANCE COMPANY	A	3,145,575	0	3,145,575	3,145,575	0
20427	AMERICAN CASUALTY COMPANY OF READING, PENNSYLVANIA	A	3,138,318	0	3,138,318	3,138,318	0
20303	GREAT NORTHERN INSURANCE COMPANY	A	3,090,035	0	3,090,035	3,090,035	0
20478	NATIONAL FIRE INSURANCE COMPANY OF HARTFORD	A	2,956,007	0	2,956,007	2,956,007	0
25844	UNION INSURANCE COMPANY	B	2,949,156	0	2,949,156	0	2,949,156
26662	MILWAUKEE CASUALTY INSURANCE CO.	A	2,946,240	0	2,946,240	2,946,240	0
21415	EMPLOYERS MUTUAL CASUALTY COMPANY	A	2,938,852	0	2,938,852	2,938,852	0
19801	ARGONAUT INSURANCE COMPANY	A	2,865,426	0	2,865,426	2,865,426	0
25615	CHARTER OAK FIRE INSURANCE COMPANY, (THE)	A	2,587,427	0	2,587,427	2,587,427	0
12416	PROTECTIVE INSURANCE COMPANY	A	2,386,843	0	2,386,843	2,386,843	0
37885	XL SPECIALTY INSURANCE COMPANY	A	2,343,568	0	2,343,568	2,343,568	0
12475	REPUBLIC FRANKLIN INSURANCE COMPANY	A	2,314,744	0	2,314,744	2,314,744	0
20494	TRANSPORTATION INSURANCE COMPANY	B	2,276,999	0	2,276,999	0	2,276,999
22306	MASSACHUSETTS BAY INSURANCE COMPANY	A	2,189,372	0	2,189,372	2,189,372	0
33588	FIRST LIBERTY INSURANCE CORPORATION (THE)	A	2,128,526	0	2,128,526	2,128,526	0
35289	CONTINENTAL INSURANCE COMPANY, (THE)	A	2,080,031	0	2,080,031	2,080,031	0
20362	MITSUBI SUMITOMO INSURANCE COMPANY OF AMERICA	A	2,072,169	0	2,072,169	2,072,169	0
20508	VALLEY FORGE INSURANCE COMPANY	A	1,997,067	0	1,997,067	1,997,067	0
13706	DORCHESTER MUTUAL INSURANCE COMPANY	A	1,992,833	0	1,992,833	1,992,833	0
36064	HANOVER AMERICAN INSURANCE COMPANY (THE)	A	1,986,766	0	1,986,766	1,986,766	0
41840	ALLMERICA FINANCIAL BENEFIT INSURANCE COMPANY	A	1,961,645	0	1,961,645	1,961,645	0
19410	COMMERCE AND INDUSTRY INSURANCE COMPANY	B	1,892,660	0	1,892,660	0	1,892,660
27855	ZURICH AMERICAN INSURANCE COMPANY OF ILLINOIS	A	1,781,464	0	1,781,464	1,781,464	0
16608	NEW YORK MARINE AND GENERAL INSURANCE COMPANY	A	1,681,394	0	1,681,394	1,681,394	0
25984	GRAPHIC ARTS MUTUAL INSURANCE COMPANY	A	1,653,883	0	1,653,883	1,653,883	0
23329	MERCHANTS MUTUAL INSURANCE COMPANY	A	1,621,187	0	1,621,187	1,621,187	0
31348	CRUM & FORSTER INDEMNITY COMPANY	B	1,586,901	0	1,586,901	0	1,586,901
26247	AMERICAN GUARANTEE AND LIABILITY INSURANCE COMPANY	A	1,498,822	0	1,498,822	1,498,822	0
11149	MAINE EMPLOYERS' MUTUAL INSURANCE COMPANY	B	1,497,044	0	1,497,044	0	1,497,044
24074	OHIO CASUALTY INSURANCE COMPANY (THE)	A	1,487,235	0	1,487,235	1,487,235	0
10052	CHUBB NATIONAL INSURANCE COMPANY	A	1,374,956	0	1,374,956	1,374,956	0
14702	EASTGUARD INSURANCE COMPANY	A	1,369,680	0	1,369,680	1,369,680	0
20230	CENTRAL MUTUAL INSURANCE COMPANY	B	1,294,342	0	1,294,342	0	1,294,342
19259	SELECTIVE INSURANCE COMPANY OF SOUTH CAROLINA	A	1,187,122	0	1,187,122	1,187,122	0
20397	VIGILANT INSURANCE COMPANY	A	1,181,983	0	1,181,983	1,181,983	0
18767	CHURCH MUTUAL INSURANCE COMPANY	B	1,174,715	0	1,174,715	0	1,174,715
10687	UTICA NATIONAL ASSURANCE COMPANY	A	1,168,247	0	1,168,247	1,168,247	0

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NAIC Company Number (1)	Company Name (2)	Elected Discount Schedule (3)	Direct Written Premium (4)	Residual Market Written Premium (5)	Adjusted Voluntary Written Premium		
					Total Written Premium (6)	Type A Written Premium (7)	Type B Written Premium (8)
19879	SECURITY NATIONAL INSURANCE COMPANY	A	1,153,947	0	1,153,947	1,153,947	0
26182	HARLEYSVILLE WORCESTER INSURANCE COMPANY	A	1,146,285	0	1,146,285	1,146,285	0
15059	PUBLIC SERVICE INSURANCE COMPANY	A	1,144,881	0	1,144,881	1,144,881	0
15954	AMTRUST INSURANCE COMPANY OF KANSAS, INC.	A	1,108,677	0	1,108,677	1,108,677	0
38911	BERKLEY NATIONAL INSURANCE COMPANY	A	1,077,998	0	1,077,998	1,077,998	0
21423	UNION INSURANCE COMPANY OF PROVIDENCE	A	1,073,330	0	1,073,330	1,073,330	0
42552	NOVA CASUALTY COMPANY	A	1,025,487	0	1,025,487	1,025,487	0
27154	ATLANTIC SPECIALTY INSURANCE COMPANY	A	975,837	0	975,837	975,837	0
28460	SENTRY CASUALTY COMPANY	A	967,654	0	967,654	967,654	0
24414	GENERAL CASUALTY COMPANY OF WISCONSIN	A	936,035	0	936,035	936,035	0
10804	CONTINENTAL WESTERN INSURANCE COMPANY	B	910,545	0	910,545	0	910,545
11126	SOMPO JAPAN INSURANCE COMPANY OF AMERICA	A	898,742	0	898,742	898,742	0
11185	FOREMOST INSURANCE COMPANY GRAND RAPIDS, MICHIGAN	B	890,660	0	890,660	0	890,660
41513	FOREMOST SIGNATURE INSURANCE COMPANY	B	883,254	0	883,254	0	883,254
11800	FOREMOST PROPERTY AND CASUALTY INSURANCE COMPANY	B	862,083	0	862,083	0	862,083
13978	FLORISTS' MUTUAL INSURANCE COMPANY	A	801,719	0	801,719	801,719	0
16551	SAVERS PROPERTY AND CASUALTY INSURANCE COMPANY	A	783,107	0	783,107	783,107	0
29939	MAIN STREET AMERICA ASSURANCE COMPANY	A	765,176	0	765,176	765,176	0
23442	PATRIOT GENERAL INSURANCE COMPANY	A	761,504	0	761,504	761,504	0
21180	SENTRY SELECT INSURANCE COMPANY	A	736,046	0	736,046	736,046	0
20222	ALL AMERICA INSURANCE COMPANY	A	735,130	0	735,130	735,130	0
15067	QUINCY MUTUAL FIRE INSURANCE COMPANY	A	734,719	0	734,719	734,719	0
12901	MERCHANTS PREFERRED INSURANCE COMPANY	A	724,301	0	724,301	724,301	0
28304	FEDERATED SERVICE INSURANCE COMPANY	A	684,504	0	684,504	684,504	0
43478	UTICA NATIONAL INSURANCE COMPANY OF TEXAS	A	673,430	0	673,430	673,430	0
12831	STATE NATIONAL INSURANCE COMPANY INC.	A	654,420	0	654,420	654,420	0
23396	AMERISURE MUTUAL INSURANCE COMPANY	B	630,207	0	630,207	0	630,207
10120	EVEREST NATIONAL INSURANCE COMPANY	B	616,365	0	616,365	0	616,365
10340	STONINGTON INSURANCE COMPANY	A	545,723	0	545,723	545,723	0
24554	XL INSURANCE AMERICA, INC.	A	536,926	0	536,926	536,926	0
13714	PHARMACISTS MUTUAL INSURANCE COMPANY	A	535,936	0	535,936	535,936	0
23434	MIDDLESEX INSURANCE COMPANY	A	524,485	0	524,485	524,485	0
15032	GUIDEONE MUTUAL INSURANCE COMPANY	A	508,651	0	508,651	508,651	0
22136	GREAT AMERICAN INSURANCE COMPANY OF NEW YORK	A	504,548	0	504,548	504,548	0
28886	TRANSGUARD INSURANCE COMPANY OF AMERICA, INC.	A	495,844	0	495,844	495,844	0
27847	INSURANCE COMPANY OF THE WEST	A	490,023	0	490,023	490,023	0
11991	NATIONAL CASUALTY COMPANY	A	476,803	0	476,803	476,803	0
11045	EXCELSIOR INSURANCE COMPANY	A	470,599	0	470,599	470,599	0
10665	AMERITRUST INSURANCE CORPORATION	A	389,976	0	389,976	389,976	0
20044	BERKSHIRE HATHAWAY HOMESTATE INSURANCE COMPANY	A	376,818	0	376,818	376,818	0
14190	OBI NATIONAL INSURANCE COMPANY	A	376,612	0	376,612	376,612	0
28223	NATIONWIDE AGRIBUSINESS INSURANCE COMPANY	B	375,883	0	375,883	0	375,883
26832	GREAT AMERICAN ALLIANCE INSURANCE COMPANY	A	366,747	0	366,747	366,747	0
10800	PREMIER GROUP INSURANCE COMPANY	B	346,664	0	346,664	0	346,664
11673	REDWOOD FIRE AND CASUALTY INSURANCE COMPANY	A	344,665	0	344,665	344,665	0
10945	TOKIO MARINE AMERICA INSURANCE COMPANY	A	340,325	0	340,325	340,325	0
23043	LIBERTY MUTUAL INSURANCE COMPANY	B	300,470	-6,367	306,837	0	306,837
27120	TRUMBULL INSURANCE COMPANY	A	299,485	0	299,485	299,485	0
35696	HARLEYSVILLE PREFERRED INSURANCE COMPANY	A	293,379	0	293,379	293,379	0
24171	NETHERLANDS INSURANCE COMPANY (THE)	A	287,254	0	287,254	287,254	0
24449	REGENT INSURANCE COMPANY	A	278,546	0	278,546	278,546	0
15911	AMERICAN MINING INSURANCE COMPANY	A	272,715	0	272,715	272,715	0
22322	GREENWICH INSURANCE COMPANY	A	245,402	0	245,402	245,402	0
11371	GREAT WEST CASUALTY COMPANY	A	244,097	0	244,097	244,097	0

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Calendar Year 2016 Direct Written Premiums by Premium Discount Election - Type "A" or Type "B"

NAIC Company Number (1)	Company Name (2)	Elected Discount Schedule (3)	Direct Written Premium (4)	Residual Market Written Premium (5)	Adjusted Voluntary Written Premium		
					Total Written Premium (6)	Type A Written Premium (7)	Type B Written Premium (8)
25135	STATE AUTOMOBILE MUTUAL INSURANCE COMPANY	A	229,061	0	229,061	229,061	0
13269	ZENITH INSURANCE COMPANY	A	228,239	0	228,239	228,239	0
23582	HARLEYSVILLE INSURANCE COMPANY	A	211,503	0	211,503	211,503	0
10677	CINCINNATI INSURANCE COMPANY	A	207,440	0	207,440	207,440	0
25127	STATE AUTO PROPERTY & CASUALTY INSURANCE COMPANY	A	198,705	0	198,705	198,705	0
14923	PATRONS MUTUAL INSURANCE COMPANY OF CONNECTICUT	A	195,421	0	195,421	195,421	0
21881	NATIONAL SURETY CORPORATION	A	184,866	0	184,866	184,866	0
41238	TRANS PACIFIC INSURANCE COMPANY	A	182,578	0	182,578	182,578	0
10166	ACCIDENT FUND INSURANCE COMPANY OF AMERICA	A	182,175	0	182,175	182,175	0
21865	ASSOCIATED INDEMNITY CORPORATION	B	165,836	0	165,836	0	165,836
24066	AMERICAN FIRE AND CASUALTY COMPANY	A	161,723	0	161,723	161,723	0
18333	PEERLESS INDEMNITY INSURANCE COMPANY	A	158,821	0	158,821	158,821	0
20699	ACE PROPERTY AND CASUALTY INSURANCE COMPANY	A	158,274	0	158,274	158,274	0
44393	WEST AMERICAN INSURANCE COMPANY	A	148,208	0	148,208	148,208	0
19704	AMERICAN STATES INSURANCE COMPANY	A	141,517	0	141,517	141,517	0
12866	T.H.E INSURANCE COMPANY	B	138,645	0	138,645	0	138,645
19720	AMERICAN ALTERNATIVE INSURANCE CORPORATION	A	132,009	0	132,009	132,009	0
22748	PACIFIC EMPLOYERS INSURANCE COMPANY	A	129,073	0	129,073	129,073	0
31895	AMERICAN INTERSTATE INSURANCE COMPANY	A	124,815	0	124,815	124,815	0
10642	CHEROKEE INSURANCE COMPANY	A	117,425	0	117,425	117,425	0
21857	AMERICAN INSURANCE COMPANY, (THE)	A	115,693	0	115,693	115,693	0
20613	SPARTA INSURANCE COMPANY	A	103,622	0	103,622	103,622	0
19488	AMERISURE INSURANCE COMPANY	B	103,285	0	103,285	0	103,285
29157	UNITED WISCONSIN INSURANCE COMPANY	A	101,477	0	101,477	101,477	0
10346	EMPLOYERS PREFERRED INSURANCE COMPANY	A	99,142	0	99,142	99,142	0
31003	TRI-STATE INSURANCE COMPANY OF MINNESOTA	A	97,931	0	97,931	97,931	0
40045	STARNET INSURANCE COMPANY	A	95,503	0	95,503	95,503	0
13056	RLI INSURANCE COMPANY	A	87,586	0	87,586	87,586	0
19402	AIG PROPERTY CASUALTY COMPANY	B	87,251	0	87,251	0	87,251
12304	ACCIDENT FUND GENERAL INSURANCE COMPANY	A	75,749	0	75,749	75,749	0
43575	INDEMNITY INSURANCE COMPANY OF NORTH AMERICA	A	67,673	0	67,673	67,673	0
21873	FIREMAN'S FUND INSURANCE COMPANY	A	67,023	0	67,023	67,023	0
19690	AMERICAN ECONOMY INSURANCE COMPANY	A	62,047	0	62,047	62,047	0
11123	SAFETY FIRST INSURANCE COMPANY	A	60,576	0	60,576	60,576	0
29580	BERKLEY REGIONAL INSURANCE COMPANY	A	59,372	0	59,372	59,372	0
21849	AMERICAN AUTOMOBILE INSURANCE COMPANY	A	48,060	0	48,060	48,060	0
19984	ACIG INSURANCE COMPANY	A	47,283	0	47,283	47,283	0
26042	WAUSAU UNDERWRITERS INSURANCE COMPANY	A	45,836	0	45,836	45,836	0
24767	ST. PAUL FIRE & MARINE INSURANCE COMPANY	A	44,565	0	44,565	44,565	0
11050	AMERISURE PARTNERS INSURANCE COMPANY	B	43,104	0	43,104	0	43,104
13528	BROTHERHOOD MUTUAL INSURANCE COMPANY	B	35,850	0	35,850	0	35,850
18279	BANKERS STANDARD INSURANCE COMPANY	A	34,738	0	34,738	34,738	0
35408	IMPERIUM INSURANCE COMPANY	B	33,847	0	33,847	0	33,847
26069	WAUSAU BUSINESS INSURANCE COMPANY	A	33,836	0	33,836	33,836	0
41394	BENCHMARK INSURANCE COMPANY	A	30,836	0	30,836	30,836	0
38300	SAMSUNG FIRE & MARINE INSURANCE CO. LTD (U.S. BRANCH)	A	30,639	0	30,639	30,639	0
40517	ADVANTAGE WORKERS COMPENSATION INSURANCE COMPANY	A	30,110	0	30,110	30,110	0
21709	TRUCK INSURANCE EXCHANGE	A	24,364	0	24,364	24,364	0
25143	STATE FARM FIRE AND CASUALTY COMPANY	A	24,071	0	24,071	24,071	0
10391	BERKSHIRE HATHAWAY DIRECT INSURANCE COMPANY	A	22,573	0	22,573	22,573	0
23280	CINCINNATI INDEMNITY COMPANY	A	18,293	0	18,293	18,293	0
16691	GREAT AMERICAN INSURANCE COMPANY	A	14,805	0	14,805	14,805	0
14982	PENN MILLERS INSURANCE COMPANY	A	11,145	0	11,145	11,145	0
25402	EMPLOYERS ASSURANCE COMPANY	A	10,450	0	10,450	10,450	0

# VI 000026 STIP

Section VI - Expenses  
 Subsection E - Expenses Net of Premium Discount  
 7/1/2018

Section VI - E  
 Exhibit 4  
 Page 5

Calendar Year 2016 Direct Written Premiums by Premium Discount Election - Type "A" or Type "B"

NAIC Company Number (1)	Company Name (2)	Elected Discount Schedule (3)	Direct Written Premium (4)	Residual Market Written Premium (5)	Adjusted Voluntary Written Premium		
					Total Written Premium (6)	Type A Written Premium (7)	Type B Written Premium (8)
34630	OAK RIVER INSURANCE COMPANY	A	9,991	0	9,991	9,991	0
26344	GREAT AMERICAN ASSURANCE COMPANY	A	8,781	0	8,781	8,781	0
19399	AIU INSURANCE COMPANY	B	8,519	0	8,519	0	8,519
23612	MIDWEST EMPLOYERS CASUALTY COMPANY	A	6,647	0	6,647	6,647	0
19828	ARGONAUT-MIDWEST INSURANCE COMPANY	A	5,064	0	5,064	5,064	0
25887	UNITED STATES FIDELITY AND GUARANTY COMPANY	A	4,349	0	4,349	4,349	0
22551	MITSUI SUMITOMO INSURANCE USA INC.	A	2,496	0	2,496	2,496	0
27740	NORTH POINTE INSURANCE COMPANY	A	2,135	0	2,135	2,135	0
23469	AMERICAN MODERN HOME INSURANCE COMPANY	A	2,122	0	2,122	2,122	0
12305	ACCIDENT FUND NATIONAL INSURANCE COMPANY	A	2,019	0	2,019	2,019	0
36684	RIVERPORT INSURANCE COMPANY	A	1,299	0	1,299	1,299	0
11000	SENTINEL INSURANCE COMPANY, LTD.	A	1,033	0	1,033	1,033	0
36234	PREFERRED PROFESSIONAL INSURANCE COMPANY	A	883	0	883	883	0
28665	CINCINNATI CASUALTY COMPANY	A	821	0	821	821	0
14990	PENNSYLVANIA NATIONAL MUTUAL CASUALTY INS. CO.	B	775	0	775	0	775
34690	PROPERTY AND CASUALTY INSURANCE CO. OF HARTFORD	A	744	0	744	744	0
20702	ACE FIRE UNDERWRITERS INSURANCE COMPANY	A	593	0	593	593	0
20095	BITCO GENERAL INSURANCE CORPORATION	A	409	0	409	409	0
35386	FIDELITY AND GUARANTY INSURANCE COMPANY	A	191	0	191	191	0
13331	MOTORISTS COMMERCIAL MUTUAL INSURANCE COMPANY	A	184	0	184	184	0
24732	GENERAL INSURANCE COMPANY OF AMERICA	A	169	0	169	169	0

Total	1,224,072,294	273,660,745	950,411,549	706,021,201	244,390,348
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Percentage of Voluntary written premium electing Type A Discount:	74.3%
Percentage of Voluntary written premium electing Type B Discount:	25.7%

Notes:

- (4) = Annual Statement Exhibit of Premium and Losses
- (5) = consistent with the Annual Statement Exhibit of Premium and Losses
- (6) = (4) - (5), subject to a minimum of 0

## VI 000027 STIP

Section VI - Expenses  
Subsection F - Expense Constant Offset  
7/1/2018

Section VI - F  
Exhibit 1

### Calculation of Expense Constant as Percent of Premium for Prospective Effective Period

(1) Expense Constant Offset for Policy Year 2015	0.958
(2) Expense Constant as Percent of Premium for Policy Year 2015 = 1.0 - (1)	4.2%
(3) Calculated Expense Constant for Policy Year 2015	\$232.07
(4) Factor to Bring Policy Year 2015 Premium to Premium Level of Prospective Effective Period	1.10
(5) Estimated Expense Constant for Prospective Effective Period	\$240.92
(6) Expense Constant as Percent of Premium for Prospective Effective Period = { (2) x [ (5) / (3) ] } / { [ (1) x (4) ] + [ (2) x ( (5) / (3) ) ] }	4.0%

#### Notes:

- (1): Exhibit 2.
- (3): Based on Unit Statistical Plan Data
- (4): Section III-E, Exhibit 1.
- (5): Section D, Exhibit 1.



# VI 000028 STIP

Section VI - Expenses  
 Subsection F - Expense Constant Offset  
 7/1/2018

Section VI - F  
 Exhibit 2

## Expense Constant Offsets

### Used in Section I and Section III

Policy Year (1)	Standard Premium Excluding Expense Constant (2)	ARAP at Company Level (3)	Factor to Adjust ARAP from Company Level to DSR Level Premium (4)	Expense Constant (5)	Expense Constant Offset (6)
2014	995,173,438	47,158,506	1.045	45,726,485	0.958
2015	1,062,283,940	47,074,092	1.045	47,272,963	0.959

### Used in the Calculation of Expense Constant as Percent of Premium for Prospective Effective Period

Policy Year (7)	Standard Premium Excluding Expense Constant (8)	ARAP at Company Level (9)	Factor to Adjust ARAP from Company Level to DSR Level Premium (10)	Expense Constant (11)	Expense Constant Offset (12)
2015	834,670,517	35,932,109	1.045	38,139,510	0.958

**Notes:**

Based on Unit Statistical Plan Data, excluding Large Deductible Policies.

(4) Section III-B, Exhibit 2.

$$(6) = \{ (2) + [ (3) * (4) ] \} / [ \{ (2) + [ (3) * (4) ] \} + (5) ]$$

(10) Section III-B, Exhibit 2.

$$(12) = \{ (8) + [ (9) * (10) ] \} / [ \{ (8) + [ (9) * (10) ] \} + (11) ]$$

The Standard Premium excluding Expense Constant values for Policy Year 2015 used in Section I and Section III differ from those used in the calculation of the Expense Constant because of a differing company mixes.

# VI 000029 STIP

Section VI - Expenses  
Subsection G - Acquisition Expenses  
7/1/2018

Section VI - G  
Exhibit 1

## Provision for Commission and Other Acquisition Expense Including Frictional Reinsurance Expenses

(1)	Other Acquisition and Field Supervision Expense Ratio, Excluding Expense Constants	3.3%
(2)	Selected Average Commission Ratio, Excluding Expense Constants	8.3%
(3)	Selected Frictional Reinsurance Expenses Ratio (relative to Standard plus ARAP premiums, excluding expense constants)	1.0%
(4)	Selected Effect of Incidental Income and EBUP Expense, Excluding of Expense Constants	0.0%
(5)	Commission and Other Acquisition Expense Ratio = (1) + (2) + (3) + (4)	<b>12.6%</b>

### Notes:

- (1): Exhibit 2.
- (2): Exhibit 3.
- (3): Exhibit 4, Page 1.
- (4): Exhibit 5.

# VI 000030 STIP

Section VI - Expenses  
 Subsection G - Acquisition Expenses  
 7/1/2018

Section VI - G  
 Exhibit 2

## Calculation of Other Acquisition Expense

	Calendar Year		
	2014	2015	2016
(1) Standard Earned Premium Including Expense Constant Premium	906,769,995	966,011,869	1,044,940,146
(2) ARAP Premium at Company Level	40,789,042	40,496,339	41,073,233
(3) Adjustment Factor to Adjust from Company Level to DSR Level Premium	1.046	1.043	1.049
(4) Standard Earned Premium plus Adjusted ARAP = (1) + [ (2) x (3) ]	949,422,796	1,008,266,972	1,088,014,883
(5) Adjustment for Experience and Merit Rating, ARAP, and Construction Credit Off-balance	1.026	1.042	1.042
(6) Adjustment Factor to Remove the Impact of Loading for Recoupment of Insolvency Fund Assessments	0.999	0.998	0.999
(7) Adjusted Standard Earned Premium plus ARAP = (4) x (5) x (6)	972,961,302	1,048,528,449	1,131,798,015
(8) Other Acquisition, Field Supervision, Collection Expenses for Home Office and Branch Office, excluding Commissions	48,743,974	50,747,202	58,685,708
(9) Other Acquisition Expense Ratio = (8) / (7)	5.0%	4.8%	5.2%
(10) Three Year Average		5.0%	
(11) Expense Constant as Percent of Premium for Prospective Effective Period		4.0%	
(12) Other Acquisition Portion of Expense Constant		46.7%	
(13) Percent of Premium due to Portion of Expense Constant for Other Acquisition Expense = (11) x (12)		1.9%	
(14) Other Acquisition and Field Supervision Expense Ratio, Excluding Expense Constants = [ (10) - (13) ] / [ 1.0 - (11) ]		<b>3.3%</b>	

**Notes:**

- (1), (2): Aggregate Financial Reconciliation Report Calls, Calendar Years 2014 - 2016.  
Reported Premium, plus ARAP, and including Large Deductible Policies at Standard Premium.
- (3): Section III-B, Exhibit 2.
- (5): Section III-B, Exhibit 1.
- (6): Section III-C, Exhibit 1.
- (8): Aggregate Financial Expense Calls, Calendar Years 2014 - 2016.
- (11): Section VI-F, Exhibit 1.
- (12): Section VI-B, Exhibit 3.

# VI 000031 STIP

Section VI - Expenses  
 Subsection G - Acquisition Expenses  
 7/1/2018

Section VI - G  
 Exhibit 3

## Calculation of Average Commission Rate

	Calendar Year		
	2014	2015	2016
(1) Direct Written Premium	835,697,096	885,039,083	935,404,943
(2) Total Commissions for Agents and Brokers	65,022,823	68,643,373	77,428,739
(3) Average Commission Rate = (2) / (1)	7.8%	7.8%	8.3%
<hr/>			
(4) Three Year Average		7.9%	
(5) Expense Constant as Percent of Premium for Prospective Effective Period		4.0%	
(6) Average Commission Ratio, Excluding Expense Constants = (4) / [ 1.0 - (5) ]		<b>8.3%</b>	
(7) Selected Average Commission Ratio, Excluding Expense Constants		<b>8.3%</b>	

**Notes:**

- (1): Annual Statement Exhibit of Premium and Losses, Calendar Years 2014 - 2016.
- (2): Aggregate Financial Expense Calls, Calendar Years 2014 - 2016.
- (5): Section VI-F, Exhibit 1.

# VI 000032 STIP

## Frictional Reinsurance Expenses

Calendar Year	Reinsurer Underwriting Expenses as Percentage of Net Written Premium				
	Commission and Brokerage	Other Acquisition	General Expenses	Taxes	Total Underwriting Expenses = (2) + (3) + (4) + (5)
(1)	(2)	(3)	(4)	(5)	(6)
2002	20.3%	3.7%	2.7%	0.4%	27.0%
2003	18.7%	4.2%	2.7%	0.6%	26.2%
2004	18.0%	4.0%	2.9%	0.5%	25.4%
2005	26.2%	8.0%	6.4%	0.7%	41.3%
2006	13.3%	4.6%	4.4%	0.5%	22.8%
2007	14.0%	4.9%	4.2%	0.5%	23.6%
2008	18.4%	4.3%	3.9%	0.6%	27.2%
2009	19.8%	2.9%	3.4%	0.2%	26.3%
2010	17.7%	3.2%	3.8%	0.2%	24.9%
2011	19.2%	3.0%	2.8%	0.2%	25.2%
2012	19.1%	3.1%	2.7%	0.3%	25.2%
2013	17.4%	3.6%	3.5%	0.3%	24.8%
2014	18.1%	3.5%	5.3%	0.4%	27.3%
2015	18.5%	3.2%	3.2%	0.3%	25.2%
2016	18.2%	3.0%	3.4%	0.3%	24.9%
(7) Average	18.5%	3.9%	3.7%	0.4%	26.5%
(8) Estimated Ceding Commission & Brokerage Rate for Workers' Compensation Non-Proportional Reinsurance	16.2%				
(9) Adjusted Average = (7) - (8)	2.3%	3.9%	3.7%	0.4%	10.3%

- (10) Estimated % of Direct Premium Ceded for Workers' Compensation Non-Proportional Reinsurance 14.1%
- (11) Implied Frictional Reinsurance Expenses Relative to Direct Premiums (as a %)  
= Total (9) x (10) 1.45%
- (12) Selected Frictional Reinsurance Expenses Ratio  
(relative to Standard plus ARAP premiums, excluding expense constants) 1.0%

**Notes:**

(2)-(5): Insurance Expense Exhibit database - By Line Underwriting Experience from Best's Aggregates & Averages for Reinsurance Editions 2003 - 2017.

(8): Page 2, (10).

(10): Page 2, (11).

# VI 00033 STIP

## Estimate of Ceding Commission & Brokerage Rate for Workers' Compensation Non-Proportional Reinsurance

Calendar Year	Written Premiums (000's)			Ratio of Commission & Brokerage Incurred to Written Premium		Commission & Brokerage Expenses Incurred (000's)		
	Direct	Net	Direct - Net = (2) - (3)	Direct	Net	Direct = (2) x (5)	Net = (3) x (6)	Direct - Net = (7) - (8)
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
2002	43,950,839	38,137,991	5,812,848	0.077	0.066	3,384,215	2,517,107	867,107
2003	50,031,977	43,333,685	6,698,292	0.072	0.063	3,602,302	2,730,022	872,280
2004	51,988,628	45,667,027	6,321,601	0.074	0.063	3,847,158	2,877,023	970,136
2005	53,139,231	46,633,441	6,505,790	0.068	0.056	3,613,468	2,611,473	1,001,995
2006	50,942,134	45,033,012	5,909,122	0.072	0.069	3,667,834	3,107,278	560,556
2007	50,367,861	44,207,021	6,160,840	0.071	0.061	3,576,118	2,696,628	879,490
2008	42,686,615	37,535,546	5,151,069	0.077	0.060	3,286,869	2,252,133	1,034,737
2009	37,879,014	32,642,883	5,236,131	0.079	0.060	2,992,442	1,958,573	1,033,869
2010	37,180,836	32,184,623	4,996,213	0.079	0.060	2,937,286	1,931,077	1,006,209
2011	41,651,380	35,751,070	5,900,310	0.084	0.068	3,498,716	2,431,073	1,067,643
2012	44,555,061	37,992,643	6,562,418	0.084	0.070	3,742,625	2,659,485	1,083,140
2013	49,384,867	41,250,232	8,134,635	0.084	0.068	4,148,329	2,805,016	1,343,313
2014	52,613,735	44,053,515	8,560,220	0.084	0.066	4,419,554	2,907,532	1,512,022
2015	54,522,916	45,090,969	9,431,947	0.088	0.073	4,798,017	3,291,641	1,506,376
2016	58,255,242	47,961,376	10,293,866	0.085	0.067	4,951,696	3,213,412	1,738,283
<b>Total</b>	<b>719,150,336</b>	<b>617,475,034</b>	<b>101,675,302</b>	<b>0.079</b>	<b>0.065</b>	<b>56,466,628</b>	<b>39,989,473</b>	<b>16,477,156</b>

- (10) Estimated Ceding Commission & Brokerage Rate for Workers' Compensation Non-Proportional Reinsurance = Total (9) / Total (4) 16.2%
- (11) Estimated % of Direct Premium Ceded for Workers' Compensation Non-Proportional Reinsurance = Total (4) / Total (2) 14.1%

Notes:  
 (2), (3), (5), (6): Insurance Expense Exhibit database - By Line Underwriting Experience from Best's Aggregates & Averages for Workers' Comp Editions 2003 - 2017.

# VI 000034 STIP

Section VI - Expenses  
 Subsection G - Acquisition Expenses  
 7/1/2018

Section VI - G  
 Exhibit 5

## Effect of Incidental Income and Earned but Uncollected Premium

	Calendar Year		
	2014	2015	2016
(1) Standard Earned Premium Including Expense Constant Premium	906,769,995	966,011,869	1,044,940,146
(2) ARAP Premium at Company Level	40,789,042	40,496,339	41,073,233
(3) Adjustment Factor to Adjust from Company Level to DSR Level Premium	1.046	1.043	1.049
(4) Standard Earned Premium plus Adjusted ARAP = (1) + [ (2) x (3) ]	949,422,796	1,008,266,972	1,088,014,883
(5) Adjustment for Experience and Merit Rating, ARAP, and Construction Credit Off-balance	1.026	1.042	1.042
(6) Adjustment Factor to Remove the Impact of Loading for Recoupment of Insolvency Fund Assessments	0.999	0.998	0.999
(7) Adjusted Standard Earned Premium plus ARAP = (4) x (5) x (6)	972,961,302	1,048,528,449	1,131,798,015
(8) Earned But Uncollected Premium ("EBUP")	9,563,957	9,349,214	5,361,012
(9) Incidental Income	1,563,918	1,213,797	1,336,668
(10) Net Effect of Incidental Income and EBUP Expense = [ (8) - (9) ] / (7)	0.8%	0.8%	0.4%
(11) Three Year Average		0.7%	
(12) Expense Constant as Percent of Premium for Prospective Effective Period		4.0%	
(13) Effect of Incidental Income and EBUP Expense, Exclusive of Expense Constants = (11) / [ 1.0 - (12) ]		0.7%	
(14) Selected Effect of Incidental Income and EBUP Expense, Excluding of Expense Constants		0.0%	

**Notes:**

- (1), (2): Aggregate Financial Reconciliation Report Calls, Calendar Years 2014 - 2016.  
Reported Premium and ARAP, including Large Deductible Policies at Standard Premium.
- (3): Section III-B, Exhibit 2.
- (5): Section III-B, Exhibit 1.
- (6): Section III-C, Exhibit 1.
- (8),(9): Aggregate Financial Expense Call.
- (12): Section VI-F, Exhibit 1.

# VI 000035 STIP

Section VI - Expenses  
Subsection H - Loss Adjustment Expense  
7/1/2018

Section VI - H  
Exhibit 1

## Defense and Cost Containment Expense ("DCCE") Ratio and Total Loss Adjustment Expense ("LAE") Ratio

	Calendar Year		
	2014	2015	2016
(1) Ground Up Paid Losses	506,307,197	500,195,047	507,699,297
(2) Ground Up Paid Defense and Cost Containment Expense	47,850,342	47,990,664	47,063,402
(3) Defense and Cost Containment Expense Ratio = (2) / (1)	9.5%	9.6%	9.3%
(4) Three Year Average Defense and Cost Containment Expense Ratio = Average of (3)		9.4%	
(5) Selected Three Year Average Defense and Cost Containment Expense Ratio		9.4%	
(6) Total Loss Adjustment Expense Ratio (LAE / Loss)		<b>18.5%</b>	

### Notes:

(1),(2): Aggregate Financial Policy Year Calls.

(6): (5) + [ (9) from Section VI-H, Exhibit 2 ]



# VI 000036 STIP

Section VI - Expenses  
 Subsection H - Loss Adjustment Expense  
 7/1/2018

Section VI - H  
 Exhibit 2

## Adjusting and Other ("AO") Expense Ratio

	Calendar Year		
	2014	2015	2016
(1) Direct Incurred Losses	570,633,219	605,650,564	623,261,176
(2) Factor to Adjust the Direct Losses to Full Coverage Losses	1.118	1.118	1.133
(3) Estimated Full Coverage Incurred Losses = (1) x (2)	638,167,500	677,175,892	705,930,377
(4) Direct Incurred Adjusting and Other Expense	59,324,740	54,837,877	58,698,118
(5) Factor to Adjust the Direct Adjusting and Other Expense to Full Coverage AO Expense	1.056	1.056	1.062
(6) Estimated Full Coverage Adjusting and Other Expense = (4) x (5)	62,639,144	57,895,420	62,348,853
(7) Adjusted Adjusting and Other Expense Ratio = (6) / (3)	9.82%	8.55%	8.83%
(8) Three Year Average Adjusted Adjusting and Other Expense Ratio = Average of (7)		9.1%	
(9) Selected Three Year Average Adjusted Adjusting and Other Expense Ratio		9.1%	

**Notes:**

(1),(4): Aggregate Financial Calendar Year Expense Data Calls, 2014 - 2016.

(2),(5): Section VI-I, Exhibit 1, Page 1.

# VI 000037 STIP

Section VI - Expenses  
 Subsection I - Adjustment for Large Deductible Policies  
 7/1/2018

Section VI - I  
 Exhibit 1  
 Page 1

## Adjustment to the Adjusting and Other Expense Provision

	Calendar Year		
	2014	2015	2016
(1) Average Premium Reduction Factor for Large Deductible Policies	0.805	0.811	0.824
(2) Loss Elimination Ratio (LER) for Large Deductible Policies = (1) x 1.104	88.9%	89.5%	91.0%
(3) Market Share (Standard Premium Basis) of Large Deductible Policies	11.9%	11.8%	12.9%
(4) LER for Full Coverage plus Large Deductible Policies = [ (2) x (3) ] + { 0.0 x [ 1.0 - (3) ] }	10.6%	10.6%	11.7%
(5) Factor to Adjust the Direct Losses to Full Coverage Losses = 1.0 / [ 1.0 - (4) ]	1.118	1.118	1.133
(6) Factor to Adjust the Direct AO Expense to Full Coverage AO Expense = 1.0 / { 1.0 - [ 0.5 x (4) ] }	1.056	1.056	1.062

**Notes:**

- (1),(3): Exhibit 2.
- (2): 1.104 from Exhibit 1, Page 2.
- (6): Assumes 50% of Adjusting & Other expense varies directly with losses.

# VI 000038 STIP

Section VI - Expenses  
 Subsection I - Adjustment for Large Deductible Policies  
 7/1/2018

Section VI - I  
 Exhibit 1  
 Page 2

## Loss Elimination Ratio for Large Deductible Policies

		<u>As a % of Standard Premium plus ARAP</u>
(1)	Commission and Other Acquisition Expense Ratio	10.9%
(2)	Premium Discount Ratio	5.0%
(3)	Premium Tax Ratio = 2.28% x [ 1.0 - (2) ]	2.2%
(4)	Profit Provision	0.0%
(5)	Insolvency Fund Assessment	-0.2%
(6)	Residual Market Subsidy (Retrospectively-rated policies)	0.7%
(7)	Variable Expense Ratio = (1) + (2) + (3) + (4) + (5) + (6)	18.5%
(8)	Expected Loss Ratio without LAE	64.2%
(9)	Defense and Cost Containment Expense ("DCC")	6.5%
(10)	Adjusting and Other Expenses ("AO")	6.3%
(11)	Variable Adjusting and Other Expenses = 0.5 x (10)	3.2%
(12)	Portion of Expected Loss + LAE Ratio that varies with deductible (ELARD) = (8) + (9) + (11)	73.8%
(13)	LER / D = [ 1.0 - (7) ] / (12)	1.104

D = Average Premium Reduction Factor for Large Deductible Policies  
 LER = Loss Elimination Ratio  
 ELARD = Loss + DCC + ( 1/2 x AO )

D = [ LER x ELARD ] / [ 100% - (Variable Expense) ]  
 LER = D x [ 1.0 - (Variable Expense) ] / LER x ( 1.0 + DCC + 1/2 x AO )

**Notes:**

Values approved for rates effective 7/1/16.  
 (1) - (6) = From prior Rate Decision/Stipulation  
 (8) = From prior Rate Decision/Stipulation  
 (9) = 10.1% x (8), ratio of DCC to Losses from the 7/1/16 filing.  
 (10) = 9.8% x (8), ratio of AO to Losses from the 7/1/16 filing.

# VI 000039 STIP

Section VI - Expenses  
 Subsection I - Adjustment for Large Deductible Policies  
 7/1/2018

Section VI - I  
 Exhibit 2

## Average Large Deductible Premium Reduction Factor and Large Deductible Market Share

		Policy Year												
		2013	2014	2015	2016*									
(1)	Standard Earned Premium Excluding Large Deductible Policies	781,696,019	834,781,331	871,568,050	488,506,275									
(2)	Earned Premium Net of Deductible Credit for Large Deductible Policies	20,709,430	21,773,872	21,383,799	13,374,267									
(3)	Standard Earned Premium for Large Deductible Policies	109,060,765	109,173,912	119,319,061	77,570,049									
(4)	Standard Earned Premium for All Policies = (1) + (3)	890,756,784	943,955,243	990,887,111	566,076,324									
(5)	Average Premium Reduction Factor for Large Deductible Policies = $1.0 - [(2) / (3)]$	0.810	0.801	0.821	0.828									
(6)	Market Share (Standard Premium Basis) of Large Deductible Policies = (3) / (4)	12.2%	11.6%	12.0%	13.7%									
		<table border="1" style="width: 100%; border-collapse: collapse; margin: 5px auto;"> <thead> <tr> <th colspan="3" style="text-align: center;">Calendar Year</th> </tr> <tr> <th style="text-align: center;">2014</th> <th style="text-align: center;">2015</th> <th style="text-align: center;">2016</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">0.805</td> <td style="text-align: center;">0.811</td> <td style="text-align: center;">0.824</td> </tr> </tbody> </table>				Calendar Year			2014	2015	2016	0.805	0.811	0.824
Calendar Year														
2014	2015	2016												
0.805	0.811	0.824												
(7)	Average Premium Reduction Factor for Large Deductible Policies = Average of PY-1 and PY													
(8)	Market Share (Standard Premium Basis) of Large Deductible Policies = Average of PY-1 and PY		11.9%	11.8%	12.9%									

**Notes:**

- (1): Aggregate Financial Policy Year Call, Policy Year Accumulated Earned Premium – Standard at Bureau DSR Level.
- (2): Aggregate Financial Policy Year Large Deductible Call, Policy Year Accumulated Earned Premium – Net.
- (3): Aggregate Financial Policy Year Large Deductible Call, Policy Year Accumulated Earned Premium – Standard at Bureau DSR Level.
- \* Policy Year 2016 is an incomplete Policy Year, valued as of 12/31/2016

# VI 000040 STIP

Section VI - Expenses  
Subsection J - Expected Loss Ratios Underlying the Proposed Rates & Rating Values  
7/1/2018

Section VI - J  
Exhibit 1

## Expected Loss Ratios Underlying the Proposed Rates & Rating Values

	<u>As a % of Standard Premium plus Adjusted ARAP</u>
(1) Commission and Other Acquisition Expense Ratio	12.6%
(2) Average Premium Discount as a % of Standard Premium + ARAP	5.1%
(3) Premium Tax Ratio = 2.28% x [ 1.0 - (2) ]	2.2%
(4) Variable Expense Ratio = (1) + (2) + (3)	19.9%
(5) Underwriting Profit Provision	-1.4%
(6) Permissible Loss, LAE, and Fixed Expense Ratio = 1.0 - [ (4) + (5) ]	81.5%
(7) Fixed Expense Ratio	4.9%
(8) Expected Loss and Loss Adjustment Expense Ratio = (6) - (7)	76.6%
(9) Total Loss Adjustment Expense Ratio (LAE / Loss)	18.5%
(10) Expected Loss Ratio without Loss Adjustment Expense = (8) / [ 1.0 + (9) ]	64.6%

### Notes:

(1): Section VI-G, Exhibit 1.

(2): Section VI-E, Exhibit 1.

(3): 2.28% from Section VI-B, Exhibit 3.

(5): Section VII-A, Exhibit 1.

(7): Section VI-B, Exhibit 1. The Average Fixed Expense Ratio, 4.3%, is divided by [1.0 + indicated rate change], -12.9%, to give the Fixed Expense Ratio underlying the proposed rates.

(9): Section VI-H, Exhibit 1.

## VII 000015 STIP

Section VII - Profit  
Subsection A - Summary  
7/1/2018

Section VII-A  
Exhibit 1

**TABLE A1: ASSUMPTIONS AND PROFIT PROVISION CALCULATION**

Underwriting Assumptions:		
(1)	Written Premium	
(a)	Gross - Before Premium Discount	1,000.00
(b)	Net - After Premium Discount	948.53
(2)	Collected Premium Net - After Premium Discount	948.53
(3)	Loss & LAE Ratio	76.61%
(4)	Commission Ratio	8.27%
(5)	Premium Discount	5.15%
(6)	General Expense Ratio	4.39%
(7)	Other Acquisition Expense Ratio	3.29%
(8)	Premium Tax Rate	2.16%
(9)	Reinsurance Expense Ratio	1.00%
(10)	Miscellaneous and Other Taxes	0.49%
Cost of Capital:		
(11)	Weighted Average Cost of Capital	7.23%
Portfolio Rate of Return:		
(12)	After Tax Portfolio Rate of Return	3.27%
Leverage Ratio:		
(13)	Reserves to Surplus Ratio	1.80
Profit Provision:		
(14)	Profit Provision Calculation	-1.35%

**Notes:**

(1b) = (1a) x [ 1.0 - (5) ]

(2) = (1b), assumed that all premium is collectible.

(3) - (10): Section VII-H, Exhibit 1 (average of the two policy years).

(3), (6), (10) are divided by (1.0 + Rate Change).

(11): Section VII-E, Exhibit 1.

(12): Section VII-J, Exhibit 1, page 1.

(13): Section VII-F, Exhibit 1.

(14) = 1.0 - [ (3) + (4) + (5) + (6) + (7) + (8) + (9) + (10) ]



# VII 000036 STIP

Section VII - Profit  
Subsection B - DCF Models  
7/1/2018

Section VII-B  
Exhibit 1

**TABLE B1: INTERNAL RATE OF RETURN (IRR) MODEL - PRESENT VALUE (PV) NOMINAL CASH FLOWS TO INVESTORS**

TIME INTERVAL		POST TAX CASH FROM UW MINUS INVESTABLE RESERVES (3)	BOND INTEREST TAX DEDUCTION FOR INSURERS (4)	NET CASH FLOW FROM UNDERWRITING (5)	CASH POST-TAX INCOME (6)	NET FLOW FROM SURPLUS ACCOUNT (7)	SURPLUS POST-TAX INCOME (8)	CASH FLOWS TO INVESTORS (NOMINAL) (9)	CASH FLOWS TO INVESTORS (PV NOMINAL) (10)
FROM (1)	TO (2)								
01/01/39	03/31/39	0.00	0.02	0.02	0.41	0.30	0.23	0.97	0.22
04/01/39	06/30/39	0.00	0.02	0.02	0.41	0.28	0.23	0.94	0.21
07/01/39	09/30/39	0.00	0.02	0.02	0.41	0.30	0.23	0.95	0.20
10/01/39	12/31/39	0.00	0.02	0.02	0.40	0.35	0.22	0.99	0.21
01/01/40	03/31/40	0.00	0.02	0.02	0.40	0.41	0.22	1.04	0.22
04/01/40	06/30/40	0.00	0.02	0.02	0.39	0.46	0.22	1.09	0.22
07/01/40	09/30/40	0.00	0.02	0.02	0.38	0.49	0.21	1.11	0.22
10/01/40	12/31/40	0.00	0.02	0.02	0.38	0.49	0.21	1.10	0.22
01/01/41	03/31/41	0.00	0.02	0.02	0.37	0.49	0.21	1.08	0.21
04/01/41	06/30/41	0.00	0.02	0.02	0.36	0.49	0.20	1.07	0.20
07/01/41	09/30/41	0.00	0.02	0.02	0.36	0.49	0.20	1.06	0.20
10/01/41	12/31/41	0.00	0.02	0.02	0.35	0.49	0.19	1.05	0.19
01/01/42	03/31/42	0.00	0.02	0.02	0.34	0.49	0.19	1.04	0.19
04/01/42	06/30/42	0.00	0.02	0.02	0.33	0.49	0.19	1.02	0.18
07/01/42	09/30/42	0.00	0.02	0.02	0.33	0.49	0.18	1.02	0.18
10/01/42	12/31/42	0.00	0.02	0.02	0.32	0.49	0.18	1.01	0.17
01/01/43	03/31/43	0.00	0.01	0.02	0.31	0.49	0.17	0.99	0.17
04/01/43	06/30/43	0.00	0.01	0.02	0.31	0.49	0.17	0.98	0.16
07/01/43	09/30/43	0.00	0.01	0.02	0.30	0.49	0.17	0.97	0.16
10/01/43	12/31/43	0.00	0.01	0.02	0.29	0.49	0.16	0.96	0.15
01/01/44	03/31/44	0.00	0.01	0.02	0.28	0.49	0.16	0.95	0.15
04/01/44	06/30/44	0.00	0.01	0.02	0.28	0.49	0.15	0.93	0.14
07/01/44	09/30/44	0.00	0.01	0.01	0.27	0.49	0.15	0.93	0.14
10/01/44	12/31/44	0.00	0.01	0.01	0.26	0.49	0.15	0.92	0.14
01/01/45	03/31/45	0.00	0.01	0.01	0.26	0.49	0.14	0.90	0.13
04/01/45	06/30/45	0.00	0.01	0.01	0.25	0.49	0.14	0.89	0.13
07/01/45	09/30/45	0.00	0.01	0.01	0.24	0.49	0.13	0.88	0.12
10/01/45	12/31/45	0.00	0.01	0.01	0.23	0.49	0.13	0.87	0.12
01/01/46	03/31/46	0.00	0.01	0.01	0.23	0.49	0.13	0.86	0.12
04/01/46	06/30/46	0.00	0.01	0.01	0.22	0.49	0.12	0.84	0.11
07/01/46	09/30/46	0.00	0.01	0.01	0.21	0.49	0.12	0.84	0.11
10/01/46	12/31/46	0.00	0.01	0.01	0.21	0.49	0.11	0.83	0.11
01/01/47	03/31/47	0.00	0.01	0.01	0.20	0.49	0.11	0.81	0.10
04/01/47	06/30/47	0.00	0.01	0.01	0.19	0.49	0.11	0.80	0.10
07/01/47	09/30/47	0.00	0.01	0.01	0.19	0.49	0.10	0.79	0.10
10/01/47	12/31/47	0.00	0.01	0.01	0.18	0.49	0.10	0.78	0.09
01/01/48	03/31/48	0.00	0.01	0.01	0.17	0.49	0.10	0.77	0.09
04/01/48	06/30/48	0.00	0.01	0.01	0.16	0.49	0.09	0.75	0.09
07/01/48	09/30/48	0.00	0.01	0.01	0.16	0.49	0.09	0.75	0.09
10/01/48	12/31/48	0.00	0.01	0.01	0.15	0.49	0.08	0.74	0.08
01/01/49	03/31/49	0.00	0.01	0.01	0.14	0.49	0.08	0.72	0.08
04/01/49	06/30/49	0.00	0.01	0.01	0.14	0.49	0.08	0.71	0.08
07/01/49	09/30/49	0.00	0.01	0.01	0.13	0.49	0.07	0.70	0.07
10/01/49	12/31/49	0.00	0.01	0.01	0.12	0.49	0.07	0.69	0.07
01/01/50	03/31/50	0.00	0.01	0.01	0.11	0.49	0.06	0.68	0.07
04/01/50	06/30/50	0.00	0.01	0.01	0.11	0.49	0.06	0.66	0.07
07/01/50	09/30/50	0.00	0.01	0.01	0.10	0.49	0.06	0.65	0.07
10/01/50	12/31/50	0.00	0.01	0.01	0.09	0.49	0.05	0.65	0.06
01/01/51	03/31/51	0.00	0.01	0.01	0.09	0.49	0.05	0.63	0.06
04/01/51	06/30/51	0.00	0.01	0.01	0.08	0.49	0.04	0.62	0.06
07/01/51	09/30/51	0.00	0.01	0.01	0.07	0.49	0.04	0.61	0.06
10/01/51	12/31/51	0.00	0.01	0.01	0.06	0.49	0.04	0.60	0.05
01/01/52	03/31/52	0.00	0.01	0.01	0.06	0.49	0.03	0.59	0.05
04/01/52	06/30/52	0.00	0.00	0.01	0.05	0.49	0.03	0.57	0.05
07/01/52	09/30/52	0.00	0.00	0.01	0.04	0.49	0.02	0.56	0.05
10/01/52	12/31/52	0.00	0.00	0.00	0.04	0.49	0.02	0.55	0.05
01/01/53	03/31/53	0.00	0.00	0.00	0.03	0.49	0.02	0.54	0.04
04/01/53	06/30/53	0.00	0.00	0.00	0.02	0.49	0.01	0.52	0.04
07/01/53	09/30/53	0.00	0.00	0.00	0.01	0.43	0.01	0.45	0.04
10/01/53	12/31/53	0.00	0.00	0.00	0.01	0.32	0.00	0.34	0.03
01/01/54	03/31/54	(0.00)	0.00	0.00	0.00	0.19	0.00	0.19	0.01
04/01/54	06/30/54	0.00	0.00	0.00	0.00	0.06	0.00	0.06	0.00
TOTAL		(10.70)	4.39	(6.31)	100.14	(0.00)	63.41	157.24	0.00

Notes:

(3) = Table C1, (14) - [ Table C3, (7), incremental ]

(4) = Table B2, (5)

(5) = (3) + (4)

(6) = Table C3, (7)<sub>t-1</sub> x { [ 1.0 + Table A1, (12) ] ^ 0.25 - 1.0 }

(7) = -1.0 X Table D1, (7), incremental

(8) = Table D1, (7)<sub>t-1</sub> x { [ 1.0 + Table A1, (12) ] ^ 0.25 - 1.0 }

(9) = (5) + (6) + (7) + (8)

(10) = (9) x (1 + WACC)<sup>time in years</sup>, based on the time interval with beginning date 07/01/17

WACC is the weighted average cost of capital from Section VII-E, Exhibit 1 which is equal to 7.23%.

The Total PV is equal to zero which implies that the profit provision derived from an investors prospective is equal to the profit provision derived from insurers prospective and is equal to -1.35% from Table A1, (14).











TABLE C2\_1: FEDERAL INCOME TAXES - TAXABLE PREMIUM REVENUE

TIME INTERVAL		WRITTEN PREMIUM NET (3)	UNEARNED PREMIUM RESERVES (4)	CHANGE IN UNEARNED PREMIUM RESERVES (5)	TAX DEDUCTIBLE CHANGE IN UNEARNED PREMIUM RESERVES (6)	NON TAX DEDUCTIBLE CHANGE IN UNEARNED PREMIUM RESERVES (7)	TAXABLE PREMIUM REVENUE (8)
FROM (1)	TO (2)						
01/01/17	12/31/17	0.00	0.00	0.00	0.00	0.00	0.00
01/01/18	12/31/18	423.39	310.00	310.00	248.00	62.00	175.39
01/01/19	12/31/19	525.14	118.87	(191.13)	(152.90)	(38.23)	678.04
01/01/20	12/31/20	0.00	0.00	(118.87)	(95.10)	(23.77)	95.10
01/01/21	12/31/21	0.00	0.00	0.00	0.00	0.00	0.00
01/01/22	12/31/22	0.00	0.00	0.00	0.00	0.00	0.00
01/01/23	12/31/23	0.00	0.00	0.00	0.00	0.00	0.00
01/01/24	12/31/24	0.00	0.00	0.00	0.00	0.00	0.00
01/01/25	12/31/25	0.00	0.00	0.00	0.00	0.00	0.00
01/01/26	12/31/26	0.00	0.00	0.00	0.00	0.00	0.00
01/01/27	12/31/27	0.00	0.00	0.00	0.00	0.00	0.00
01/01/28	12/31/28	0.00	0.00	0.00	0.00	0.00	0.00
01/01/29	12/31/29	0.00	0.00	0.00	0.00	0.00	0.00
01/01/30	12/31/30	0.00	0.00	0.00	0.00	0.00	0.00
01/01/31	12/31/31	0.00	0.00	0.00	0.00	0.00	0.00
01/01/32	12/31/32	0.00	0.00	0.00	0.00	0.00	0.00
01/01/33	12/31/33	0.00	0.00	0.00	0.00	0.00	0.00
01/01/34	12/31/34	0.00	0.00	0.00	0.00	0.00	0.00
01/01/35	12/31/35	0.00	0.00	0.00	0.00	0.00	0.00
01/01/36	12/31/36	0.00	0.00	0.00	0.00	0.00	0.00
01/01/37	12/31/37	0.00	0.00	0.00	0.00	0.00	0.00
01/01/38	12/31/38	0.00	0.00	0.00	0.00	0.00	0.00
01/01/39	12/31/39	0.00	0.00	0.00	0.00	0.00	0.00
01/01/40	12/31/40	0.00	0.00	0.00	0.00	0.00	0.00
01/01/41	12/31/41	0.00	0.00	0.00	0.00	0.00	0.00
01/01/42	12/31/42	0.00	0.00	0.00	0.00	0.00	0.00
01/01/43	12/31/43	0.00	0.00	0.00	0.00	0.00	0.00
01/01/44	12/31/44	0.00	0.00	0.00	0.00	0.00	0.00
01/01/45	12/31/45	0.00	0.00	0.00	0.00	0.00	0.00
01/01/46	12/31/46	0.00	0.00	0.00	0.00	0.00	0.00
01/01/47	12/31/47	0.00	0.00	0.00	0.00	0.00	0.00
01/01/48	12/31/48	0.00	0.00	0.00	0.00	0.00	0.00
01/01/49	12/31/49	0.00	0.00	0.00	0.00	0.00	0.00
01/01/50	12/31/50	0.00	0.00	0.00	0.00	0.00	0.00
01/01/51	12/31/51	0.00	0.00	0.00	0.00	0.00	0.00
01/01/52	12/31/52	0.00	0.00	0.00	0.00	0.00	0.00
01/01/53	12/31/53	0.00	0.00	0.00	0.00	0.00	0.00
01/01/54	12/31/54	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL		948.53	428.87	0.00	0.00	0.00	948.53

Notes:

- (3) = Table A1, (1b) x Percentage of Premium written in corresponding year
- (4) = Table A1, (1b) x Percentage of Unearned Premium in corresponding year
- (5) = (4), incremental
- (6) = 0.8 x (5)
- (7) = 0.2 x (5)
- (8) = (3) - (6)

**VII 00042 STIP**

**TABLE C2\_2: DERIVATION OF DISCOUNTED LOSS & LAE RESERVES**

ACCIDENT YEAR									
2018									
TIME INTERVAL		IRS DISCOUNT FACTOR	UNDISCOUNTED			DISCOUNTED			LOSS & LAE PAID DURING PERIOD
			LOSS & LAE UNPAID BEG OF PERIOD	LOSS & LAE UNPAID END OF PERIOD	CHANGE IN UNDISCOUNTED LOSS & LAE RESERVES	LOSS & LAE UNPAID BEG OF PERIOD	LOSS & LAE UNPAID END OF PERIOD	CHANGE IN DISCOUNTED LOSS & LAE RESERVES	
FROM	TO		(4)	(5)	(6)	(7)	(8)	(9)	(10)
(1)	(2)	(3)							
01/01/17	12/31/17	0.9280	0.00	77.40	77.40	0.00	71.83	71.83	14.09
01/01/18	12/31/18	0.9175	77.40	54.16	(23.25)	71.83	49.69	(22.14)	23.25
01/01/19	12/31/19	0.9102	54.16	35.37	(18.79)	49.69	32.19	(17.50)	18.79
01/01/20	12/31/20	0.9072	35.37	23.97	(11.40)	32.19	21.75	(10.45)	11.40
01/01/21	12/31/21	0.9062	23.97	17.82	(6.15)	21.75	16.15	(5.60)	6.15
01/01/22	12/31/22	0.9036	17.82	14.74	(3.07)	16.15	13.32	(2.82)	3.07
01/01/23	12/31/23	0.9098	14.74	13.14	(1.61)	13.32	11.95	(1.37)	1.61
01/01/24	12/31/24	0.9181	13.14	12.06	(1.08)	11.95	11.07	(0.88)	1.08
01/01/25	12/31/25	0.9230	12.06	11.24	(0.82)	11.07	10.38	(0.70)	0.82
01/01/26	12/31/26	0.9328	11.24	10.66	(0.58)	10.38	9.94	(0.43)	0.58
01/01/27	12/31/27	0.9431	10.66	10.12	(0.54)	9.94	9.55	(0.40)	0.54
01/01/28	12/31/28	0.9540	10.12	9.48	(0.64)	9.55	9.04	(0.50)	0.64
01/01/29	12/31/29	0.9657	9.48	8.92	(0.56)	9.04	8.61	(0.43)	0.56
01/01/30	12/31/30	0.9784	8.92	8.50	(0.42)	8.61	8.32	(0.30)	0.42
01/01/31	12/31/31	0.9923	8.50	8.12	(0.38)	8.32	8.06	(0.26)	0.38
01/01/32	12/31/32	0.9923	8.12	7.69	(0.43)	8.06	7.63	(0.43)	0.43
01/01/33	12/31/33	0.9923	7.69	7.28	(0.42)	7.63	7.22	(0.41)	0.42
01/01/34	12/31/34	0.9923	7.28	6.87	(0.41)	7.22	6.81	(0.41)	0.41
01/01/35	12/31/35	0.9923	6.87	6.53	(0.34)	6.81	6.48	(0.34)	0.34
01/01/36	12/31/36	0.9923	6.53	6.23	(0.30)	6.48	6.18	(0.30)	0.30
01/01/37	12/31/37	0.9923	6.23	5.97	(0.26)	6.18	5.93	(0.25)	0.26
01/01/38	12/31/38	0.9923	5.97	5.61	(0.36)	5.93	5.57	(0.36)	0.36
01/01/39	12/31/39	0.9923	5.61	5.19	(0.42)	5.57	5.15	(0.42)	0.42
01/01/40	12/31/40	0.9923	5.19	4.77	(0.42)	5.15	4.73	(0.42)	0.42
01/01/41	12/31/41	0.9923	4.77	4.35	(0.42)	4.73	4.32	(0.42)	0.42
01/01/42	12/31/42	0.9923	4.35	3.93	(0.42)	4.32	3.90	(0.42)	0.42
01/01/43	12/31/43	0.9923	3.93	3.51	(0.42)	3.90	3.48	(0.42)	0.42
01/01/44	12/31/44	0.9923	3.51	3.09	(0.42)	3.48	3.06	(0.42)	0.42
01/01/45	12/31/45	0.9923	3.09	2.66	(0.42)	3.06	2.64	(0.42)	0.42
01/01/46	12/31/46	0.9923	2.66	2.24	(0.42)	2.64	2.23	(0.42)	0.42
01/01/47	12/31/47	0.9923	2.24	1.82	(0.42)	2.23	1.81	(0.42)	0.42
01/01/48	12/31/48	0.9923	1.82	1.40	(0.42)	1.81	1.39	(0.42)	0.42
01/01/49	12/31/49	0.9923	1.40	0.98	(0.42)	1.39	0.97	(0.42)	0.42
01/01/50	12/31/50	0.9923	0.98	0.56	(0.42)	0.97	0.55	(0.42)	0.42
01/01/51	12/31/51	0.9923	0.56	0.14	(0.42)	0.55	0.14	(0.42)	0.42
01/01/52	12/31/52	0.9923	0.14	0.00	(0.14)	0.14	0.00	(0.14)	0.14
01/01/53	12/31/53	0.9923	0.00	0.00	0.00	0.00	0.00	0.00	0.00
01/01/54	12/31/54	0.9923	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL			396.51	396.51	0.00	372.04	372.04	0.00	91.50

Notes:

- (3): Discount factors specified in IRS Internal Revenue Bulletin 2016-51.
- (4) = (5)<sub>t-1</sub>
- (5) = (10), Total - (10), cumulative
- (6) = (5) - (4)
- (7) = (8)<sub>t-1</sub>
- (8) = (3) x (5)
- (9) = (8) - (7)
- (10) = Table A1, (3) x Table A1, (1a) x Loss & LAE Flow (from Section VII-I, Exhibit 1) for each accident year

**VII 00043 STIP**

**TABLE C2\_3: DERIVATION OF DISCOUNTED LOSS & LAE RESERVES**

ACCIDENT YEAR									
2019									
TIME INTERVAL		IRS DISCOUNT FACTOR	UNDISCOUNTED			DISCOUNTED			LOSS & LAE PAID DURING PERIOD
			LOSS & LAE UNPAID BEG OF PERIOD	LOSS & LAE UNPAID END OF PERIOD	CHANGE IN UNDISCOUNTED LOSS & LAE RESERVES	LOSS & LAE UNPAID BEG OF PERIOD	LOSS & LAE UNPAID END OF PERIOD	CHANGE IN DISCOUNTED LOSS & LAE RESERVES	
FROM	TO		(4)	(5)	(6)	(7)	(8)	(9)	(10)
(1)	(2)	(3)							
01/01/17	12/31/17								
01/01/18	12/31/18		0.00	0.00	0.00	0.00	0.00	0.00	
01/01/19	12/31/19	0.9280	0.00	446.95	446.95	0.00	414.77	414.77	131.50
01/01/20	12/31/20	0.9175	446.95	293.13	(153.82)	414.77	268.95	(145.82)	153.82
01/01/21	12/31/21	0.9102	293.13	191.10	(102.03)	268.95	173.95	(95.00)	102.03
01/01/22	12/31/22	0.9072	191.10	133.11	(57.98)	173.95	120.76	(53.19)	57.98
01/01/23	12/31/23	0.9062	133.11	103.14	(29.98)	120.76	93.46	(27.30)	29.98
01/01/24	12/31/24	0.9036	103.14	88.61	(14.52)	93.46	80.07	(13.39)	14.52
01/01/25	12/31/25	0.9098	88.61	80.48	(8.13)	80.07	73.23	(6.85)	8.13
01/01/26	12/31/26	0.9181	80.48	74.26	(6.22)	73.23	68.18	(5.05)	6.22
01/01/27	12/31/27	0.9230	74.26	69.59	(4.67)	68.18	64.23	(3.95)	4.67
01/01/28	12/31/28	0.9328	69.59	66.36	(3.22)	64.23	61.91	(2.33)	3.22
01/01/29	12/31/29	0.9431	66.36	62.87	(3.49)	61.91	59.30	(2.61)	3.49
01/01/30	12/31/30	0.9540	62.87	58.52	(4.35)	59.30	55.83	(3.47)	4.35
01/01/31	12/31/31	0.9657	58.52	55.39	(3.13)	55.83	53.49	(2.34)	3.13
01/01/32	12/31/32	0.9784	55.39	52.95	(2.43)	53.49	51.81	(1.68)	2.43
01/01/33	12/31/33	0.9923	52.95	50.59	(2.36)	51.81	50.20	(1.61)	2.36
01/01/34	12/31/34	0.9923	50.59	47.71	(2.88)	50.20	47.34	(2.86)	2.88
01/01/35	12/31/35	0.9923	47.71	45.20	(2.51)	47.34	44.85	(2.49)	2.51
01/01/36	12/31/36	0.9923	45.20	42.57	(2.63)	44.85	42.24	(2.61)	2.63
01/01/37	12/31/37	0.9923	42.57	40.67	(1.90)	42.24	40.36	(1.89)	1.90
01/01/38	12/31/38	0.9923	40.67	38.76	(1.91)	40.36	38.46	(1.90)	1.91
01/01/39	12/31/39	0.9923	38.76	37.28	(1.48)	38.46	36.99	(1.47)	1.48
01/01/40	12/31/40	0.9923	37.28	34.63	(2.65)	36.99	34.36	(2.63)	2.65
01/01/41	12/31/41	0.9923	34.63	31.96	(2.66)	34.36	31.72	(2.64)	2.66
01/01/42	12/31/42	0.9923	31.96	29.30	(2.66)	31.72	29.08	(2.64)	2.66
01/01/43	12/31/43	0.9923	29.30	26.64	(2.66)	29.08	26.44	(2.64)	2.66
01/01/44	12/31/44	0.9923	26.64	23.98	(2.66)	26.44	23.79	(2.64)	2.66
01/01/45	12/31/45	0.9923	23.98	21.32	(2.66)	23.79	21.15	(2.64)	2.66
01/01/46	12/31/46	0.9923	21.32	18.66	(2.66)	21.15	18.51	(2.64)	2.66
01/01/47	12/31/47	0.9923	18.66	15.99	(2.66)	18.51	15.87	(2.64)	2.66
01/01/48	12/31/48	0.9923	15.99	13.33	(2.66)	15.87	13.23	(2.64)	2.66
01/01/49	12/31/49	0.9923	13.33	10.67	(2.66)	13.23	10.59	(2.64)	2.66
01/01/50	12/31/50	0.9923	10.67	8.01	(2.66)	10.59	7.95	(2.64)	2.66
01/01/51	12/31/51	0.9923	8.01	5.35	(2.66)	7.95	5.30	(2.64)	2.66
01/01/52	12/31/52	0.9923	5.35	2.68	(2.66)	5.30	2.66	(2.64)	2.66
01/01/53	12/31/53	0.9923	2.68	0.02	(2.66)	2.66	0.02	(2.64)	2.66
01/01/54	12/31/54	0.9923	0.02	0.00	(0.02)	0.02	0.00	(0.02)	0.02
TOTAL			2,321.79	2,321.79	0.00	2,181.05	2,181.05	0.00	578.45

Notes:

(3): Discount factors specified in IRS Internal Revenue Bulletin 2016-51.

(4) = (5)<sub>t-1</sub>

(5) = (10), Total - (10), cumulative

(6) = (5) - (4)

(7) = (8)<sub>t-1</sub>

(8) = (3) x (5)

(9) = (8) - (7)

(10) = Table A1, (3) x Table A1, (1a) x Loss & LAE Flow (from Section VII-I, Exhibit 1) for each accident year

**VII 000044 STIP**

**TABLE C2\_4: DERIVATION OF DISCOUNTED LOSS & LAE RESERVES**

ACCIDENT YEAR									
2020									
TIME INTERVAL		IRS DISCOUNT FACTOR	UNDISCOUNTED			DISCOUNTED			LOSS & LAE PAID DURING PERIOD
			LOSS & LAE UNPAID BEG OF PERIOD	LOSS & LAE UNPAID END OF PERIOD	CHANGE IN UNDISCOUNTED LOSS & LAE RESERVES	LOSS & LAE UNPAID BEG OF PERIOD	LOSS & LAE UNPAID END OF PERIOD	CHANGE IN DISCOUNTED LOSS & LAE RESERVES	
FROM	TO		(4)	(5)	(6)	(7)	(8)	(9)	(10)
(1)	(2)	(3)							
1/1/2017	12/31/2017								
1/1/2018	12/31/2018		0.00	0.00	0.00	0.00	0.00	0.00	
1/1/2019	12/31/2019		0.00	0.00	0.00	0.00	0.00	0.00	
1/1/2020	12/31/2020	0.9280	0.00	65.60	65.60	0.00	60.87	60.87	30.56
1/1/2021	12/31/2021	0.9175	65.60	42.89	(22.70)	60.87	39.36	(21.52)	22.70
1/1/2022	12/31/2022	0.9102	42.89	28.44	(14.46)	39.36	25.89	(13.47)	14.46
1/1/2023	12/31/2023	0.9072	28.44	20.40	(8.04)	25.89	18.51	(7.38)	8.04
1/1/2024	12/31/2024	0.9062	20.40	16.31	(4.10)	18.51	14.78	(3.73)	4.10
1/1/2025	12/31/2025	0.9036	16.31	14.26	(2.04)	14.78	12.89	(1.89)	2.04
1/1/2026	12/31/2026	0.9098	14.26	13.02	(1.24)	12.89	11.85	(1.04)	1.24
1/1/2027	12/31/2027	0.9181	13.02	12.08	(0.95)	11.85	11.09	(0.76)	0.95
1/1/2028	12/31/2028	0.9230	12.08	11.38	(0.69)	11.09	10.51	(0.58)	0.69
1/1/2029	12/31/2029	0.9328	11.38	10.83	(0.55)	10.51	10.11	(0.40)	0.55
1/1/2030	12/31/2030	0.9431	10.83	10.21	(0.63)	10.11	9.62	(0.48)	0.63
1/1/2031	12/31/2031	0.9540	10.21	9.55	(0.66)	9.62	9.11	(0.51)	0.66
1/1/2032	12/31/2032	0.9657	9.55	9.07	(0.48)	9.11	8.76	(0.35)	0.48
1/1/2033	12/31/2033	0.9784	9.07	8.67	(0.40)	8.76	8.48	(0.28)	0.40
1/1/2034	12/31/2034	0.9923	8.67	8.25	(0.42)	8.48	8.18	(0.30)	0.42
1/1/2035	12/31/2035	0.9923	8.25	7.79	(0.46)	8.18	7.73	(0.46)	0.46
1/1/2036	12/31/2036	0.9923	7.79	7.36	(0.42)	7.73	7.31	(0.42)	0.42
1/1/2037	12/31/2037	0.9923	7.36	6.97	(0.40)	7.31	6.91	(0.39)	0.40
1/1/2038	12/31/2038	0.9923	6.97	6.65	(0.32)	6.91	6.60	(0.31)	0.32
1/1/2039	12/31/2039	0.9923	6.65	6.36	(0.29)	6.60	6.31	(0.29)	0.29
1/1/2040	12/31/2040	0.9923	6.36	6.05	(0.31)	6.31	6.00	(0.31)	0.31
1/1/2041	12/31/2041	0.9923	6.05	5.61	(0.44)	6.00	5.56	(0.44)	0.44
1/1/2042	12/31/2042	0.9923	5.61	5.16	(0.44)	5.56	5.12	(0.44)	0.44
1/1/2043	12/31/2043	0.9923	5.16	4.72	(0.44)	5.12	4.68	(0.44)	0.44
1/1/2044	12/31/2044	0.9923	4.72	4.28	(0.44)	4.68	4.24	(0.44)	0.44
1/1/2045	12/31/2045	0.9923	4.28	3.84	(0.44)	4.24	3.81	(0.44)	0.44
1/1/2046	12/31/2046	0.9923	3.84	3.39	(0.44)	3.81	3.37	(0.44)	0.44
1/1/2047	12/31/2047	0.9923	3.39	2.95	(0.44)	3.37	2.93	(0.44)	0.44
1/1/2048	12/31/2048	0.9923	2.95	2.51	(0.44)	2.93	2.49	(0.44)	0.44
1/1/2049	12/31/2049	0.9923	2.51	2.07	(0.44)	2.49	2.05	(0.44)	0.44
1/1/2050	12/31/2050	0.9923	2.07	1.62	(0.44)	2.05	1.61	(0.44)	0.44
1/1/2051	12/31/2051	0.9923	1.62	1.18	(0.44)	1.61	1.17	(0.44)	0.44
1/1/2052	12/31/2052	0.9923	1.18	0.74	(0.44)	1.17	0.73	(0.44)	0.44
1/1/2053	12/31/2053	0.9923	0.74	0.30	(0.44)	0.73	0.29	(0.44)	0.44
1/1/2054	12/31/2054	0.9923	0.30	0.00	(0.30)	0.29	0.00	(0.29)	0.30
TOTAL			360.49	360.49	0.00	338.92	338.92	0.00	96.16

Notes:

(3): Discount factors specified in IRS Internal Revenue Bulletin 2016-51.

(4) = (5)<sub>t-1</sub>

(5) = (10), Total - (10), cumulative

(6) = (5) - (4)

(7) = (8)<sub>t-1</sub>

(8) = (3) x (5)

(9) = (8) - (7)

(10) = Table A1, (3) x Table A1, (1a) x Loss & LAE Flow (from Section VII-I, Exhibit 1) for each accident year



**TABLE C2\_5: FEDERAL INCOME TAXES - UNDERWRITING (UW) TAX DEDUCTIONS**

TIME INTERVAL		LOSS & LAE PAID DURING PERIOD	CHANGE IN DISCOUNTED LOSS & LAE RESERVES	TAX DEDUCTIBLE LOSS & LAE	TAX DEDUCTIBLE UW EXPENSES	TOTAL UW TAX DEDUCTIONS
FROM (1)	TO (2)	(3)	(4)	(5)	(6)	(7)
01/01/17	12/31/17	0.00	0.00	0.00	0.00	0.00
01/01/18	12/31/18	14.09	71.83	85.92	55.51	141.43
01/01/19	12/31/19	154.74	392.63	547.37	126.40	673.77
01/01/20	12/31/20	203.17	(102.44)	100.73	13.08	113.81
01/01/21	12/31/21	136.13	(126.97)	9.16	0.99	10.15
01/01/22	12/31/22	78.59	(72.26)	6.34	0.00	6.34
01/01/23	12/31/23	41.09	(37.50)	3.59	0.00	3.59
01/01/24	12/31/24	20.23	(18.49)	1.74	0.00	1.74
01/01/25	12/31/25	11.25	(9.62)	1.63	0.00	1.63
01/01/26	12/31/26	8.28	(6.78)	1.50	0.00	1.50
01/01/27	12/31/27	6.20	(5.14)	1.06	0.00	1.06
01/01/28	12/31/28	4.46	(3.31)	1.15	0.00	1.15
01/01/29	12/31/29	4.69	(3.52)	1.17	0.00	1.17
01/01/30	12/31/30	5.54	(4.37)	1.16	0.00	1.16
01/01/31	12/31/31	4.21	(3.15)	1.06	0.00	1.06
01/01/32	12/31/32	3.29	(2.29)	1.00	0.00	1.00
01/01/33	12/31/33	3.19	(2.31)	0.88	0.00	0.88
01/01/34	12/31/34	3.72	(3.57)	0.15	0.00	0.15
01/01/35	12/31/35	3.38	(3.35)	0.03	0.00	0.03
01/01/36	12/31/36	3.39	(3.36)	0.03	0.00	0.03
01/01/37	12/31/37	2.60	(2.58)	0.02	0.00	0.02
01/01/38	12/31/38	2.48	(2.46)	0.02	0.00	0.02
01/01/39	12/31/39	2.13	(2.12)	0.02	0.00	0.02
01/01/40	12/31/40	3.38	(3.36)	0.03	0.00	0.03
01/01/41	12/31/41	3.53	(3.50)	0.03	0.00	0.03
01/01/42	12/31/42	3.53	(3.50)	0.03	0.00	0.03
01/01/43	12/31/43	3.53	(3.50)	0.03	0.00	0.03
01/01/44	12/31/44	3.53	(3.50)	0.03	0.00	0.03
01/01/45	12/31/45	3.53	(3.50)	0.03	0.00	0.03
01/01/46	12/31/46	3.53	(3.50)	0.03	0.00	0.03
01/01/47	12/31/47	3.53	(3.50)	0.03	0.00	0.03
01/01/48	12/31/48	3.53	(3.50)	0.03	0.00	0.03
01/01/49	12/31/49	3.53	(3.50)	0.03	0.00	0.03
01/01/50	12/31/50	3.53	(3.50)	0.03	0.00	0.03
01/01/51	12/31/51	3.53	(3.50)	0.03	0.00	0.03
01/01/52	12/31/52	3.53	(3.50)	0.03	0.00	0.03
01/01/53	12/31/53	3.24	(3.22)	0.02	0.00	0.02
01/01/54	12/31/54	0.32	(0.32)	0.00	0.00	0.00
TOTAL		766.10	(0.00)	766.10	195.98	962.07

Notes:

(3) = Table C2\_2, (10) + Table C2\_3, (10) + Table C2\_4, (10)

(4) = Table C2\_2, (9) + Table C2\_3, (9) + Table C2\_4, (9)

(5) = (3) + (4)

(6) = Table C1, (11) by tax year

(7) = (5) + (6)

**TABLE C2\_6: FEDERAL INCOME TAX EXPENSE ON UNDERWRITING**

TIME INTERVAL		TAXABLE PREMIUM REVENUE	TOTAL UW TAX DEDUCTIONS	TAX BASIS NET UW GAIN	FEDERAL INCOME TAX EXPENSE ON UW
FROM (1)	TO (2)	(3)	(4)	(5)	(6)
01/01/17	12/31/17	0.00	0.00	0.00	0.00
01/01/18	12/31/18	175.39	141.43	33.96	7.13
01/01/19	12/31/19	678.04	673.77	4.27	0.90
01/01/20	12/31/20	95.10	113.81	(18.71)	(3.93)
01/01/21	12/31/21	0.00	10.15	(10.15)	(2.13)
01/01/22	12/31/22	0.00	6.34	(6.34)	(1.33)
01/01/23	12/31/23	0.00	3.59	(3.59)	(0.75)
01/01/24	12/31/24	0.00	1.74	(1.74)	(0.36)
01/01/25	12/31/25	0.00	1.63	(1.63)	(0.34)
01/01/26	12/31/26	0.00	1.50	(1.50)	(0.31)
01/01/27	12/31/27	0.00	1.06	(1.06)	(0.22)
01/01/28	12/31/28	0.00	1.15	(1.15)	(0.24)
01/01/29	12/31/29	0.00	1.17	(1.17)	(0.25)
01/01/30	12/31/30	0.00	1.16	(1.16)	(0.24)
01/01/31	12/31/31	0.00	1.06	(1.06)	(0.22)
01/01/32	12/31/32	0.00	1.00	(1.00)	(0.21)
01/01/33	12/31/33	0.00	0.88	(0.88)	(0.18)
01/01/34	12/31/34	0.00	0.15	(0.15)	(0.03)
01/01/35	12/31/35	0.00	0.03	(0.03)	(0.01)
01/01/36	12/31/36	0.00	0.03	(0.03)	(0.01)
01/01/37	12/31/37	0.00	0.02	(0.02)	(0.00)
01/01/38	12/31/38	0.00	0.02	(0.02)	(0.00)
01/01/39	12/31/39	0.00	0.02	(0.02)	(0.00)
01/01/40	12/31/40	0.00	0.03	(0.03)	(0.01)
01/01/41	12/31/41	0.00	0.03	(0.03)	(0.01)
01/01/42	12/31/42	0.00	0.03	(0.03)	(0.01)
01/01/43	12/31/43	0.00	0.03	(0.03)	(0.01)
01/01/44	12/31/44	0.00	0.03	(0.03)	(0.01)
01/01/45	12/31/45	0.00	0.03	(0.03)	(0.01)
01/01/46	12/31/46	0.00	0.03	(0.03)	(0.01)
01/01/47	12/31/47	0.00	0.03	(0.03)	(0.01)
01/01/48	12/31/48	0.00	0.03	(0.03)	(0.01)
01/01/49	12/31/49	0.00	0.03	(0.03)	(0.01)
01/01/50	12/31/50	0.00	0.03	(0.03)	(0.01)
01/01/51	12/31/51	0.00	0.03	(0.03)	(0.01)
01/01/52	12/31/52	0.00	0.03	(0.03)	(0.01)
01/01/53	12/31/53	0.00	0.02	(0.02)	(0.01)
01/01/54	12/31/54	0.00	0.00	(0.00)	(0.00)
TOTAL		948.53	962.07	(13.54)	(2.84)

Notes:

(3) = Table C2\_1, (8)

(4) = Table C2\_5, (7)

(5) = (3) - (4)

(6) = 0.21 x (5), where 0.21 is the Federal income tax rate.

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TABLE C2\_7: ADMITTED PREPAID TAX (DEFERRED TAX ASSET - DTA)

TIME INTERVAL		AY 2018		AY 2019		AY 2020		DISCOUNT UNWOUND DURING PERIOD (9)	DTA ASSOCIATED WITH LOSS & LAE RESERVE (10)	UNEARNED PREMIUM RESERVE (11)	DTA ASSOCIATED WITH UNEARNED PREMIUM RESERVE (12)	ADMITTED PREPAID TAX (DTA) (13)
		CHANGE IN DISCOUNTED LOSS & LAE (3)	LOSS & LAE PAID DURING PERIOD (4)	CHANGE IN DISCOUNTED LOSS & LAE (5)	LOSS & LAE PAID DURING PERIOD (6)	CHANGE IN DISCOUNTED LOSS & LAE (7)	LOSS & LAE PAID DURING PERIOD (8)					
FROM (1)	TO (2)											
01/01/17	12/31/17							0.00	0.00			0.00
01/01/18	12/31/18							0.00	0.23	310.00	13.02	13.25
01/01/19	12/31/19	(22.14)	23.25					1.11	1.95	118.87	4.99	6.94
01/01/20	12/31/20	(17.50)	18.79	(145.82)	153.82			9.29	1.92	0.00	0.00	1.92
01/01/21	12/31/21	(10.45)	11.40	(95.00)	102.03	(21.52)	22.70	9.16	1.33	0.00	0.00	1.33
01/01/22	12/31/22	(5.60)	6.15	(53.19)	57.98	(13.47)	14.46	6.34	0.75	0.00	0.00	0.75
01/01/23	12/31/23	(2.82)	3.07	(27.30)	29.98	(7.38)	8.04	3.59	0.36	0.00	0.00	0.36
01/01/24	12/31/24	(1.37)	1.61	(13.39)	14.52	(3.73)	4.10	1.74	0.34	0.00	0.00	0.34
01/01/25	12/31/25	(0.88)	1.08	(6.85)	8.13	(1.89)	2.04	1.63	0.31	0.00	0.00	0.31
01/01/26	12/31/26	(0.70)	0.82	(5.05)	6.22	(1.04)	1.24	1.50	0.22	0.00	0.00	0.22
01/01/27	12/31/27	(0.43)	0.58	(3.95)	4.67	(0.76)	0.95	1.06	0.24	0.00	0.00	0.24
01/01/28	12/31/28	(0.40)	0.54	(2.33)	3.22	(0.58)	0.69	1.15	0.25	0.00	0.00	0.25
01/01/29	12/31/29	(0.50)	0.64	(2.61)	3.49	(0.40)	0.55	1.17	0.24	0.00	0.00	0.24
01/01/30	12/31/30	(0.43)	0.56	(3.47)	4.35	(0.48)	0.63	1.16	0.22	0.00	0.00	0.22
01/01/31	12/31/31	(0.30)	0.42	(2.34)	3.13	(0.51)	0.66	1.06	0.21	0.00	0.00	0.21
01/01/32	12/31/32	(0.26)	0.38	(1.68)	2.43	(0.35)	0.48	1.00	0.18	0.00	0.00	0.18
01/01/33	12/31/33	(0.43)	0.43	(1.61)	2.36	(0.28)	0.40	0.88	0.03	0.00	0.00	0.03
01/01/34	12/31/34	(0.41)	0.42	(2.86)	2.88	(0.30)	0.42	0.15	0.01	0.00	0.00	0.01
01/01/35	12/31/35	(0.41)	0.41	(2.49)	2.51	(0.46)	0.46	0.03	0.01	0.00	0.00	0.01
01/01/36	12/31/36	(0.34)	0.34	(2.61)	2.63	(0.42)	0.42	0.03	0.00	0.00	0.00	0.00
01/01/37	12/31/37	(0.30)	0.30	(1.89)	1.90	(0.39)	0.40	0.02	0.00	0.00	0.00	0.00
01/01/38	12/31/38	(0.25)	0.26	(1.90)	1.91	(0.31)	0.32	0.02	0.00	0.00	0.00	0.00
01/01/39	12/31/39	(0.36)	0.36	(1.47)	1.48	(0.29)	0.29	0.02	0.01	0.00	0.00	0.01
01/01/40	12/31/40	(0.42)	0.42	(2.63)	2.65	(0.31)	0.31	0.03	0.01	0.00	0.00	0.01
01/01/41	12/31/41	(0.42)	0.42	(2.64)	2.66	(0.44)	0.44	0.03	0.01	0.00	0.00	0.01
01/01/42	12/31/42	(0.42)	0.42	(2.64)	2.66	(0.44)	0.44	0.03	0.01	0.00	0.00	0.01
01/01/43	12/31/43	(0.42)	0.42	(2.64)	2.66	(0.44)	0.44	0.03	0.01	0.00	0.00	0.01
01/01/44	12/31/44	(0.42)	0.42	(2.64)	2.66	(0.44)	0.44	0.03	0.01	0.00	0.00	0.01
01/01/45	12/31/45	(0.42)	0.42	(2.64)	2.66	(0.44)	0.44	0.03	0.01	0.00	0.00	0.01
01/01/46	12/31/46	(0.42)	0.42	(2.64)	2.66	(0.44)	0.44	0.03	0.01	0.00	0.00	0.01
01/01/47	12/31/47	(0.42)	0.42	(2.64)	2.66	(0.44)	0.44	0.03	0.01	0.00	0.00	0.01
01/01/48	12/31/48	(0.42)	0.42	(2.64)	2.66	(0.44)	0.44	0.03	0.01	0.00	0.00	0.01
01/01/49	12/31/49	(0.42)	0.42	(2.64)	2.66	(0.44)	0.44	0.03	0.01	0.00	0.00	0.01
01/01/50	12/31/50	(0.42)	0.42	(2.64)	2.66	(0.44)	0.44	0.03	0.01	0.00	0.00	0.01
01/01/51	12/31/51	(0.42)	0.42	(2.64)	2.66	(0.44)	0.44	0.03	0.01	0.00	0.00	0.01
01/01/52	12/31/52	(0.42)	0.42	(2.64)	2.66	(0.44)	0.44	0.03	0.01	0.00	0.00	0.01
01/01/53	12/31/53	(0.14)	0.14	(2.64)	2.66	(0.44)	0.44	0.02	0.00	0.00	0.00	0.00
01/01/54	12/31/54	0.00	0.00	(0.02)	0.02	(0.29)	0.30	0.00	0.00	0.00	0.00	0.00

- Notes:
- (3) = Table C2\_2, (9), the initial value is not relevant in calculating the discount unwound during period.
  - (4) = Table C2\_2, (10)
  - (5) = Table C2\_3, (9), the initial value is not relevant in calculating the discount unwound during period.
  - (6) = Table C2\_3, (10)
  - (7) = Table C2\_4, (9), the initial value is not relevant in calculating the discount unwound during period.
  - (8) = Table C2\_4, (10)
  - (9) = (3) + (4) + (5) + (6) + (7) + (8)
  - (10) =  $0.21 \times (9)_{t-1}$ , where 0.21 is the Federal income tax rate.
  - (11) = Table C2\_1, (4)
  - (12) =  $0.2 \times 0.21 \times (11)$ , 0.21 is the Federal income tax rate and 20% of unearned premiums is taxable.
  - (13) = (10) + (12)



**VII 00049 STIP**

**TABLE C3: POLICYHOLDER SUPPLIED INVESTABLE FUNDS**

TIME INTERVAL		UNEARNED PREMIUM RESERVES (3)	LOSS & LAE RESERVES (4)	ADMITTED PREMIUM RECEIVABLES (5)	ADMITTED PREPAID TAX (DTA) (6)	INVESTABLE RESERVES (7)	CUMULATIVE POST TAX CASH FLOW FROM UW (8)	POST TAX CASH FROM UW AVAILABLE TO INVESTORS (9)	POLICYHOLDER SUPPLIED INVESTABLE FUNDS (10)	RESERVES FUNDED BY INVESTORS (11)
FROM (1)	TO (2)									
01/01/38	03/31/38	0.00	53.23	0.00	0.00	53.23	42.45	0.00	42.45	10.78
04/01/38	06/30/38	0.00	52.60	0.00	0.00	52.60	41.82	0.00	41.82	10.78
07/01/38	09/30/38	0.00	51.99	0.00	0.00	51.99	41.21	0.00	41.21	10.78
10/01/38	12/31/38	0.00	51.40	0.00	0.00	51.40	40.62	0.00	40.62	10.78
01/01/39	03/31/39	0.00	50.86	0.00	0.00	50.86	40.08	0.00	40.08	10.78
04/01/39	06/30/39	0.00	50.35	0.00	0.00	50.35	39.57	0.00	39.57	10.78
07/01/39	09/30/39	0.00	49.82	0.00	0.00	49.81	39.04	0.00	39.04	10.77
10/01/39	12/31/39	0.00	49.19	0.00	0.01	49.18	38.41	0.00	38.41	10.77
01/01/40	03/31/40	0.00	48.46	0.00	0.01	48.45	37.68	0.00	37.68	10.77
04/01/40	06/30/40	0.00	47.63	0.00	0.01	47.62	36.85	0.00	36.85	10.77
07/01/40	09/30/40	0.00	46.75	0.00	0.01	46.74	35.97	0.00	35.97	10.77
10/01/40	12/31/40	0.00	45.86	0.00	0.01	45.86	35.09	0.00	35.09	10.77
01/01/41	03/31/41	0.00	44.98	0.00	0.01	44.98	34.21	0.00	34.21	10.77
04/01/41	06/30/41	0.00	44.10	0.00	0.01	44.10	33.33	0.00	33.33	10.76
07/01/41	09/30/41	0.00	43.22	0.00	0.01	43.22	32.45	0.00	32.45	10.76
10/01/41	12/31/41	0.00	42.34	0.00	0.01	42.33	31.57	0.00	31.57	10.76
01/01/42	03/31/42	0.00	41.46	0.00	0.01	41.45	30.69	0.00	30.69	10.76
04/01/42	06/30/42	0.00	40.58	0.00	0.01	40.57	29.81	0.00	29.81	10.76
07/01/42	09/30/42	0.00	39.70	0.00	0.01	39.69	28.93	0.00	28.93	10.76
10/01/42	12/31/42	0.00	38.81	0.00	0.01	38.81	28.05	0.00	28.05	10.76
01/01/43	03/31/43	0.00	37.93	0.00	0.01	37.93	27.17	0.00	27.17	10.75
04/01/43	06/30/43	0.00	37.05	0.00	0.01	37.05	26.29	0.00	26.29	10.75
07/01/43	09/30/43	0.00	36.17	0.00	0.01	36.17	25.41	0.00	25.41	10.75
10/01/43	12/31/43	0.00	35.29	0.00	0.01	35.28	24.53	0.00	24.53	10.75
01/01/44	03/31/44	0.00	34.41	0.00	0.01	34.40	23.65	0.00	23.65	10.75
04/01/44	06/30/44	0.00	33.53	0.00	0.01	33.52	22.78	0.00	22.78	10.75
07/01/44	09/30/44	0.00	32.65	0.00	0.01	32.64	21.90	0.00	21.90	10.75
10/01/44	12/31/44	0.00	31.76	0.00	0.01	31.76	21.01	0.00	21.01	10.74
01/01/45	03/31/45	0.00	30.88	0.00	0.01	30.87	20.13	0.00	20.13	10.74
04/01/45	06/30/45	0.00	30.00	0.00	0.01	30.00	19.26	0.00	19.26	10.74
07/01/45	09/30/45	0.00	29.12	0.00	0.01	29.12	18.38	0.00	18.38	10.74
10/01/45	12/31/45	0.00	28.24	0.00	0.01	28.23	17.49	0.00	17.49	10.74
01/01/46	03/31/46	0.00	27.35	0.00	0.01	27.35	16.61	0.00	16.61	10.74
04/01/46	06/30/46	0.00	26.48	0.00	0.01	26.47	15.74	0.00	15.74	10.74
07/01/46	09/30/46	0.00	25.60	0.00	0.01	25.59	14.86	0.00	14.86	10.74
10/01/46	12/31/46	0.00	24.71	0.00	0.01	24.70	13.97	0.00	13.97	10.73
01/01/47	03/31/47	0.00	23.83	0.00	0.01	23.82	13.09	0.00	13.09	10.73
04/01/47	06/30/47	0.00	22.95	0.00	0.01	22.95	12.22	0.00	12.22	10.73
07/01/47	09/30/47	0.00	22.07	0.00	0.01	22.07	11.34	0.00	11.34	10.73
10/01/47	12/31/47	0.00	21.19	0.00	0.01	21.18	10.45	0.00	10.45	10.73
01/01/48	03/31/48	0.00	20.30	0.00	0.01	20.30	9.57	0.00	9.57	10.73
04/01/48	06/30/48	0.00	19.43	0.00	0.01	19.42	8.70	0.00	8.70	10.73
07/01/48	09/30/48	0.00	18.55	0.00	0.01	18.54	7.82	0.00	7.82	10.72
10/01/48	12/31/48	0.00	17.66	0.00	0.01	17.65	6.93	0.00	6.93	10.72
01/01/49	03/31/49	0.00	16.78	0.00	0.01	16.77	6.05	0.00	6.05	10.72
04/01/49	06/30/49	0.00	15.90	0.00	0.01	15.90	5.18	0.00	5.18	10.72
07/01/49	09/30/49	0.00	15.02	0.00	0.01	15.01	4.30	0.00	4.30	10.72
10/01/49	12/31/49	0.00	14.13	0.00	0.01	14.13	3.41	0.00	3.41	10.72
01/01/50	03/31/50	0.00	13.25	0.00	0.01	13.25	2.53	0.00	2.53	10.72
04/01/50	06/30/50	0.00	12.38	0.00	0.01	12.37	1.66	0.00	1.66	10.71
07/01/50	09/30/50	0.00	11.50	0.00	0.01	11.49	0.78	0.00	0.78	10.71
10/01/50	12/31/50	0.00	10.61	0.00	0.01	10.60	(0.11)	(0.11)	0.00	10.60
01/01/51	03/31/51	0.00	9.73	0.00	0.01	9.72	(0.99)	(0.88)	0.00	9.72
04/01/51	06/30/51	0.00	8.85	0.00	0.01	8.85	(1.86)	(0.88)	0.00	8.85
07/01/51	09/30/51	0.00	7.97	0.00	0.01	7.96	(2.74)	(0.88)	0.00	7.96
10/01/51	12/31/51	0.00	7.08	0.00	0.01	7.08	(3.63)	(0.88)	0.00	7.08
01/01/52	03/31/52	0.00	6.20	0.00	0.01	6.20	(4.51)	(0.88)	0.00	6.20
04/01/52	06/30/52	0.00	5.33	0.00	0.01	5.32	(5.38)	(0.88)	0.00	5.32
07/01/52	09/30/52	0.00	4.44	0.00	0.01	4.44	(6.26)	(0.88)	0.00	4.44
10/01/52	12/31/52	0.00	3.56	0.00	0.01	3.55	(7.15)	(0.88)	0.00	3.55
01/01/53	03/31/53	0.00	2.68	0.00	0.00	2.67	(8.03)	(0.88)	0.00	2.67
04/01/53	06/30/53	0.00	1.80	0.00	0.00	1.80	(8.90)	(0.88)	0.00	1.80
07/01/53	09/30/53	0.00	1.03	0.00	0.00	1.03	(9.67)	(0.77)	0.00	1.03
10/01/53	12/31/53	0.00	0.45	0.00	0.00	0.45	(10.25)	(0.58)	0.00	0.45
01/01/54	03/31/54	0.00	0.11	0.00	0.00	0.11	(10.59)	(0.33)	0.00	0.11
04/01/54	06/30/54	0.00	0.00	0.00	0.00	(0.00)	(10.70)	(0.11)	(0.00)	0.00
TOTAL		1,860.83	12,274.42	1,629.00	97.79	12,408.46	10,580.44	(10.70)	10,671.20	1,737.26

Notes:  
 (3) = Table A1, (1b) x [ Table C5\_2, (6) - Table C5\_2, (7) ]  
 (4) = Table A1, (1a) x Table A1, (3) x [ Table C5\_2, (8) - Table C5\_1, (13) ]  
 (5) = Table C4, (7)  
 (6) = Table C2\_7, (13), DTA allocated to the model time periods.  
 (7) = (3) + (4) - (5) - (6)  
 (8) = Table C1, (14), cumulative  
 (9) = [ (8) - (10) ] - (9)<sub>t-1</sub>, cumulative  
 (10) = min [ max ( 0, (8) ), (7) ]  
 (11) = (7) - (10)

**TABLE C4: ADMITTED PREMIUM RECEIVABLES**

TIME INTERVAL		CUMULATIVE		COLLECTED PREMIUM MINUS PRIOR PERIOD EARNED PREMIUM	NONADMITTED PREMIUM RECEIVABLES	ADMITTED PREMIUM RECEIVABLES
		EARNED PREMIUM NET	COLLECTED PREMIUM NET			
FROM (1)	TO (2)	(3)	(4)	(5)	(6)	(7)
07/01/17	09/30/17	0.00	0.00	0.00	0.00	0.00
10/01/17	12/31/17	0.00	0.00	0.00	0.00	0.00
01/01/18	03/31/18	0.00	0.00	0.00	0.00	0.00
04/01/18	06/30/18	0.00	5.30	5.30	0.00	(5.30)
07/01/18	09/30/18	30.41	58.16	58.16	0.00	167.11
10/01/18	12/31/18	111.66	172.81	142.39	0.00	250.58
01/01/19	03/31/19	258.95	351.51	239.86	0.00	348.60
04/01/19	06/30/19	464.18	551.37	292.42	0.00	397.16
07/01/19	09/30/19	670.90	718.62	254.44	0.00	229.91
10/01/19	12/31/19	828.06	819.07	148.18	0.00	129.46
01/01/20	03/31/20	917.90	872.81	44.75	0.00	75.72
04/01/20	06/30/20	948.53	901.42	(16.48)	15.04	32.07
07/01/20	09/30/20	948.53	922.58	(25.95)	23.69	2.26
10/01/20	12/31/20	948.53	937.14	(11.39)	10.39	0.99
01/01/21	03/31/21	948.53	944.38	(4.15)	3.79	0.36
04/01/21	06/30/21	948.53	947.58	(0.95)	0.87	0.08
07/01/21	09/30/21	948.53	948.53	0.00	0.00	0.00
10/01/21	12/31/21	948.53	948.53	0.00	0.00	0.00
01/01/22	03/31/22	948.53	948.53	0.00	0.00	0.00
04/01/22	06/30/22	948.53	948.53	0.00	0.00	0.00
07/01/22	09/30/22	948.53	948.53	0.00	0.00	0.00
10/01/22	12/31/22	948.53	948.53	0.00	0.00	0.00
01/01/23	03/31/23	948.53	948.53	0.00	0.00	0.00
04/01/23	06/30/23	948.53	948.53	0.00	0.00	0.00
07/01/23	09/30/23	948.53	948.53	0.00	0.00	0.00
10/01/23	12/31/23	948.53	948.53	0.00	0.00	0.00
01/01/24	03/31/24	948.53	948.53	0.00	0.00	0.00
04/01/24	06/30/24	948.53	948.53	0.00	0.00	0.00
07/01/24	09/30/24	948.53	948.53	0.00	0.00	0.00
10/01/24	12/31/24	948.53	948.53	0.00	0.00	0.00
01/01/25	03/31/25	948.53	948.53	0.00	0.00	0.00
04/01/25	06/30/25	948.53	948.53	0.00	0.00	0.00
07/01/25	09/30/25	948.53	948.53	0.00	0.00	0.00
10/01/25	12/31/25	948.53	948.53	0.00	0.00	0.00
01/01/26	03/31/26	948.53	948.53	0.00	0.00	0.00
04/01/26	06/30/26	948.53	948.53	0.00	0.00	0.00
07/01/26	09/30/26	948.53	948.53	0.00	0.00	0.00
10/01/26	12/31/26	948.53	948.53	0.00	0.00	0.00
01/01/27	03/31/27	948.53	948.53	0.00	0.00	0.00
04/01/27	06/30/27	948.53	948.53	0.00	0.00	0.00
07/01/27	09/30/27	948.53	948.53	0.00	0.00	0.00
10/01/27	12/31/27	948.53	948.53	0.00	0.00	0.00
01/01/28	03/31/28	948.53	948.53	0.00	0.00	0.00
04/01/28	06/30/28	948.53	948.53	0.00	0.00	0.00
07/01/28	09/30/28	948.53	948.53	0.00	0.00	0.00
10/01/28	12/31/28	948.53	948.53	0.00	0.00	0.00
01/01/29	03/31/29	948.53	948.53	0.00	0.00	0.00
04/01/29	06/30/29	948.53	948.53	0.00	0.00	0.00
07/01/29	09/30/29	948.53	948.53	0.00	0.00	0.00
10/01/29	12/31/29	948.53	948.53	0.00	0.00	0.00
01/01/30	03/31/30	948.53	948.53	0.00	0.00	0.00
04/01/30	06/30/30	948.53	948.53	0.00	0.00	0.00
07/01/30	09/30/30	948.53	948.53	0.00	0.00	0.00
10/01/30	12/31/30	948.53	948.53	0.00	0.00	0.00
01/01/31	03/31/31	948.53	948.53	0.00	0.00	0.00
04/01/31	06/30/31	948.53	948.53	0.00	0.00	0.00
07/01/31	09/30/31	948.53	948.53	0.00	0.00	0.00
10/01/31	12/31/31	948.53	948.53	0.00	0.00	0.00
01/01/32	03/31/32	948.53	948.53	0.00	0.00	0.00
04/01/32	06/30/32	948.53	948.53	0.00	0.00	0.00
07/01/32	09/30/32	948.53	948.53	0.00	0.00	0.00
10/01/32	12/31/32	948.53	948.53	0.00	0.00	0.00
01/01/33	03/31/33	948.53	948.53	0.00	0.00	0.00
04/01/33	06/30/33	948.53	948.53	0.00	0.00	0.00
07/01/33	09/30/33	948.53	948.53	0.00	0.00	0.00
10/01/33	12/31/33	948.53	948.53	0.00	0.00	0.00
01/01/34	03/31/34	948.53	948.53	0.00	0.00	0.00
04/01/34	06/30/34	948.53	948.53	0.00	0.00	0.00
07/01/34	09/30/34	948.53	948.53	0.00	0.00	0.00
10/01/34	12/31/34	948.53	948.53	0.00	0.00	0.00
01/01/35	03/31/35	948.53	948.53	0.00	0.00	0.00
04/01/35	06/30/35	948.53	948.53	0.00	0.00	0.00
07/01/35	09/30/35	948.53	948.53	0.00	0.00	0.00
10/01/35	12/31/35	948.53	948.53	0.00	0.00	0.00
01/01/36	03/31/36	948.53	948.53	0.00	0.00	0.00
04/01/36	06/30/36	948.53	948.53	0.00	0.00	0.00
07/01/36	09/30/36	948.53	948.53	0.00	0.00	0.00
10/01/36	12/31/36	948.53	948.53	0.00	0.00	0.00
01/01/37	03/31/37	948.53	948.53	0.00	0.00	0.00
04/01/37	06/30/37	948.53	948.53	0.00	0.00	0.00
07/01/37	09/30/37	948.53	948.53	0.00	0.00	0.00
10/01/37	12/31/37	948.53	948.53	0.00	0.00	0.00

**TABLE C4: ADMITTED PREMIUM RECEIVABLES**

TIME INTERVAL		CUMULATIVE		COLLECTED PREMIUM MINUS PRIOR PERIOD EARNED PREMIUM (5)	NONADMITTED PREMIUM RECEIVABLES (6)	ADMITTED PREMIUM RECEIVABLES (7)
		EARNED PREMIUM NET (3)	COLLECTED PREMIUM NET (4)			
FROM (1)	TO (2)					
01/01/38	03/31/38	948.53	948.53	0.00	0.00	0.00
04/01/38	06/30/38	948.53	948.53	0.00	0.00	0.00
07/01/38	09/30/38	948.53	948.53	0.00	0.00	0.00
10/01/38	12/31/38	948.53	948.53	0.00	0.00	0.00
01/01/39	03/31/39	948.53	948.53	0.00	0.00	0.00
04/01/39	06/30/39	948.53	948.53	0.00	0.00	0.00
07/01/39	09/30/39	948.53	948.53	0.00	0.00	0.00
10/01/39	12/31/39	948.53	948.53	0.00	0.00	0.00
01/01/40	03/31/40	948.53	948.53	0.00	0.00	0.00
04/01/40	06/30/40	948.53	948.53	0.00	0.00	0.00
07/01/40	09/30/40	948.53	948.53	0.00	0.00	0.00
10/01/40	12/31/40	948.53	948.53	0.00	0.00	0.00
01/01/41	03/31/41	948.53	948.53	0.00	0.00	0.00
04/01/41	06/30/41	948.53	948.53	0.00	0.00	0.00
07/01/41	09/30/41	948.53	948.53	0.00	0.00	0.00
10/01/41	12/31/41	948.53	948.53	0.00	0.00	0.00
01/01/42	03/31/42	948.53	948.53	0.00	0.00	0.00
04/01/42	06/30/42	948.53	948.53	0.00	0.00	0.00
07/01/42	09/30/42	948.53	948.53	0.00	0.00	0.00
10/01/42	12/31/42	948.53	948.53	0.00	0.00	0.00
01/01/43	03/31/43	948.53	948.53	0.00	0.00	0.00
04/01/43	06/30/43	948.53	948.53	0.00	0.00	0.00
07/01/43	09/30/43	948.53	948.53	0.00	0.00	0.00
10/01/43	12/31/43	948.53	948.53	0.00	0.00	0.00
01/01/44	03/31/44	948.53	948.53	0.00	0.00	0.00
04/01/44	06/30/44	948.53	948.53	0.00	0.00	0.00
07/01/44	09/30/44	948.53	948.53	0.00	0.00	0.00
10/01/44	12/31/44	948.53	948.53	0.00	0.00	0.00
01/01/45	03/31/45	948.53	948.53	0.00	0.00	0.00
04/01/45	06/30/45	948.53	948.53	0.00	0.00	0.00
07/01/45	09/30/45	948.53	948.53	0.00	0.00	0.00
10/01/45	12/31/45	948.53	948.53	0.00	0.00	0.00
01/01/46	03/31/46	948.53	948.53	0.00	0.00	0.00
04/01/46	06/30/46	948.53	948.53	0.00	0.00	0.00
07/01/46	09/30/46	948.53	948.53	0.00	0.00	0.00
10/01/46	12/31/46	948.53	948.53	0.00	0.00	0.00
01/01/47	03/31/47	948.53	948.53	0.00	0.00	0.00
04/01/47	06/30/47	948.53	948.53	0.00	0.00	0.00
07/01/47	09/30/47	948.53	948.53	0.00	0.00	0.00
10/01/47	12/31/47	948.53	948.53	0.00	0.00	0.00
01/01/48	03/31/48	948.53	948.53	0.00	0.00	0.00
04/01/48	06/30/48	948.53	948.53	0.00	0.00	0.00
07/01/48	09/30/48	948.53	948.53	0.00	0.00	0.00
10/01/48	12/31/48	948.53	948.53	0.00	0.00	0.00
01/01/49	03/31/49	948.53	948.53	0.00	0.00	0.00
04/01/49	06/30/49	948.53	948.53	0.00	0.00	0.00
07/01/49	09/30/49	948.53	948.53	0.00	0.00	0.00
10/01/49	12/31/49	948.53	948.53	0.00	0.00	0.00
01/01/50	03/31/50	948.53	948.53	0.00	0.00	0.00
04/01/50	06/30/50	948.53	948.53	0.00	0.00	0.00
07/01/50	09/30/50	948.53	948.53	0.00	0.00	0.00
10/01/50	12/31/50	948.53	948.53	0.00	0.00	0.00
01/01/51	03/31/51	948.53	948.53	0.00	0.00	0.00
04/01/51	06/30/51	948.53	948.53	0.00	0.00	0.00
07/01/51	09/30/51	948.53	948.53	0.00	0.00	0.00
10/01/51	12/31/51	948.53	948.53	0.00	0.00	0.00
01/01/52	03/31/52	948.53	948.53	0.00	0.00	0.00
04/01/52	06/30/52	948.53	948.53	0.00	0.00	0.00
07/01/52	09/30/52	948.53	948.53	0.00	0.00	0.00
10/01/52	12/31/52	948.53	948.53	0.00	0.00	0.00
01/01/53	03/31/53	948.53	948.53	0.00	0.00	0.00
04/01/53	06/30/53	948.53	948.53	0.00	0.00	0.00
07/01/53	09/30/53	948.53	948.53	0.00	0.00	0.00
10/01/53	12/31/53	948.53	948.53	0.00	0.00	0.00
01/01/54	03/31/54	948.53	948.53	0.00	0.00	0.00
04/01/54	06/30/54	948.53	948.53	0.00	0.00	0.00

Notes:

- (3) = Table A1, (1b) x Table C5\_2, (7)
- (4) = Table A1, (1b) x Table C5\_1, (12)
- (5) = (4) - (3)<sub>t-1</sub>, t-1 implies that is nonadmitted if not received in 90 days.
- (6) = max{ 0, -(5) x [ 1.0 - Table A1, (4) x Table A1, (1a) / Table A1, (1b) ] }
- (7) = Table A1, (1b) x [ Table C5\_2, (6) - Table C5\_1, (12) ] - (6)







**VII 000054 STIP**

**TABLE C5\_2: ADDITIONAL PREMIUM AND LOSS PATTERNS**

TIME INTERVAL		WRITTEN PREMIUM (3)	EARNED PREMIUM (4)	LOSS & LAE INCURRED (5)	CUMULATIVE		
FROM (1)	TO (2)				WRITTEN PREMIUM (6)	EARNED PREMIUM (7)	LOSS & LAE INCURRED (8)
07/01/17	09/30/17		0.00%	0.00%	0.00%	0.00%	0.00%
10/01/17	12/31/17		0.00%	0.00%	0.00%	0.00%	0.00%
01/01/18	03/31/18		0.00%	0.00%	0.00%	0.00%	0.00%
04/01/18	06/30/18		0.00%	0.00%	0.00%	0.00%	0.00%
07/01/18	09/30/18	23.75%	3.21%	3.21%	23.75%	3.21%	3.21%
10/01/18	12/31/18	20.89%	8.57%	8.57%	44.64%	11.77%	11.77%
01/01/19	03/31/19	29.17%	15.53%	15.53%	73.81%	27.30%	27.30%
04/01/19	06/30/19	26.19%	21.64%	21.64%	100.00%	48.94%	48.94%
07/01/19	09/30/19		21.79%	21.79%	100.00%	70.73%	70.73%
10/01/19	12/31/19		16.57%	16.57%	100.00%	87.30%	87.30%
01/01/20	03/31/20		9.47%	9.47%	100.00%	96.77%	96.77%
04/01/20	06/30/20		3.23%	3.23%	100.00%	100.00%	100.00%
07/01/20	09/30/20		0.00%	0.00%	100.00%	100.00%	100.00%
10/01/20	12/31/20		0.00%	0.00%	100.00%	100.00%	100.00%
01/01/21	03/31/21		0.00%	0.00%	100.00%	100.00%	100.00%
04/01/21	06/30/21		0.00%	0.00%	100.00%	100.00%	100.00%
07/01/21	09/30/21		0.00%	0.00%	100.00%	100.00%	100.00%
10/01/21	12/31/21		0.00%	0.00%	100.00%	100.00%	100.00%
01/01/22	03/31/22		0.00%	0.00%	100.00%	100.00%	100.00%
04/01/22	06/30/22		0.00%	0.00%	100.00%	100.00%	100.00%
07/01/22	09/30/22		0.00%	0.00%	100.00%	100.00%	100.00%
10/01/22	12/31/22		0.00%	0.00%	100.00%	100.00%	100.00%
01/01/23	03/31/23		0.00%	0.00%	100.00%	100.00%	100.00%
04/01/23	06/30/23		0.00%	0.00%	100.00%	100.00%	100.00%
07/01/23	09/30/23		0.00%	0.00%	100.00%	100.00%	100.00%
10/01/23	12/31/23		0.00%	0.00%	100.00%	100.00%	100.00%
01/01/24	03/31/24		0.00%	0.00%	100.00%	100.00%	100.00%
04/01/24	06/30/24		0.00%	0.00%	100.00%	100.00%	100.00%
07/01/24	09/30/24		0.00%	0.00%	100.00%	100.00%	100.00%
10/01/24	12/31/24		0.00%	0.00%	100.00%	100.00%	100.00%
01/01/25	03/31/25		0.00%	0.00%	100.00%	100.00%	100.00%
04/01/25	06/30/25		0.00%	0.00%	100.00%	100.00%	100.00%
07/01/25	09/30/25		0.00%	0.00%	100.00%	100.00%	100.00%
10/01/25	12/31/25		0.00%	0.00%	100.00%	100.00%	100.00%
01/01/26	03/31/26		0.00%	0.00%	100.00%	100.00%	100.00%
04/01/26	06/30/26		0.00%	0.00%	100.00%	100.00%	100.00%
07/01/26	09/30/26		0.00%	0.00%	100.00%	100.00%	100.00%
10/01/26	12/31/26		0.00%	0.00%	100.00%	100.00%	100.00%
01/01/27	03/31/27		0.00%	0.00%	100.00%	100.00%	100.00%
04/01/27	06/30/27		0.00%	0.00%	100.00%	100.00%	100.00%
07/01/27	09/30/27		0.00%	0.00%	100.00%	100.00%	100.00%
10/01/27	12/31/27		0.00%	0.00%	100.00%	100.00%	100.00%
01/01/28	03/31/28		0.00%	0.00%	100.00%	100.00%	100.00%
04/01/28	06/30/28		0.00%	0.00%	100.00%	100.00%	100.00%
07/01/28	09/30/28		0.00%	0.00%	100.00%	100.00%	100.00%
10/01/28	12/31/28		0.00%	0.00%	100.00%	100.00%	100.00%
01/01/29	03/31/29		0.00%	0.00%	100.00%	100.00%	100.00%
04/01/29	06/30/29		0.00%	0.00%	100.00%	100.00%	100.00%
07/01/29	09/30/29		0.00%	0.00%	100.00%	100.00%	100.00%
10/01/29	12/31/29		0.00%	0.00%	100.00%	100.00%	100.00%
01/01/30	03/31/30		0.00%	0.00%	100.00%	100.00%	100.00%
04/01/30	06/30/30		0.00%	0.00%	100.00%	100.00%	100.00%
07/01/30	09/30/30		0.00%	0.00%	100.00%	100.00%	100.00%
10/01/30	12/31/30		0.00%	0.00%	100.00%	100.00%	100.00%
01/01/31	03/31/31		0.00%	0.00%	100.00%	100.00%	100.00%
04/01/31	06/30/31		0.00%	0.00%	100.00%	100.00%	100.00%
07/01/31	09/30/31		0.00%	0.00%	100.00%	100.00%	100.00%
10/01/31	12/31/31		0.00%	0.00%	100.00%	100.00%	100.00%
01/01/32	03/31/32		0.00%	0.00%	100.00%	100.00%	100.00%
04/01/32	06/30/32		0.00%	0.00%	100.00%	100.00%	100.00%
07/01/32	09/30/32		0.00%	0.00%	100.00%	100.00%	100.00%
10/01/32	12/31/32		0.00%	0.00%	100.00%	100.00%	100.00%
01/01/33	03/31/33		0.00%	0.00%	100.00%	100.00%	100.00%
04/01/33	06/30/33		0.00%	0.00%	100.00%	100.00%	100.00%
07/01/33	09/30/33		0.00%	0.00%	100.00%	100.00%	100.00%
10/01/33	12/31/33		0.00%	0.00%	100.00%	100.00%	100.00%
01/01/34	03/31/34		0.00%	0.00%	100.00%	100.00%	100.00%
04/01/34	06/30/34		0.00%	0.00%	100.00%	100.00%	100.00%
07/01/34	09/30/34		0.00%	0.00%	100.00%	100.00%	100.00%
10/01/34	12/31/34		0.00%	0.00%	100.00%	100.00%	100.00%
01/01/35	03/31/35		0.00%	0.00%	100.00%	100.00%	100.00%
04/01/35	06/30/35		0.00%	0.00%	100.00%	100.00%	100.00%
07/01/35	09/30/35		0.00%	0.00%	100.00%	100.00%	100.00%
10/01/35	12/31/35		0.00%	0.00%	100.00%	100.00%	100.00%
01/01/36	03/31/36		0.00%	0.00%	100.00%	100.00%	100.00%
04/01/36	06/30/36		0.00%	0.00%	100.00%	100.00%	100.00%
07/01/36	09/30/36		0.00%	0.00%	100.00%	100.00%	100.00%
10/01/36	12/31/36		0.00%	0.00%	100.00%	100.00%	100.00%
01/01/37	03/31/37		0.00%	0.00%	100.00%	100.00%	100.00%
04/01/37	06/30/37		0.00%	0.00%	100.00%	100.00%	100.00%
07/01/37	09/30/37		0.00%	0.00%	100.00%	100.00%	100.00%
10/01/37	12/31/37		0.00%	0.00%	100.00%	100.00%	100.00%
01/01/38	03/31/38		0.00%	0.00%	100.00%	100.00%	100.00%

**VII 00055 STIP**

**TABLE C5\_2: ADDITIONAL PREMIUM AND LOSS PATTERNS**

TIME INTERVAL		WRITTEN PREMIUM (3)	EARNED PREMIUM (4)	LOSS & LAE INCURRED (5)	CUMULATIVE		
FROM (1)	TO (2)				WRITTEN PREMIUM (6)	EARNED PREMIUM (7)	LOSS & LAE INCURRED (8)
04/01/38	06/30/38		0.00%	0.00%	100.00%	100.00%	100.00%
07/01/38	09/30/38		0.00%	0.00%	100.00%	100.00%	100.00%
10/01/38	12/31/38		0.00%	0.00%	100.00%	100.00%	100.00%
01/01/39	03/31/39		0.00%	0.00%	100.00%	100.00%	100.00%
04/01/39	06/30/39		0.00%	0.00%	100.00%	100.00%	100.00%
07/01/39	09/30/39		0.00%	0.00%	100.00%	100.00%	100.00%
10/01/39	12/31/39		0.00%	0.00%	100.00%	100.00%	100.00%
01/01/40	03/31/40		0.00%	0.00%	100.00%	100.00%	100.00%
04/01/40	06/30/40		0.00%	0.00%	100.00%	100.00%	100.00%
07/01/40	09/30/40		0.00%	0.00%	100.00%	100.00%	100.00%
10/01/40	12/31/40		0.00%	0.00%	100.00%	100.00%	100.00%
01/01/41	03/31/41		0.00%	0.00%	100.00%	100.00%	100.00%
04/01/41	06/30/41		0.00%	0.00%	100.00%	100.00%	100.00%
07/01/41	09/30/41		0.00%	0.00%	100.00%	100.00%	100.00%
10/01/41	12/31/41		0.00%	0.00%	100.00%	100.00%	100.00%
01/01/42	03/31/42		0.00%	0.00%	100.00%	100.00%	100.00%
04/01/42	06/30/42		0.00%	0.00%	100.00%	100.00%	100.00%
07/01/42	09/30/42		0.00%	0.00%	100.00%	100.00%	100.00%
10/01/42	12/31/42		0.00%	0.00%	100.00%	100.00%	100.00%
01/01/43	03/31/43		0.00%	0.00%	100.00%	100.00%	100.00%
04/01/43	06/30/43		0.00%	0.00%	100.00%	100.00%	100.00%
07/01/43	09/30/43		0.00%	0.00%	100.00%	100.00%	100.00%
10/01/43	12/31/43		0.00%	0.00%	100.00%	100.00%	100.00%
01/01/44	03/31/44		0.00%	0.00%	100.00%	100.00%	100.00%
04/01/44	06/30/44		0.00%	0.00%	100.00%	100.00%	100.00%
07/01/44	09/30/44		0.00%	0.00%	100.00%	100.00%	100.00%
10/01/44	12/31/44		0.00%	0.00%	100.00%	100.00%	100.00%
01/01/45	03/31/45		0.00%	0.00%	100.00%	100.00%	100.00%
04/01/45	06/30/45		0.00%	0.00%	100.00%	100.00%	100.00%
07/01/45	09/30/45		0.00%	0.00%	100.00%	100.00%	100.00%
10/01/45	12/31/45		0.00%	0.00%	100.00%	100.00%	100.00%
01/01/46	03/31/46		0.00%	0.00%	100.00%	100.00%	100.00%
04/01/46	06/30/46		0.00%	0.00%	100.00%	100.00%	100.00%
07/01/46	09/30/46		0.00%	0.00%	100.00%	100.00%	100.00%
10/01/46	12/31/46		0.00%	0.00%	100.00%	100.00%	100.00%
01/01/47	03/31/47		0.00%	0.00%	100.00%	100.00%	100.00%
04/01/47	06/30/47		0.00%	0.00%	100.00%	100.00%	100.00%
07/01/47	09/30/47		0.00%	0.00%	100.00%	100.00%	100.00%
10/01/47	12/31/47		0.00%	0.00%	100.00%	100.00%	100.00%
01/01/48	03/31/48		0.00%	0.00%	100.00%	100.00%	100.00%
04/01/48	06/30/48		0.00%	0.00%	100.00%	100.00%	100.00%
07/01/48	09/30/48		0.00%	0.00%	100.00%	100.00%	100.00%
10/01/48	12/31/48		0.00%	0.00%	100.00%	100.00%	100.00%
01/01/49	03/31/49		0.00%	0.00%	100.00%	100.00%	100.00%
04/01/49	06/30/49		0.00%	0.00%	100.00%	100.00%	100.00%
07/01/49	09/30/49		0.00%	0.00%	100.00%	100.00%	100.00%
10/01/49	12/31/49		0.00%	0.00%	100.00%	100.00%	100.00%
01/01/50	03/31/50		0.00%	0.00%	100.00%	100.00%	100.00%
04/01/50	06/30/50		0.00%	0.00%	100.00%	100.00%	100.00%
07/01/50	09/30/50		0.00%	0.00%	100.00%	100.00%	100.00%
10/01/50	12/31/50		0.00%	0.00%	100.00%	100.00%	100.00%
01/01/51	03/31/51		0.00%	0.00%	100.00%	100.00%	100.00%
04/01/51	06/30/51		0.00%	0.00%	100.00%	100.00%	100.00%
07/01/51	09/30/51		0.00%	0.00%	100.00%	100.00%	100.00%
10/01/51	12/31/51		0.00%	0.00%	100.00%	100.00%	100.00%
01/01/52	03/31/52		0.00%	0.00%	100.00%	100.00%	100.00%
04/01/52	06/30/52		0.00%	0.00%	100.00%	100.00%	100.00%
07/01/52	09/30/52		0.00%	0.00%	100.00%	100.00%	100.00%
10/01/52	12/31/52		0.00%	0.00%	100.00%	100.00%	100.00%
01/01/53	03/31/53		0.00%	0.00%	100.00%	100.00%	100.00%
04/01/53	06/30/53		0.00%	0.00%	100.00%	100.00%	100.00%
07/01/53	09/30/53		0.00%	0.00%	100.00%	100.00%	100.00%
10/01/53	12/31/53		0.00%	0.00%	100.00%	100.00%	100.00%
01/01/54	03/31/54		0.00%	0.00%	100.00%	100.00%	100.00%
04/01/54	06/30/54		0.00%	0.00%	100.00%	100.00%	100.00%
TOTAL		100.00%	100.00%	100.00%			

Notes:

(3): Based on Unit Statistical Plan Data.

(4): Single policy earned premium is earned uniformly through the one year policy term and then converted to a policy year basis.

(5): We assume that the loss & LAE incurred pattern coincides with the earned premium pattern.

(6) = (3), cumulative

(7) = (4), cumulative

(8) = (5), cumulative



**VII 00057 STIP**

**TABLE D1: CAPITAL NEEDED FROM INVESTORS**

TIME INTERVAL		UNEARNED PREMIUM RESERVES (3)	LOSS & LAE RESERVES (4)	TOTAL RESERVES (5)	RESERVES TO SURPLUS RATIO (6)	IMPLIED SURPLUS (7)	RESERVES FUNDED BY INVESTORS (8)	CAPITAL NEEDED FROM INVESTORS (9)
FROM (1)	TO (2)							
04/01/38	06/30/38	0.00	52.60	52.60	1.80	29.24	10.78	40.02
07/01/38	09/30/38	0.00	51.99	51.99	1.80	28.90	10.78	39.68
10/01/38	12/31/38	0.00	51.40	51.40	1.80	28.57	10.78	39.35
01/01/39	03/31/39	0.00	50.86	50.86	1.80	28.27	10.78	39.05
04/01/39	06/30/39	0.00	50.35	50.35	1.80	27.99	10.78	38.77
07/01/39	09/30/39	0.00	49.82	49.82	1.80	27.69	10.77	38.46
10/01/39	12/31/39	0.00	49.19	49.19	1.80	27.34	10.77	38.11
01/01/40	03/31/40	0.00	48.46	48.46	1.80	26.93	10.77	37.71
04/01/40	06/30/40	0.00	47.63	47.63	1.80	26.47	10.77	37.25
07/01/40	09/30/40	0.00	46.75	46.75	1.80	25.98	10.77	36.75
10/01/40	12/31/40	0.00	45.86	45.86	1.80	25.49	10.77	36.26
01/01/41	03/31/41	0.00	44.98	44.98	1.80	25.00	10.77	35.77
04/01/41	06/30/41	0.00	44.10	44.10	1.80	24.52	10.76	35.28
07/01/41	09/30/41	0.00	43.22	43.22	1.80	24.03	10.76	34.79
10/01/41	12/31/41	0.00	42.34	42.34	1.80	23.53	10.76	34.30
01/01/42	03/31/42	0.00	41.46	41.46	1.80	23.04	10.76	33.80
04/01/42	06/30/42	0.00	40.58	40.58	1.80	22.56	10.76	33.32
07/01/42	09/30/42	0.00	39.70	39.70	1.80	22.07	10.76	32.82
10/01/42	12/31/42	0.00	38.81	38.81	1.80	21.57	10.76	32.33
01/01/43	03/31/43	0.00	37.93	37.93	1.80	21.08	10.75	31.84
04/01/43	06/30/43	0.00	37.05	37.05	1.80	20.60	10.75	31.35
07/01/43	09/30/43	0.00	36.17	36.17	1.80	20.11	10.75	30.86
10/01/43	12/31/43	0.00	35.29	35.29	1.80	19.61	10.75	30.36
01/01/44	03/31/44	0.00	34.41	34.41	1.80	19.12	10.75	29.87
04/01/44	06/30/44	0.00	33.53	33.53	1.80	18.64	10.75	29.38
07/01/44	09/30/44	0.00	32.65	32.65	1.80	18.15	10.75	28.89
10/01/44	12/31/44	0.00	31.76	31.76	1.80	17.65	10.74	28.40
01/01/45	03/31/45	0.00	30.88	30.88	1.80	17.16	10.74	27.91
04/01/45	06/30/45	0.00	30.00	30.00	1.80	16.68	10.74	27.42
07/01/45	09/30/45	0.00	29.12	29.12	1.80	16.19	10.74	26.93
10/01/45	12/31/45	0.00	28.24	28.24	1.80	15.69	10.74	26.43
01/01/46	03/31/46	0.00	27.35	27.35	1.80	15.20	10.74	25.94
04/01/46	06/30/46	0.00	26.48	26.48	1.80	14.72	10.74	25.45
07/01/46	09/30/46	0.00	25.60	25.60	1.80	14.23	10.74	24.96
10/01/46	12/31/46	0.00	24.71	24.71	1.80	13.74	10.73	24.47
01/01/47	03/31/47	0.00	23.83	23.83	1.80	13.25	10.73	23.98
04/01/47	06/30/47	0.00	22.95	22.95	1.80	12.76	10.73	23.49
07/01/47	09/30/47	0.00	22.07	22.07	1.80	12.27	10.73	23.00
10/01/47	12/31/47	0.00	21.19	21.19	1.80	11.78	10.73	22.50
01/01/48	03/31/48	0.00	20.30	20.30	1.80	11.29	10.73	22.01
04/01/48	06/30/48	0.00	19.43	19.43	1.80	10.80	10.73	21.52
07/01/48	09/30/48	0.00	18.55	18.55	1.80	10.31	10.72	21.03
10/01/48	12/31/48	0.00	17.66	17.66	1.80	9.82	10.72	20.54
01/01/49	03/31/49	0.00	16.78	16.78	1.80	9.33	10.72	20.05
04/01/49	06/30/49	0.00	15.90	15.90	1.80	8.84	10.72	19.56
07/01/49	09/30/49	0.00	15.02	15.02	1.80	8.35	10.72	19.07
10/01/49	12/31/49	0.00	14.13	14.13	1.80	7.86	10.72	18.57
01/01/50	03/31/50	0.00	13.25	13.25	1.80	7.37	10.72	18.08
04/01/50	06/30/50	0.00	12.38	12.38	1.80	6.88	10.71	17.59
07/01/50	09/30/50	0.00	11.50	11.50	1.80	6.39	10.71	17.10
10/01/50	12/31/50	0.00	10.61	10.61	1.80	5.90	10.60	16.60
01/01/51	03/31/51	0.00	9.73	9.73	1.80	5.41	9.72	15.13
04/01/51	06/30/51	0.00	8.85	8.85	1.80	4.92	8.85	13.76
07/01/51	09/30/51	0.00	7.97	7.97	1.80	4.43	7.96	12.39
10/01/51	12/31/51	0.00	7.08	7.08	1.80	3.94	7.08	11.02
01/01/52	03/31/52	0.00	6.20	6.20	1.80	3.45	6.20	9.64
04/01/52	06/30/52	0.00	5.33	5.33	1.80	2.96	5.32	8.28
07/01/52	09/30/52	0.00	4.44	4.44	1.80	2.47	4.44	6.91
10/01/52	12/31/52	0.00	3.56	3.56	1.80	1.98	3.55	5.53
01/01/53	03/31/53	0.00	2.68	2.68	1.80	1.49	2.67	4.16
04/01/53	06/30/53	0.00	1.80	1.80	1.80	1.00	1.80	2.80
07/01/53	09/30/53	0.00	1.03	1.03	1.80	0.57	1.03	1.60
10/01/53	12/31/53	0.00	0.45	0.45	1.80	0.25	0.45	0.70
01/01/54	03/31/54	0.00	0.11	0.11	1.80	0.06	0.11	0.18
04/01/54	06/30/54	0.00	0.00	0.00	1.80	0.00	0.00	0.00
<b>TOTAL</b>		<b>1,860.83</b>	<b>12,274.42</b>	<b>14,135.25</b>		<b>7,856.96</b>	<b>1,737.26</b>	<b>9,594.22</b>

Notes:

- (3) = Table A1,(1b) x [ Table C5\_2, (6) - Table C5\_2, (7) ]
- (4) = Table A1, (1a) x Table A1, (3) x [ Table C5\_2, (8) - Table C5\_1, (13) ]
- (5) = (3) + (4)
- (6) = Table A1, (13)
- (7) = (5) / (6)
- (8) = Table C3, (11)
- (9) = (7) + (8)

# VII 000080 STIP

Section VII - Profit  
Subsection E - Cost of Capital  
7/1/2018

Section VII - E  
Exhibit 1

## Cost of Capital: Summary Exhibit for Property-Casualty Insurance Companies

(1) Discounted Cash Flow	7.62%
(2) Capital Asset Pricing Model	8.62%
(3) Equity Capital Cost	8.12%
(4) Debt Capital Cost	4.05%
(5) Capital Structure	
(a) Equity Capital Share	78%
(b) Debt Capital Share	22%
(6) Weighted Average Cost of Capital (WACC)	7.23%

### Notes:

(1): Exhibit 2, page 1

(2): Exhibit 3, page 1

(3) = [ (1) + (2) ] / 2.0

(4): Section VII-J, Exhibit 2, page 3, line (17).

(5): Exhibit 4

(6) = [ (3) x (5a) ] + [ (4) x (5b) ]

## VII 000081 STIP

Section VII - Profit  
Subsection E - Cost of Capital  
7/1/2018

Section VII - E  
Exhibit 2  
Page 1

### Cost of Capital Estimate Using Discounted Cash Flow (DCF) Analysis

$$V_0 = D_0 \sum_{t=1}^{\infty} \left( \frac{1 + g_t}{1 + k} \right)^t = D_1 \sum_{t=1}^{\infty} \frac{(1 + g_t)^{t-1}}{(1 + k)^t}$$

$$\frac{1}{V_0} = \sum_{t=1}^5 \frac{(1 + g_{ST})^{t-1}}{(1 + k)^t} + (1 + g_{ST})^4 \sum_{t=6}^9 \frac{\prod_{i=1}^{t-5} (1 + g_{IT_i})}{(1 + k)^t}$$

$$+ (1 + g_{ST})^4 (1 + g_{IT_1})(1 + g_{IT_2})(1 + g_{IT_3})(1 + g_{IT_4}) \sum_{t=10}^{\infty} \frac{(1 + g_{LT})^{t-9}}{(1 + k)^t}$$

	Time (t) (1)	Dividend Growth Rate (g) (2)	Discounted Dividends (3)
Stage 1	1	8.02%	
	2	8.02%	
	3	8.02%	
	4	8.02%	
	5	8.02%	4.68
Stage 2	6	7.47%	0.94
	7	6.91%	0.94
	8	6.36%	0.92
	9	5.81%	0.91
Stage 3	≥10	5.26%	40.50
(4) Total Discounted Dividends			48.88

(5) Dividend Yield Rate ( $D_1/V_0$ ) 2.05%

(6) Cost of Capital (k) **7.62%**

**Notes:**

- (2): Stage 1 dividend growth rate is the short-term rate from Page 4.  
 Stage 2 dividend growth rate is a linear interpolation between dividend growth rate of stage 1 and stage 3.  
 Stage 3 dividend growth rate is the long-term rate from Page 2.
- (3): Stage 1 =  $(1.0 - [(1.0 + g_{ST}) / (1.0+k)]^5) / (k-g_{ST})$   
 Stage 2, Time 6 =  $[(1.0 + g_{ST})^4 \times (1.0 + g_{IT_1})] / (1.0 + k)^6$   
 Stage 2, Time 7 =  $[(1.0 + g_{ST})^4 \times (1.0 + g_{IT_1}) \times (1.0 + g_{IT_2})] / (1.0 + k)^7$   
 Stage 2, Time 8 =  $[(1.0 + g_{ST})^4 \times (1.0 + g_{IT_1}) \times (1.0 + g_{IT_2}) \times (1.0 + g_{IT_3})] / (1.0 + k)^8$   
 Stage 2, Time 9 =  $[(1.0 + g_{ST})^4 \times (1.0 + g_{IT_1}) \times (1.0 + g_{IT_2}) \times (1.0 + g_{IT_3}) \times (1.0 + g_{IT_4})] / (1.0 + k)^9$   
 Stage 3 =  $[(1.0 + g_{ST})^4 \times (1.0 + g_{IT_1}) \times (1.0 + g_{IT_2}) \times (1.0 + g_{IT_3}) \times (1.0 + g_{IT_4}) \times (1.0 + g_{LT})] / [(k-g_{LT}) \times (1.0 + k)^9]$
- (5): Page 5  
 (6): Cost of Capital is calculated using excel function so that  $[1.0 / (5)] - (4) = 0$ .

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### Discounted Cash Flow (DCF) Analysis: Long-Term Dividend Growth Rate

Years (1)	Real Gross Domestic Product (2)	Real Gross Domestic Product Percent Change (3)
1929	1,056.6	
1930	966.7	-8.51%
1931	904.8	-6.40%
1932	788.2	-12.89%
1933	778.3	-1.26%
1934	862.2	10.78%
1935	939.0	8.91%
1936	1,060.5	12.94%
1937	1,114.6	5.10%
1938	1,077.7	-3.31%
1939	1,163.6	7.97%
1940	1,266.1	8.81%
1941	1,490.3	17.71%
1942	1,771.8	18.89%
1943	2,073.7	17.04%
1944	2,239.4	7.99%
1945	2,217.8	-0.96%
1946	1,960.9	-11.58%
1947	1,939.4	-1.10%
1948	2,020.0	4.16%
1949	2,008.9	-0.55%
1950	2,184.0	8.72%
1951	2,360.0	8.06%
1952	2,456.1	4.07%
1953	2,571.4	4.69%
1954	2,556.9	-0.56%
1955	2,739.0	7.12%
1956	2,797.4	2.13%
1957	2,856.3	2.11%
1958	2,835.3	-0.74%
1959	3,031.0	6.90%
1960	3,108.7	2.56%
1961	3,188.1	2.55%
1962	3,383.1	6.12%
1963	3,530.4	4.35%
1964	3,734.0	5.77%
1965	3,976.7	6.50%
1966	4,238.9	6.59%
1967	4,355.2	2.74%
1968	4,569.0	4.91%
1969	4,712.5	3.14%
1970	4,722.0	0.20%
1971	4,877.6	3.30%
1972	5,134.3	5.26%
1973	5,424.1	5.64%
1974	5,396.0	-0.52%
1975	5,385.4	-0.20%
1976	5,675.4	5.38%
1977	5,937.0	4.61%
1978	6,267.2	5.56%
1979	6,466.2	3.18%



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### Discounted Cash Flow (DCF) Analysis: Long-Term Dividend Growth Rate

Years (1)	Real Gross Domestic Product (2)	Real Gross Domestic Product Percent Change (3)
1980	6,450.4	-0.24%
1981	6,617.7	2.59%
1982	6,491.3	-1.91%
1983	6,792.0	4.63%
1984	7,285.0	7.26%
1985	7,593.8	4.24%
1986	7,860.5	3.51%
1987	8,132.6	3.46%
1988	8,474.5	4.20%
1989	8,786.4	3.68%
1990	8,955.0	1.92%
1991	8,948.4	-0.07%
1992	9,266.6	3.56%
1993	9,521.0	2.75%
1994	9,905.4	4.04%
1995	10,174.8	2.72%
1996	10,561.0	3.80%
1997	11,034.9	4.49%
1998	11,525.9	4.45%
1999	12,065.9	4.69%
2000	12,559.7	4.09%
2001	12,682.2	0.98%
2002	12,908.8	1.79%
2003	13,271.1	2.81%
2004	13,773.5	3.79%
2005	14,234.2	3.34%
2006	14,613.8	2.67%
2007	14,873.7	1.78%
2008	14,830.4	-0.29%
2009	14,418.7	-2.78%
2010	14,783.8	2.53%
2011	15,020.6	1.60%
2012	15,354.6	2.22%
2013	15,612.2	1.68%
2014	16,013.3	2.57%
2015	16,471.5	2.86%
2016	16,716.2	1.49%
(4) Average		3.34%
(5) Rate of Expected Inflation		1.86%
(6) Long-Term Dividend Growth Rate		<b>5.26%</b>

Notes:

(2): Bureau of Economic Analysis, Table 1.1.6.

(3) =  $[(2)_t / (2)_{t-1}] - 1.0$

(5): Page 3

(6) =  $\{ [1.0 + (4)] \times [1.0 + (5)] \} - 1.0$

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Discounted Cash Flow (DCF) Analysis: Long-Term Dividend Growth Rate  
 Rate of Expected Inflation

Time Period (1)	Market yield on U.S. Treasury Securities at 10-year Constant Maturity (2)	Inflation Indexed Market yield on U.S. Treasury Securities at 10-year Constant Maturity (3)	Rate of Expected Inflation (4) = (2) - (3)
2016-10	1.76	0.1	1.66
2016-11	2.14	0.32	1.82
2016-12	2.49	0.56	1.93
2017-01	2.43	0.42	2.01
2017-02	2.42	0.4	2.02
2017-03	2.48	0.49	1.99
2017-04	2.3	0.39	1.91
2017-05	2.3	0.47	1.83
2017-06	2.19	0.46	1.73
2017-07	2.32	0.55	1.77
2017-08	2.21	0.43	1.78
2017-09	2.2	0.37	1.83
<b>Average</b>			<b>1.86%</b>

Source: Federal Reserve Statistical Release, H.15.

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### Discounted Cash Flow (DCF) Analysis: Short-Term Dividend Growth Rate

(1) Growth Forecast { = [ (a) + (b) ] / 2.0 }	7.60
(a) Dividend Component	7.08
(b) Earnings Component	8.12
(2) Fundamental Analysis [ = (a) + (b) ]	8.43
(a) Retention to book	8.55
(b) Stock issuance factor	-0.12
(3) Short-Term Dividend Growth Rate { = [ (1) + (2) ] / 2.0 }	8.02

#### Notes:

- (1a): Page 5, average of columns (3) through (5)
- (1b): Page 5, average of columns (6) through (8)
- (2a): Page 5, average of columns (9) through (11)
- (2b): Page 5, column (15)

Discounted Cash Flow (DCF) Analysis: Parameter Estimation

Property/Casualty Insurance Companies (1)	Dividend Yield (2)	Average Dividend Growth Rate			Average Earnings Growth Rate			Average Earnings Retention Rates Retained Earnings as a Percent of Common Equity			Stock Issuance Adjustment Factor			
		Annual Rate of Change			Annual Rate of Change						2017 Shares (12)	2020 - 2022 Shares (13)	2020 - 2022 Market/ Book (14)	Stock Issuance Adjustment Factor (15)
		Past 10 Years (3)	Past 5 Years (4)	Forecast (5)	Past 10 Years (6)	Past 5 Years (7)	Forecast (8)	Past 10 Years (9)	Past 5 Years (10)	Forecast (11)				
1347 PROPERTY INS HLDGS INC	0.00	NA	NA	NA	NA	NA	NA	7.31	7.31	NA	NA	NA	NA	NA
ACMAT CORP -CL A	0.00	NA	NA	NA	-10.40	NA	NA	3.57	2.82	NA	NA	NA	NA	NA
ALLEGHANY CORP	0.00	NA	NA	0.00	NA	16.00	4.50	6.12	6.82	6.50	16.00	16.00	0.98	0.00
ALLIANZ SE -ADR	3.84	13.48	7.35	NA	1.03	5.55	5.93	6.14	5.72	NA	NA	NA	NA	NA
ALLSTATE CORP	1.60	NA	6.50	5.00	1.00	15.00	7.50	8.14	9.15	8.00	360.00	360.00	1.35	0.00
AMERICAN FINANCIAL GROUP INC	1.40	10.50	11.50	8.50	11.00	3.50	8.00	9.27	7.40	7.50	87.00	86.00	1.10	-0.03
AMERICAN INTERNATIONAL GROUP	2.17	NA	NA	NA	-31.30	1.28	154.04	8.98	4.98	NA	NA	NA	NA	NA
AMERICAN NATIONAL INSURANCE	2.89	0.59	0.51	NA	-1.43	13.47	NA	3.19	3.31	NA	NA	NA	NA	NA
AMERICAN OVERSEAS GROUP LTD	0.00	NA	NA	NA	-4.48	6.43	NA	26.83	37.47	NA	NA	NA	NA	NA
AMERISAFE INC	1.56	NA	NA	NA	14.10	15.00	10.00	10.16	5.52	NA	NA	NA	NA	NA
AMTRUST FINANCIAL SERVICES	5.40	52.00	35.50	7.50	21.50	22.50	5.00	16.82	15.76	9.00	195.00	195.00	1.17	0.00
ARCH CAPITAL GROUP LTD	0.00	NA	NA	0.00	6.50	6.50	9.00	13.14	10.64	8.50	130.00	130.00	1.13	0.00
ARGO GROUP INTL HOLDINGS LTD	1.83	NA	18.80	NA	5.39	42.53	7.00	6.48	7.19	NA	NA	NA	NA	NA
ASPEN INSURANCE HOLDINGS LTD	2.47	6.51	6.62	NA	11.34	9.98	18.15	7.33	6.18	NA	NA	NA	NA	NA
ASSURANT INC	2.31	17.36	18.36	NA	4.28	8.52	19.40	8.23	7.19	NA	NA	NA	NA	NA
ASSURED GUARANTY LTD	1.57	16.23	21.67	NA	10.82	21.42	3.00	10.49	12.29	NA	NA	NA	NA	NA
ATLANTIC AMERICAN CORP	0.64	NA	-14.10	NA	5.03	30.39	NA	4.22	4.02	NA	NA	NA	NA	NA
ATLAS FINANCIAL HOLDINGS INC	0.00	NA	NA	NA	NA	NA	NA	7.73	7.73	NA	NA	NA	NA	NA
AVIVA PLC -ADR	4.48	NA	-8.44	NA	NA	-4.98	NA	9.13	10.78	NA	NA	NA	NA	NA
AXA -ADR	4.35	1.41	3.99	NA	-0.55	6.77	6.80	4.56	4.38	NA	NA	NA	NA	NA
AXIS CAPITAL HOLDINGS LTD	2.76	8.14	7.60	NA	7.21	14.98	4.96	10.45	9.35	NA	NA	NA	NA	NA
BALDWIN & LYONS -CL B	5.10	-5.84	0.50	NA	-2.32	14.00	8.00	4.81	3.94	NA	NA	NA	NA	NA
BERKLEY (W R) CORP	0.80	13.00	11.00	4.50	2.50	8.00	7.00	10.22	8.34	9.00	121.00	120.00	1.30	-0.06
BERKSHIRE HATHAWAY	0.00	NA	NA	0.00	24.00	25.00	9.00	7.68	8.26	8.00	2450.00	2450.00	1.35	0.00
BLUE CAP REINSURANCE	11.32	NA	NA	NA	NA	NA	7.85	3.86	3.86	NA	NA	NA	NA	NA
CHUBB LTD	2.00	11.50	15.50	4.50	10.50	4.00	8.00	9.86	7.64	8.00	460.00	400.00	1.05	-0.17
CINCINNATI FINANCIAL CORP	2.60	6.50	4.00	3.00	1.00	12.00	6.50	3.09	3.18	4.50	164.00	164.00	1.44	0.00
CITIZENS INC	0.00	NA	NA	NA	NA	NA	NA	4.57	1.49	NA	NA	NA	NA	NA
CNA FINANCIAL CORP	2.40	NA	NA	4.50	2.00	0.50	11.00	5.60	4.26	6.00	270.00	270.00	1.10	0.00
DONEGAL GROUP INC	3.64	6.38	3.50	NA	-5.18	14.50	10.00	2.92	2.32	NA	NA	NA	NA	NA
EMC INSURANCE GROUP INC	3.10	5.41	7.25	NA	1.17	10.07	5.00	6.90	5.94	NA	NA	NA	NA	NA
EMPLOYERS HOLDINGS INC	1.46	NA	3.00	NA	1.38	15.00	10.00	14.76	12.92	NA	NA	NA	NA	NA
ENSTAR GROUP LTD	0.00	NA	NA	NA	11.58	1.45	10.00	12.34	10.03	NA	NA	NA	NA	NA
ERIE INDEMNITY CO -CL A	2.60	NA	NA	4.00	NA	NA	11.00	7.50	7.50	13.00	46.00	45.00	NA	NA
ESSENT GROUP LTD	0.00	NA	NA	NA	NA	NA	17.29	12.28	12.28	NA	NA	NA	NA	NA
EVEREST RE GROUP LTD	2.28	23.51	15.62	NA	14.96	26.16	-1.45	11.74	12.39	NA	NA	NA	NA	NA
FAIRFAX FINANCIAL HOLDINGS	2.00	21.73	1.39	NA	NA	2.14	0.60	12.72	7.71	NA	NA	NA	NA	NA
FEDERATED NATIONAL HLDG CO	2.13	NA	NA	NA	18.84	NA	20.00	14.25	13.03	NA	NA	NA	NA	NA
FIRST ACCEPTANCE CORP	0.00	NA	NA	NA	NA	-49.60	NA	14.05	19.09	NA	NA	NA	NA	NA
FIRST AMERICAN FINANCIAL CP	3.16	NA	40.51	NA	NA	20.37	7.30	5.74	7.11	NA	NA	NA	NA	NA
GENWORTH FINANCIAL INC	0.00	NA	NA	NA	NA	48.19	5.00	3.09	2.92	NA	NA	NA	NA	NA
GLOBAL INDEMNITY LTD	0.00	NA	NA	NA	-4.23	9.50	10.00	7.50	6.00	NA	NA	NA	NA	NA
GREENLIGHT CAPITAL RE LTD	0.00	NA	NA	NA	NA	NA	10.00	10.73	9.44	NA	NA	NA	NA	NA
HALLMARK FINANCIAL SERVICES	0.00	NA	NA	NA	-0.50	16.50	4.10	6.40	4.24	NA	NA	NA	NA	NA
HANOVER INSURANCE GROUP INC	2.00	NA	15.50	7.50	11.00	9.50	10.00	6.45	5.78	7.00	42.50	42.50	1.07	0.00
HARTFORD FINANCIAL SERVICES	1.73	-5.38	23.52	NA	-8.96	68.11	10.56	5.93	4.61	NA	NA	NA	NA	NA
HCI GROUP INC	3.64	NA	41.00	NA	NA	31.00	25.00	21.26	22.24	NA	NA	NA	NA	NA
HERITAGE INSURANCE HOLDINGS	1.89	NA	NA	NA	NA	NA	NA	22.93	22.93	NA	NA	NA	NA	NA
HORACE MANN EDUCATORS CORP	2.91	8.99	23.27	NA	2.73	4.07	12.70	6.23	5.12	NA	NA	NA	NA	NA
INFINITY PROPERTY & CAS CORP	2.60	21.30	24.50	NA	-0.46	-3.00	9.00	5.98	3.66	NA	NA	NA	NA	NA
JAMES RIVER GROUP HLDGS LTD	3.12	NA	NA	NA	NA	NA	NA	8.55	8.55	NA	NA	NA	NA	NA
KEMPER CORP/DE	1.88	-5.59	-0.21	NA	-10.10	-10.50	10.00	3.95	3.72	NA	NA	NA	NA	NA
KINGSTONE COS INC	2.04	NA	24.74	NA	13.63	0.96	NA	13.54	7.90	NA	NA	NA	NA	NA
KINGSWAY FINANCIAL SVCS INC	0.00	NA	NA	NA	NA	-37.00	10.00	2.04	2.04	NA	NA	NA	NA	NA
LOEWS CORP	0.54	1.65	0.00	NA	-3.49	-6.01	5.94	6.94	2.33	NA	NA	NA	NA	NA
MAIDEN HOLDINGS LTD	7.85	NA	14.01	NA	NA	2.55	12.00	4.92	5.60	NA	NA	NA	NA	NA
MARKEL CORP	0.00	NA	NA	0.00	6.00	-0.50	7.00	6.78	4.72	5.50	14.00	14.00	1.38	0.00
MBIA INC	0.00	NA	NA	NA	-22.80	NA	10.00	15.22	16.46	NA	NA	NA	NA	NA
MERCURY GENERAL CORP	4.30	5.00	1.00	2.50	-6.00	-2.00	14.00	3.27	NA	4.50	55.00	55.00	1.62	0.00
MGIC INVESTMENT CORP/WI	0.00	NA	NA	NA	-14.20	NA	7.64	30.05	30.05	NA	NA	NA	NA	NA
NATIONAL GENERAL HOLDINGS CP	0.94	NA	NA	NA	NA	NA	15.00	9.65	9.65	NA	NA	NA	NA	NA

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Discounted Cash Flow (DCF) Analysis: Parameter Estimation

Property/Casualty Insurance Companies (1)	Dividend Yield (2)	Average Dividend Growth Rate			Average Earnings Growth Rate			Average Earnings Retention Rates Retained Earnings as a Percent of Common Equity			Stock Issuance Adjustment Factor			
		Annual Rate of Change			Annual Rate of Change						2017	2020 - 2022	2020 - 2022	Stock Issuance
		Past 10 Years (3)	Past 5 Years (4)	Forecast (5)	Past 10 Years (6)	Past 5 Years (7)	Forecast (8)	Past 10 Years (9)	Past 5 Years (10)	Forecast (11)	Shares (12)	Shares (13)	Market/ Book (14)	Adjustment Factor (15)
NATIONAL SEC GROUP INC	1.65	-15.90	-23.50	NA	5.44	43.14	NA	9.56	12.07	NA	NA	NA	NA	NA
NAVIGATORS GROUP INC	0.42	NA	NA	NA	7.14	13.00	8.00	7.91	7.54	NA	NA	NA	NA	NA
NMI HOLDINGS INC	0.00	NA	NA	NA	NA	NA	15.92	13.79	13.79	NA	NA	NA	NA	NA
OLD REPUBLIC INTL CORP	4.00	4.00	1.50	3.50	-4.50	NA	9.00	3.36	3.75	5.00	264.00	265.00	1.25	0.02
ONEBEACON INSURANCE GROUP	4.78	NA	NA	NA	-12.30	-18.50	-5.40	5.83	3.47	NA	NA	NA	NA	NA
OXBRIDGE RE HOLDINGS LTD	12.80	NA	NA	NA	NA	NA	NA	5.41	5.41	NA	NA	NA	NA	NA
PROASSURANCE CORP	2.39	NA	NA	NA	6.71	-6.50	27.25	10.19	6.85	NA	NA	NA	NA	NA
PROGRESSIVE CORP-OHIO	2.00	37.00	16.50	8.00	NA	4.50	8.00	12.97	9.52	11.50	580.00	570.00	2.35	-0.59
RADIAN GROUP INC	0.06	-18.80	0.00	NA	-7.94	NA	9.14	23.30	22.58	NA	NA	NA	NA	NA
RENAISSANCERE HOLDINGS LTD	0.98	4.14	3.71	NA	14.73	7.64	7.98	15.84	13.06	NA	NA	NA	NA	NA
RLI CORP	1.60	9.00	5.50	4.00	3.00	-1.50	6.50	10.70	8.90	7.00	43.00	35.00	1.45	-2.26
SAFETY INSURANCE GROUP INC	4.06	15.75	8.50	NA	-7.53	-2.00	15.00	5.15	3.28	NA	NA	NA	NA	NA
SCOR SE -ADR	4.48	4.25	5.48	NA	0.70	4.61	NA	5.56	5.32	NA	NA	NA	NA	NA
SELECTIVE INS GROUP INC	1.30	4.50	1.00	5.50	2.50	9.50	6.50	6.07	6.08	8.00	58.00	65.00	1.29	0.84
STATE AUTO FINANCIAL CORP	1.66	3.88	-8.00	NA	-6.70	NA	8.00	5.18	5.13	NA	NA	NA	NA	NA
STATE NATIONAL COS INC	1.14	NA	NA	NA	NA	NA	NA	13.90	13.90	NA	NA	NA	NA	NA
SWISS RE LTD -ADR	5.61	NA	NA	NA	4.36	22.66	NA	5.74	5.53	NA	NA	NA	NA	NA
THIRD POINT REINSURANCE LTD	0.00	NA	NA	NA	NA	NA	15.00	8.30	8.30	NA	NA	NA	NA	NA
TIPTREE INC	2.00	NA	NA	NA	NA	NA	NA	6.63	4.42	NA	NA	NA	NA	NA
TOKIO MARINE HOLDINGS -ADR	3.29	14.82	10.73	NA	10.34	24.88	NA	4.14	4.84	NA	NA	NA	NA	NA
TRAVELERS COS INC	2.30	9.50	10.50	4.00	11.50	14.50	1.00	9.78	10.18	7.50	275.00	275.00	1.30	0.00
TRIPLE-S MANAGEMENT CORP	0.00	NA	NA	NA	1.60	-4.93	10.00	7.89	6.01	NA	NA	NA	NA	NA
UNICO AMERICAN CORP	0.00	NA	NA	NA	NA	NA	NA	4.19	1.05	NA	NA	NA	NA	NA
UNITED FIRE GROUP INC	2.70	6.47	7.50	NA	NA	NA	10.00	6.19	5.22	NA	NA	NA	NA	NA
UNITED INSURANCE HOLDINGS CO	1.56	NA	18.50	NA	NA	27.50	20.00	10.61	11.08	NA	NA	NA	NA	NA
UNIVERSAL INSURANCE HLDGS	2.60	10.85	6.00	NA	28.88	30.00	NA	22.65	21.86	NA	NA	NA	NA	NA
VALIDUS HOLDINGS LTD	3.21	NA	7.68	NA	6.27	1.61	-4.42	10.71	7.21	NA	NA	NA	NA	NA
VOYA FINANCIAL INC	0.10	NA	NA	NA	NA	48.84	17.90	6.27	6.27	NA	NA	NA	NA	NA
WHITE MTNS INS GROUP LTD	0.10	-15.90	NA	NA	-2.49	16.50	-7.70	6.89	8.06	NA	NA	NA	NA	NA
WMIH CORP	0.00	NA	NA	NA	NA	NA	NA	32.87	32.87	NA	NA	NA	NA	NA
XL GROUP LTD	2.10	-10.50	NA	9.00	NA	1.50	13.00	7.62	5.78	7.50	250.00	250.00	0.76	0.00
Average	2.05	7.63	9.33	4.28	2.55	10.55	11.27	9.34	8.73	7.58				-0.12

Notes:

Sources: Value Line Investment Survey (VLIS), Part 3, The Ratings & Reports, September 8, 2017  
 Value Line Investment Survey, Part 2, Small and Mid Cap Edition, September 1, 2017  
 Compustat Database (Version as of September 29, 2017)  
<http://finance.yahoo.com> (data available in September 2017)

(2): The dividend yields needed for the DCF Analysis relate dividends at time 1,  $D_1$ , to stock prices at time 0,  $P_0$ . Dividend yields from Compustat and VLIS, Small and Mid Cap Edition, must be adjusted because they are derived from the ratio of dividends at time 0,  $D_0$ , to stock price at time zero,  $P_0$ .  $D_1$  is estimated from  $D_0$  as follows:

$$D_1 = D_0 \times [ 1.0 + ( 0.5 \times \text{Dividend Growth Rate} ) ] \quad \text{where Dividend Growth Rate} = 8.02\% \text{ from Page 4.}$$

(11) - (14): Data available only at Value Line Investment Survey, Part 3.

(12), (13): in millions.

(15) =  $[ (14) - 1.0 ] \times \{ [ (13) / (12) ]^{t(1)} - 1.0 \} \times 100$ , where t is 0.25 for the years between midyear 2017 and midyear 2021.

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Section VII - Profit  
 Subsection E - Cost of Capital  
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Section VII - E  
 Exhibit 3  
 Page 1

## Cost of Capital Estimate Using Capital Asset Pricing Model Analysis

$$\text{Cost of Capital: } K = r_f + (\beta \times r_d)$$

Time Horizon (1)	Risk-Free Yield ( $r_f$ ) (2)	Market Risk Premium ( $r_d$ ) (3)	Beta Coefficient ( $\beta$ ) (4)	Estimated Cost of Capital (K) (5)
Short-Term	0.98	8.52	0.89	8.59
Intermediate-Term	1.82	7.51	0.89	8.52
Long-Term	2.58	6.93	0.89	8.77
Average	1.79	7.66	0.89	<b>8.62</b>

Notes:

(2): Section VII-J, Exhibit 2, page 3

Short-Term = average yield on 1-month U.S. Treasury Constant Maturities (line (2))

Intermediate-Term = average yield on 5-year U.S. Treasury (line (8))

Long-Term = average yield on 20-year U.S. Treasury (line (11))

(3): Section VII-J, Exhibit 4

Short-Term = S&P 500 total returns minus U.S. Treasury Bill total returns

Intermediate-Term = S&P 500 total returns minus Intermediate-Term Government Bonds income returns

Long-Term = S&P 500 total returns minus Long-Term Government Bonds income returns

(4): Average Beta Coefficient (Page 2).

(5) = (2) + [ (4) x (3) ]

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### Capital Asset Pricing Model - Beta Coefficient

<u>Property/Casualty Insurance Companies</u>	<u>Beta Coefficients</u>
1347 PROPERTY INS HLDGS INC	0.55
ACMAT CORP -CL A	0.44
ALLEGHANY CORP	0.90
ALLIANZ SE -ADR	1.08
ALLSTATE CORP	0.85
AMERICAN FINANCIAL GROUP INC	0.90
AMERICAN INTERNATIONAL GROUP	1.13
AMERICAN NATIONAL INSURANCE	1.26
AMERICAN OVERSEAS GROUP LTD	0.22
AMERISAFE INC	0.95
AMTRUST FINANCIAL SERVICES	0.95
ARCH CAPITAL GROUP LTD	0.70
ARGO GROUP INTL HOLDINGS LTD	0.88
ASPEN INSURANCE HOLDINGS LTD	0.82
ASSURANT INC	0.88
ASSURED GUARANTY LTD	1.44
ATLANTIC AMERICAN CORP	0.60
ATLAS FINANCIAL HOLDINGS INC	0.75
AVIVA PLC -ADR	0.93
AXA -ADR	1.06
AXIS CAPITAL HOLDINGS LTD	0.75
BALDWIN & LYONS -CL B	0.55
BERKLEY (W R) CORP	0.80
BERKSHIRE HATHAWAY	0.90
BLUE CAP REINSURANCE	0.42
CHUBB LTD	0.85
CINCINNATI FINANCIAL CORP	0.90
CITIZENS INC	1.08
CNA FINANCIAL CORP	1.00
DONEGAL GROUP INC	0.35
EMC INSURANCE GROUP INC	0.97
EMPLOYERS HOLDINGS INC	1.05
ENSTAR GROUP LTD	0.91
ERIE INDEMNITY CO -CL A	0.80
ESSENT GROUP LTD	0.90
EVEREST RE GROUP LTD	0.77
FAIRFAX FINANCIAL HOLDINGS	0.61
FEDERATED NATIONAL HLDG CO	1.42
FIRST ACCEPTANCE CORP	0.89
FIRST AMERICAN FINANCIAL CP	0.82
GENWORTH FINANCIAL INC	2.17
GLOBAL INDEMNITY LTD	0.75
GREENLIGHT CAPITAL RE LTD	0.85

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### Capital Asset Pricing Model - Beta Coefficient

<u>Property/Casualty Insurance Companies</u>	<u>Beta Coefficients</u>
HALLMARK FINANCIAL SERVICES	0.85
HANOVER INSURANCE GROUP INC	0.95
HARTFORD FINANCIAL SERVICES	0.96
HCI GROUP INC	1.30
HERITAGE INSURANCE HOLDINGS	1.25
HORACE MANN EDUCATORS CORP	1.08
INFINITY PROPERTY & CAS CORP	0.75
JAMES RIVER GROUP HLDGS LTD	0.75
KEMPER CORP/DE	1.09
KINGSTONE COS INC	0.86
KINGSWAY FINANCIAL SVCS INC	0.56
LOEWS CORP	0.83
MAIDEN HOLDINGS LTD	1.22
MARKEL CORP	0.80
MBIA INC	1.99
MERCURY GENERAL CORP	0.80
MGIC INVESTMENT CORP/WI	1.81
NATIONAL GENERAL HOLDINGS CP	0.90
NATIONAL SEC GROUP INC	0.43
NAVIGATORS GROUP INC	0.80
NMI HOLDINGS INC	0.81
OLD REPUBLIC INTL CORP	1.05
ONEBEACON INSURANCE GROUP	0.80
OXBRIDGE RE HOLDINGS LTD	0.22
PROASSURANCE CORP	0.70
PROGRESSIVE CORP-OHIO	0.85
RADIAN GROUP INC	1.36
RENAISSANCERE HOLDINGS LTD	0.79
RLI CORP	0.95
SAFETY INSURANCE GROUP INC	0.85
SCOR SE -ADR	0.83
SELECTIVE INS GROUP INC	0.95
STATE AUTO FINANCIAL CORP	0.95
STATE NATIONAL COS INC	0.75
SWISS RE LTD -ADR	0.73
THIRD POINT REINSURANCE LTD	1.18
TIPTREE INC	0.07
TOKIO MARINE HOLDINGS -ADR	0.78
TRAVELERS COS INC	0.85
TRIPLE-S MANAGEMENT CORP	0.62
UNICO AMERICAN CORP	0.35
UNITED FIRE GROUP INC	1.00
UNITED INSURANCE HOLDINGS CO	1.15



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Page 2

### Capital Asset Pricing Model - Beta Coefficient

<u>Property/Casualty Insurance Companies</u>	<u>Beta Coefficients</u>
UNIVERSAL INSURANCE HLDGS	1.35
VALIDUS HOLDINGS LTD	0.79
VOYA FINANCIAL INC	1.43
WHITE MTNS INS GROUP LTD	0.60
WMIH CORP	0.72
XL GROUP LTD	0.90
Average	0.89

#### Notes:

Sources: Value Line Investment Survey (VLIS), Part 3, The Ratings & Reports, September 8, 2017  
Value Line Investment Survey, Part 2, Small and Mid Cap Edition, September 1, 2017  
Compustat Database (Version as of September 29, 2017)

If no information for a specific company in the above sources, use Yahoo Finance.

Betas from Compustat have been adjusted using the following equation:

$$\text{Adjusted Betas} = 0.35 + 0.67 \times \text{Compustat Betas}$$

Capital Structure Ratios of Property-Casualty Insurance Companies

Property/Casualty Insurance Companies (1)	Total Debt \$ in millions (2)	Preferred Stock \$ in millions (3)	Total Debt Capital =(2) + (3) (4)	Common Equity \$ in millions (5)	Equity Capital Share (6)	Debt Capital Share (7)
1347 PROPERTY INS HLDGS INC	2.7	0.0	2.7	46.4	0.94	0.06
ACMAT CORP -CL A	8.2	0.0	8.2	29.8	0.78	0.22
ALLEGHANY CORP	1,476.5	0.0	1,476.5	7,939.9	0.84	0.16
ALLIANZ SE -ADR	22,312.2	0.0	22,312.2	71,058.2	0.76	0.24
ALLSTATE CORP	6,347.0	0.0	6,347.0	20,573.0	0.76	0.24
AMERICAN FINANCIAL GROUP INC	2,218.0	0.0	2,218.0	4,916.0	0.69	0.31
AMERICAN INTERNATIONAL GROUP	30,912.0	0.0	30,912.0	76,300.0	0.71	0.29
AMERICAN NATIONAL INSURANCE	136.1	0.0	136.1	4,652.2	0.97	0.03
AMERICAN OVERSEAS GROUP LTD	29.4	0.0	29.4	62.1	0.68	0.32
AMERISAFE INC	0.2	0.0	0.2	456.2	1.00	0.00
AMTRUST FINANCIAL SERVICES	1,599.5	913.8	2,513.3	2,355.4	0.48	0.52
ARCH CAPITAL GROUP LTD	2,547.5	1,873.9	4,421.3	6,379.9	0.59	0.41
ARGO GROUP INTL HOLDINGS LTD	367.6	0.0	367.6	1,792.7	0.83	0.17
ASPEN INSURANCE HOLDINGS LTD	772.7	0.0	772.7	3,646.9	0.83	0.17
ASSURANT INC	1,067.0	0.0	1,067.0	4,098.1	0.79	0.21
ASSURED GUARANTY LTD	1,306.0	0.0	1,306.0	6,504.0	0.83	0.17
ATLANTIC AMERICAN CORP	33.7	0.1	33.8	105.5	0.76	0.24
ATLAS FINANCIAL HOLDINGS INC	19.2	0.0	19.2	127.3	0.87	0.13
AVIVA PLC -ADR	14,774.8	246.7	15,021.5	20,729.9	0.58	0.42
AXA -ADR	12,790.1	0.0	12,790.1	74,494.0	0.85	0.15
AXIS CAPITAL HOLDINGS LTD	993.0	1,126.1	2,119.0	5,146.3	0.71	0.29
BALDWIN & LYONS -CL B	20.0	0.0	20.0	404.3	0.95	0.05
BERKLEY (W R) CORP	2,539.4	0.0	2,539.4	5,047.2	0.67	0.33
BERKSHIRE HATHAWAY	101,644.0	0.0	101,644.0	283,001.0	0.74	0.26
BLUE CAP REINSURANCE	0.0	0.0	0.0	183.3	1.00	0.00
CHUBB LTD	14,821.0	0.0	14,821.0	48,275.0	0.77	0.23
CINCINNATI FINANCIAL CORP	846.0	0.0	846.0	7,060.0	0.89	0.11
CITIZENS INC	0.0	0.0	0.0	249.1	1.00	0.00
CNA FINANCIAL CORP	2,710.0	0.0	2,710.0	11,969.0	0.82	0.18
DONEGAL GROUP INC	74.0	0.0	74.0	438.6	0.86	0.14
EMC INSURANCE GROUP INC	25.0	0.0	25.0	553.3	0.96	0.04
EMPLOYERS HOLDINGS INC	32.0	0.0	32.0	840.6	0.96	0.04
ENSTAR GROUP LTD	673.6	0.4	674.0	2,801.9	0.81	0.19
ERIE INDEMNITY CO -CL A	24,766.0	0.0	24,766.0	816,910.0	0.97	0.03
ESSENT GROUP LTD	100.0	0.0	100.0	1,343.8	0.93	0.07

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Capital Structure Ratios of Property-Casualty Insurance Companies

Property/Casualty Insurance Companies (1)	Total Debt \$ in millions (2)	Preferred Stock \$ in millions (3)	Total Debt Capital =(2) + (3) (4)	Common Equity \$ in millions (5)	Equity Capital Share (6)	Debt Capital Share (7)
EVEREST RE GROUP LTD	633.2	0.0	633.2	8,075.4	0.93	0.07
FAIRFAX FINANCIAL HOLDINGS	4,767.6	1,335.5	6,103.1	8,484.6	0.58	0.42
FEDERATED NATIONAL HLDG CO	4.9	0.0	4.9	219.1	0.98	0.02
FIRST ACCEPTANCE CORP	70.1	0.0	70.1	72.5	0.51	0.49
FIRST AMERICAN FINANCIAL CP	736.7	0.0	736.7	3,008.2	0.80	0.20
GENWORTH FINANCIAL INC	4,639.0	0.0	4,639.0	12,644.0	0.73	0.27
GLOBAL INDEMNITY LTD	163.1	0.0	163.1	798.0	0.83	0.17
GREENLIGHT CAPITAL RE LTD	0.0	0.0	0.0	874.2	1.00	0.00
HALLMARK FINANCIAL SERVICES	85.7	0.0	85.7	265.7	0.76	0.24
HANOVER INSURANCE GROUP INC	786.4	0.0	786.4	2,857.5	0.78	0.22
HARTFORD FINANCIAL SERVICES	5,293.0	0.0	5,293.0	16,903.0	0.76	0.24
HCI GROUP INC	148.3	0.0	148.3	243.7	0.62	0.38
HERITAGE INSURANCE HOLDINGS	72.9	0.0	72.9	358.0	0.83	0.17
HORACE MANN EDUCATORS CORP	247.2	0.0	247.2	1,294.0	0.84	0.16
INFINITY PROPERTY & CAS CORP	276.3	0.0	276.3	699.2	0.72	0.28
JAMES RIVER GROUP HLDGS LTD	222.2	0.0	222.2	693.2	0.76	0.24
KEMPER CORP/DE	752.3	0.0	752.3	1,975.2	0.72	0.28
KINGSTONE COS INC	0.0	0.0	0.0	56.7	1.00	0.00
KINGSWAY FINANCIAL SVCS INC	238.8	6.4	245.2	56.0	0.19	0.81
LOEWS CORP	10,778.0	0.0	10,778.0	18,163.0	0.63	0.37
MAIDEN HOLDINGS LTD	351.4	315.0	666.4	1,045.8	0.61	0.39
MARKEL CORP	2,574.5	0.0	2,574.5	8,460.9	0.77	0.23
MBIA INC	5,015.0	0.0	5,015.0	3,227.0	0.39	0.61
MERCURY GENERAL CORP	320.0	0.0	320.0	1,752.4	0.85	0.15
MGIC INVESTMENT CORP/WI	1,178.7	0.0	1,178.7	2,548.8	0.68	0.32
NATIONAL GENERAL HOLDINGS CP	843.3	420.0	1,263.3	1,473.6	0.54	0.46
NATIONAL SEC GROUP INC	17.1	0.0	17.1	48.1	0.74	0.26
NAVIGATORS GROUP INC	263.7	0.0	263.7	1,178.2	0.82	0.18
NMI HOLDINGS INC	144.4	0.0	144.4	477.3	0.77	0.23
OLD REPUBLIC INTL CORP	1,528.7	0.0	1,528.7	4,471.6	0.75	0.25
ONEBEACON INSURANCE GROUP	273.2	0.0	273.2	1,021.3	0.79	0.21
OXBRIDGE RE HOLDINGS LTD	0.0	0.0	0.0	37.2	1.00	0.00
PROASSURANCE CORP	448.2	0.0	448.2	1,798.7	0.80	0.20
PROGRESSIVE CORP-OHIO	3,148.2	0.0	3,148.2	7,957.1	0.72	0.28
RADIANT GROUP INC	1,069.5	0.0	1,069.5	2,872.3	0.73	0.27

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Capital Structure Ratios of Property-Casualty Insurance Companies

Property/Casualty Insurance Companies (1)	Total Debt \$ in millions (2)	Preferred Stock \$ in millions (3)	Total Debt Capital =(2) + (3) (4)	Common Equity \$ in millions (5)	Equity Capital Share (6)	Debt Capital Share (7)
RENAISSANCERE HOLDINGS LTD	979.5	400.0	1,379.5	4,466.6	0.76	0.24
RLI CORP	148.7	0.0	148.7	823.6	0.85	0.15
SAFETY INSURANCE GROUP INC	0.0	0.0	0.0	670.7	1.00	0.00
SCOR SE -ADR	2,909.2	0.0	2,909.2	7,028.7	0.71	0.29
SELECTIVE INS GROUP INC	445.0	0.0	445.0	1,531.4	0.77	0.23
STATE AUTO FINANCIAL CORP	122.1	0.0	122.1	891.3	0.88	0.12
STATE NATIONAL COS INC	43.8	0.0	43.8	296.4	0.87	0.13
SWISS RE LTD -ADR	11,351.0	0.0	11,351.0	35,634.0	0.76	0.24
THIRD POINT REINSURANCE LTD	206.2	0.0	206.2	1,414.1	0.87	0.13
TIPTREE INC	1,705.0	0.0	1,705.0	293.4	0.15	0.85
TOKIO MARINE HOLDINGS -ADR	6,753.7	0.0	6,753.7	31,814.4	0.82	0.18
TRAVELERS COS INC	6,437.0	0.0	6,437.0	23,221.0	0.78	0.22
TRIPLE-S MANAGEMENT CORP	35.1	0.0	35.1	863.2	0.96	0.04
UNICO AMERICAN CORP	0.0	0.0	0.0	68.9	1.00	0.00
UNITED FIRE GROUP INC	0.0	0.0	0.0	941.9	1.00	0.00
UNITED INSURANCE HOLDINGS CO	54.2	0.0	54.2	241.3	0.82	0.18
UNIVERSAL INSURANCE HLDGS	15.0	0.0	15.0	371.2	0.96	0.04
VALIDUS HOLDINGS LTD	1,060.8	150.0	1,210.8	3,688.3	0.75	0.25
VOYA FINANCIAL INC	5,516.7	0.0	5,516.7	12,993.9	0.70	0.30
WHITE MTNS INS GROUP LTD	285.9	0.0	285.9	3,603.3	0.93	0.07
WMIH CORP	18.8	502.2	521.0	194.1	0.27	0.73
XL GROUP LTD	2,737.6	0.0	2,737.6	10,938.5	0.80	0.20
Average					<b>0.78</b>	<b>0.22</b>

Notes:

Source: Compustat Database (Version as of September 29, 2017)

(6) = (5) / [ (4) + (5) ]

(7) = 1.0 - (6)

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## VII 000095 STIP

Section VII - Profit  
 Subsection F - Leverage Ratio  
 7/1/2018

Section VII - F  
 Exhibit 1

Loss & LAE and Unearned Premium Reserves to Surplus Ratio  
 (\$ in Millions)

Year End (1)	Loss & LAE Reserves (2)	Unearned Premium Reserves (3)	Surplus (4)	Ratio = [ (2) + (3) ] / (4) (5)
2012	261,268	75,901	180,839	1.86
2013	262,894	81,382	186,373	1.85
2014	228,618	70,774	174,153	1.72
2015	229,564	73,041	168,783	1.79
2016	228,165	72,717	169,831	1.77
Average				<b>1.80</b>

Notes:

Source: Various issues of Best's Aggregates and Averages.  
 Balance Sheet for Commercial Casualty Composite.

Single Policy  
 Determination of Selected Premium Flow From Premium Collection Special Call

Time Interval		Net Premium Ranges									Weighted Average Selected Collection Pattern (12)
		0 - 9,999			10,000 - 199,999			200,000 +			
		Actual Premium Collection Pattern		Weight (5)	Actual Premium Collection Pattern		Weight (8)	Actual Premium Collection Pattern		Weight (11)	
From (1)	To (2)	Actual (3)	Selected (4)		Actual (6)	Selected (7)		Actual (9)	Selected (10)		
07/01/17	09/30/17	0.0%	0.0%	24.7%	0.1%	0.0%	49.1%	0.0%	0.0%	26.2%	0.0%
10/01/17	12/31/17	0.0%	0.0%	24.7%	0.0%	0.0%	49.1%	0.2%	0.0%	26.2%	0.0%
01/01/18	03/31/18	0.1%	0.0%	24.7%	0.1%	0.0%	49.1%	0.0%	0.0%	26.2%	0.0%
04/01/18	06/30/18	11.2%	11.2%	24.7%	2.7%	2.7%	49.1%	1.1%	1.0%	26.2%	4.4%
07/01/18	09/30/18	38.1%	38.1%	24.7%	34.5%	34.5%	49.1%	37.8%	37.8%	26.2%	36.3%
10/01/18	12/31/18	22.6%	22.6%	24.7%	26.0%	26.0%	49.1%	22.4%	22.4%	26.2%	24.2%
01/01/19	03/31/19	15.4%	15.4%	24.7%	20.5%	20.5%	49.1%	20.1%	20.1%	26.2%	19.1%
04/01/19	06/30/19	4.0%	4.0%	24.7%	5.7%	5.7%	49.1%	7.4%	7.5%	26.2%	5.8%
07/01/19	09/30/19	2.2%	2.2%	24.7%	1.8%	1.8%	49.1%	3.1%	3.0%	26.2%	2.2%
10/01/19	12/31/19	2.8%	2.8%	24.7%	4.0%	4.0%	49.1%	5.6%	5.6%	26.2%	4.1%
01/01/20	03/31/20	1.9%	1.9%	24.7%	2.2%	2.2%	49.1%	1.9%	1.9%	26.2%	2.0%
04/01/20	06/30/20	1.1%	1.1%	24.7%	1.2%	1.5%	49.1%	0.2%	0.5%	26.2%	1.1%
07/01/20	09/30/20	0.1%	0.7%	24.7%	0.2%	1.1%	49.1%	0.0%	0.2%	26.2%	0.8%
10/01/20	12/31/20	0.0%	0.0%	24.7%	0.1%	0.0%	49.1%	0.1%	0.0%	26.2%	0.0%
01/01/21	03/31/21	0.0%	0.0%	24.7%	0.0%	0.0%	49.1%	0.1%	0.0%	26.2%	0.0%
04/01/21	06/30/21	0.0%	0.0%	24.7%	0.0%	0.0%	49.1%	0.0%	0.0%	26.2%	0.0%
07/01/21	09/30/21	0.2%	0.0%	24.7%	0.2%	0.0%	49.1%	0.0%	0.0%	26.2%	0.0%
10/01/21	12/31/21	0.2%	0.0%	24.7%	0.4%	0.0%	49.1%	0.0%	0.0%	26.2%	0.0%
01/01/22	03/31/22	0.1%	0.0%	24.7%	0.3%	0.0%	49.1%	0.0%	0.0%	26.2%	0.0%
Total											100.0%

Notes:

(5), (8), (11) are calculated using Unit Statistical Plan data for PY 2015.

(3), (6), (9) are from the premium collection special call.

(12) = [(4) x (5)] + [(7) x (8)] + [(10) x (11)]

VII 000096 STIP

## VII 000097 STIP

Section VII - Profit  
Subsection H - Expense Weights  
7/1/2018

Section VII - H  
Exhibit 1

### Cash Flow Weights

Item of Expense Allowance (% of Standard Premium plus ARAP)	Policy Year		Average
	2014	2015	
(1) Expected Losses	58.06%	54.56%	56.31%
(2) Expected Loss Adjustment Expense (LAE):	10.74%	10.10%	10.42%
(a) Defense and Cost Containment Expense	5.48%	5.15%	5.31%
(b) Adjusting and Other Expense	5.26%	4.95%	5.10%
(3) Expected Losses + Expected LAE [= (1) + (2) ]	68.80%	64.65%	66.73%
(4) Fixed Expenses	4.27%	4.23%	4.25%
(a) General Expenses	3.85%	3.80%	3.83%
(b) Miscellaneous and Other Taxes	0.43%	0.42%	0.42%
(5) Variable Expenses [= (5a) + (5b) + (5c) ]	19.86%	19.86%	19.86%
(a) Total Acquisition	12.55%	12.55%	12.55%
(i) Commissions	8.27%	8.27%	8.27%
(ii) Other Acquisition	3.29%	3.29%	3.29%
(iii) Reinsurance Expenses	1.00%	1.00%	1.00%
(iv) Incidental Income and Earned but Uncollected Premium	0.00%	0.00%	0.00%
(b) Premium Tax	2.16%	2.16%	2.16%
(c) Premium Discount	5.15%	5.15%	5.15%
(6) Total Expenses [= (4) + (5) ]	24.14%	24.09%	24.12%

**Notes:**

- (1): Policy Year 2014 and Policy Year 2015 Expected Losses are based on the loss ratios projected to the prospective policy period adjusted by the factor to remove the residual market subsidy associated with large deductible policies from Section I-B, Exhibit 1.
- (2): Expected LAE = Expected Losses x 0.185 where 0.185 is the LAE ratio calculated in VI-H, Exhibit 1.
- (2a), (2b): Loss Adjustment Expense split between DCC and AO is  $0.51 = 0.094 / 0.185$  and  $0.49 = 1 - 0.51$  where 0.094 is three year average ratio of DCC to loss from Section VI-H, Exhibit 1, line (4) and LAE ratio = 0.185 from Section VI-H, Exhibit 1, line (6).
- (4): Section VI-B, Exhibit 1 times the factor to reflect the impact of large deductible policies, from Section I-D, Exhibit 1, Page 1.
- (4a), (4b): Policy Year 2014 Fixed Expenses split between General Expenses and Other Taxes based on \$33,764,849 General Expenses and \$3,749,394 Other Taxes. Policy Year 2015 General Expenses split based on \$35,802,920 General Expenses and \$3,975,710 Other Taxes. See VI-B, Exhibit 1, columns (12) & (13).
- (5a): Section VI-G, Exhibit 1.
- (5b), (5c): Section VI-A, Exhibit 1.

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Section VII - Profit  
 Subsection I - Loss & LAE Flow  
 7/1/2018

Section VII - I  
 Exhibit 1

## Single Policy Loss & Loss Adjustment Expense (LAE) Flow

Time Interval		Earned Premium (3)	Loss Flow (4)	DCC Flow (5) = (4)	AO Flow (6) = [(3) + (4)] / 2.0	Loss & LAE Payout (7)
From (1)	To (2)					
07/01/17	09/30/17	0.0000	0.0000	0.0000	0.0000	0.0000
10/01/17	12/31/17	0.0000	0.0000	0.0000	0.0000	0.0000
01/01/18	03/31/18	0.0000	0.0000	0.0000	0.0000	0.0000
04/01/18	06/30/18	0.0000	0.0000	0.0000	0.0000	0.0000
07/01/18	09/30/18	0.2500	0.0496	0.0496	0.1498	0.0573
10/01/18	12/31/18	0.2500	0.0496	0.0496	0.1498	0.0573
01/01/19	03/31/19	0.2500	0.0496	0.0496	0.1498	0.0573
04/01/19	06/30/19	0.2500	0.0496	0.0496	0.1498	0.0573
07/01/19	09/30/19	0.0000	0.0692	0.0692	0.0346	0.0666
10/01/19	12/31/19	0.0000	0.0692	0.0692	0.0346	0.0666
01/01/20	03/31/20	0.0000	0.0692	0.0692	0.0346	0.0666
04/01/20	06/30/20	0.0000	0.0692	0.0692	0.0346	0.0666
07/01/20	09/30/20	0.0000	0.0457	0.0457	0.0228	0.0439
10/01/20	12/31/20	0.0000	0.0457	0.0457	0.0228	0.0439
01/01/21	03/31/21	0.0000	0.0457	0.0457	0.0228	0.0439
04/01/21	06/30/21	0.0000	0.0457	0.0457	0.0228	0.0439
07/01/21	09/30/21	0.0000	0.0259	0.0259	0.0129	0.0249
10/01/21	12/31/21	0.0000	0.0259	0.0259	0.0129	0.0249
01/01/22	03/31/22	0.0000	0.0259	0.0259	0.0129	0.0249
04/01/22	06/30/22	0.0000	0.0259	0.0259	0.0129	0.0249
07/01/22	09/30/22	0.0000	0.0134	0.0134	0.0067	0.0129
10/01/22	12/31/22	0.0000	0.0134	0.0134	0.0067	0.0129
01/01/23	03/31/23	0.0000	0.0134	0.0134	0.0067	0.0129
04/01/23	06/30/23	0.0000	0.0134	0.0134	0.0067	0.0129
07/01/23	09/30/23	0.0000	0.0065	0.0065	0.0032	0.0062
10/01/23	12/31/23	0.0000	0.0065	0.0065	0.0032	0.0062
01/01/24	03/31/24	0.0000	0.0065	0.0065	0.0032	0.0062
04/01/24	06/30/24	0.0000	0.0065	0.0065	0.0032	0.0062
07/01/24	09/30/24	0.0000	0.0036	0.0036	0.0018	0.0035
10/01/24	12/31/24	0.0000	0.0036	0.0036	0.0018	0.0035
01/01/25	03/31/25	0.0000	0.0036	0.0036	0.0018	0.0035
04/01/25	06/30/25	0.0000	0.0036	0.0036	0.0018	0.0035
07/01/25	09/30/25	0.0000	0.0028	0.0028	0.0014	0.0027
10/01/25	12/31/25	0.0000	0.0028	0.0028	0.0014	0.0027
01/01/26	03/31/26	0.0000	0.0028	0.0028	0.0014	0.0027
04/01/26	06/30/26	0.0000	0.0028	0.0028	0.0014	0.0027
07/01/26	09/30/26	0.0000	0.0021	0.0021	0.0010	0.0020
10/01/26	12/31/26	0.0000	0.0021	0.0021	0.0010	0.0020
01/01/27	03/31/27	0.0000	0.0021	0.0021	0.0010	0.0020
04/01/27	06/30/27	0.0000	0.0021	0.0021	0.0010	0.0020
07/01/27	09/30/27	0.0000	0.0014	0.0014	0.0007	0.0014
10/01/27	12/31/27	0.0000	0.0014	0.0014	0.0007	0.0014
01/01/28	03/31/28	0.0000	0.0014	0.0014	0.0007	0.0014
04/01/28	06/30/28	0.0000	0.0014	0.0014	0.0007	0.0014
07/01/28	09/30/28	0.0000	0.0016	0.0016	0.0008	0.0015
10/01/28	12/31/28	0.0000	0.0016	0.0016	0.0008	0.0015
01/01/29	03/31/29	0.0000	0.0016	0.0016	0.0008	0.0015
04/01/29	06/30/29	0.0000	0.0016	0.0016	0.0008	0.0015
07/01/29	09/30/29	0.0000	0.0020	0.0020	0.0010	0.0019
10/01/29	12/31/29	0.0000	0.0020	0.0020	0.0010	0.0019
01/01/30	03/31/30	0.0000	0.0020	0.0020	0.0010	0.0019
04/01/30	06/30/30	0.0000	0.0020	0.0020	0.0010	0.0019
07/01/30	09/30/30	0.0000	0.0014	0.0014	0.0007	0.0013
10/01/30	12/31/30	0.0000	0.0014	0.0014	0.0007	0.0013
01/01/31	03/31/31	0.0000	0.0014	0.0014	0.0007	0.0013
04/01/31	06/30/31	0.0000	0.0014	0.0014	0.0007	0.0013
07/01/31	09/30/31	0.0000	0.0011	0.0011	0.0005	0.0010
10/01/31	12/31/31	0.0000	0.0011	0.0011	0.0005	0.0010
01/01/32	03/31/32	0.0000	0.0011	0.0011	0.0005	0.0010
04/01/32	06/30/32	0.0000	0.0011	0.0011	0.0005	0.0010
07/01/32	09/30/32	0.0000	0.0011	0.0011	0.0005	0.0010
10/01/32	12/31/32	0.0000	0.0011	0.0011	0.0005	0.0010
01/01/33	03/31/33	0.0000	0.0011	0.0011	0.0005	0.0010
04/01/33	06/30/33	0.0000	0.0011	0.0011	0.0005	0.0010
07/01/33	09/30/33	0.0000	0.0013	0.0013	0.0006	0.0012
10/01/33	12/31/33	0.0000	0.0013	0.0013	0.0006	0.0012
01/01/34	03/31/34	0.0000	0.0013	0.0013	0.0006	0.0012
04/01/34	06/30/34	0.0000	0.0013	0.0013	0.0006	0.0012
07/01/34	09/30/34	0.0000	0.0011	0.0011	0.0006	0.0011
10/01/34	12/31/34	0.0000	0.0011	0.0011	0.0006	0.0011
01/01/35	03/31/35	0.0000	0.0011	0.0011	0.0006	0.0011
04/01/35	06/30/35	0.0000	0.0011	0.0011	0.0006	0.0011
07/01/35	09/30/35	0.0000	0.0012	0.0012	0.0006	0.0011
10/01/35	12/31/35	0.0000	0.0012	0.0012	0.0006	0.0011
01/01/36	03/31/36	0.0000	0.0012	0.0012	0.0006	0.0011
04/01/36	06/30/36	0.0000	0.0012	0.0012	0.0006	0.0011
07/01/36	09/30/36	0.0000	0.0009	0.0009	0.0004	0.0008
10/01/36	12/31/36	0.0000	0.0009	0.0009	0.0004	0.0008
01/01/37	03/31/37	0.0000	0.0009	0.0009	0.0004	0.0008
04/01/37	06/30/37	0.0000	0.0009	0.0009	0.0004	0.0008
07/01/37	09/30/37	0.0000	0.0009	0.0009	0.0004	0.0008



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Section VII - Profit  
 Subsection I - Loss & LAE Flow  
 7/1/2018

Section VII - I  
 Exhibit 1

## Single Policy Loss & Loss Adjustment Expense (LAE) Flow

Time Interval		Earned Premium (3)	Loss Flow (4)	DCC Flow (5) = (4)	AO Flow (6) = [(3) + (4)] / 2.0	Loss & LAE Payout (7)
From (1)	To (2)					
10/01/37	12/31/37	0.0000	0.0009	0.0009	0.0004	0.0008
01/01/38	03/31/38	0.0000	0.0009	0.0009	0.0004	0.0008
04/01/38	06/30/38	0.0000	0.0009	0.0009	0.0004	0.0008
07/01/38	09/30/38	0.0000	0.0007	0.0007	0.0003	0.0006
10/01/38	12/31/38	0.0000	0.0007	0.0007	0.0003	0.0006
01/01/39	03/31/39	0.0000	0.0007	0.0007	0.0003	0.0006
04/01/39	06/30/39	0.0000	0.0007	0.0007	0.0003	0.0006
07/01/39	09/30/39	0.0000	0.0012	0.0012	0.0006	0.0012
10/01/39	12/31/39	0.0000	0.0012	0.0012	0.0006	0.0012
01/01/40	03/31/40	0.0000	0.0012	0.0012	0.0006	0.0012
04/01/40	06/30/40	0.0000	0.0012	0.0012	0.0006	0.0012
07/01/40	09/30/40	0.0000	0.0012	0.0012	0.0006	0.0012
10/01/40	12/31/40	0.0000	0.0012	0.0012	0.0006	0.0012
01/01/41	03/31/41	0.0000	0.0012	0.0012	0.0006	0.0012
04/01/41	06/30/41	0.0000	0.0012	0.0012	0.0006	0.0012
07/01/41	09/30/41	0.0000	0.0012	0.0012	0.0006	0.0012
10/01/41	12/31/41	0.0000	0.0012	0.0012	0.0006	0.0012
01/01/42	03/31/42	0.0000	0.0012	0.0012	0.0006	0.0012
04/01/42	06/30/42	0.0000	0.0012	0.0012	0.0006	0.0012
07/01/42	09/30/42	0.0000	0.0012	0.0012	0.0006	0.0012
10/01/42	12/31/42	0.0000	0.0012	0.0012	0.0006	0.0012
01/01/43	03/31/43	0.0000	0.0012	0.0012	0.0006	0.0012
04/01/43	06/30/43	0.0000	0.0012	0.0012	0.0006	0.0012
07/01/43	09/30/43	0.0000	0.0012	0.0012	0.0006	0.0012
10/01/43	12/31/43	0.0000	0.0012	0.0012	0.0006	0.0012
01/01/44	03/31/44	0.0000	0.0012	0.0012	0.0006	0.0012
04/01/44	06/30/44	0.0000	0.0012	0.0012	0.0006	0.0012
07/01/44	09/30/44	0.0000	0.0012	0.0012	0.0006	0.0012
10/01/44	12/31/44	0.0000	0.0012	0.0012	0.0006	0.0012
01/01/45	03/31/45	0.0000	0.0012	0.0012	0.0006	0.0012
04/01/45	06/30/45	0.0000	0.0012	0.0012	0.0006	0.0012
07/01/45	09/30/45	0.0000	0.0012	0.0012	0.0006	0.0012
10/01/45	12/31/45	0.0000	0.0012	0.0012	0.0006	0.0012
01/01/46	03/31/46	0.0000	0.0012	0.0012	0.0006	0.0012
04/01/46	06/30/46	0.0000	0.0012	0.0012	0.0006	0.0012
07/01/46	09/30/46	0.0000	0.0012	0.0012	0.0006	0.0012
10/01/46	12/31/46	0.0000	0.0012	0.0012	0.0006	0.0012
01/01/47	03/31/47	0.0000	0.0012	0.0012	0.0006	0.0012
04/01/47	06/30/47	0.0000	0.0012	0.0012	0.0006	0.0012
07/01/47	09/30/47	0.0000	0.0012	0.0012	0.0006	0.0012
10/01/47	12/31/47	0.0000	0.0012	0.0012	0.0006	0.0012
01/01/48	03/31/48	0.0000	0.0012	0.0012	0.0006	0.0012
04/01/48	06/30/48	0.0000	0.0012	0.0012	0.0006	0.0012
07/01/48	09/30/48	0.0000	0.0012	0.0012	0.0006	0.0012
10/01/48	12/31/48	0.0000	0.0012	0.0012	0.0006	0.0012
01/01/49	03/31/49	0.0000	0.0012	0.0012	0.0006	0.0012
04/01/49	06/30/49	0.0000	0.0012	0.0012	0.0006	0.0012
07/01/49	09/30/49	0.0000	0.0012	0.0012	0.0006	0.0012
10/01/49	12/31/49	0.0000	0.0012	0.0012	0.0006	0.0012
01/01/50	03/31/50	0.0000	0.0012	0.0012	0.0006	0.0012
04/01/50	06/30/50	0.0000	0.0012	0.0012	0.0006	0.0012
07/01/50	09/30/50	0.0000	0.0012	0.0012	0.0006	0.0012
10/01/50	12/31/50	0.0000	0.0012	0.0012	0.0006	0.0012
01/01/51	03/31/51	0.0000	0.0012	0.0012	0.0006	0.0012
04/01/51	06/30/51	0.0000	0.0012	0.0012	0.0006	0.0012
07/01/51	09/30/51	0.0000	0.0012	0.0012	0.0006	0.0012
10/01/51	12/31/51	0.0000	0.0012	0.0012	0.0006	0.0012
01/01/52	03/31/52	0.0000	0.0012	0.0012	0.0006	0.0012
04/01/52	06/30/52	0.0000	0.0012	0.0012	0.0006	0.0012
07/01/52	09/30/52	0.0000	0.0012	0.0012	0.0006	0.0012
10/01/52	12/31/52	0.0000	0.0012	0.0012	0.0006	0.0012
01/01/53	03/31/53	0.0000	0.0012	0.0012	0.0006	0.0012
04/01/53	06/30/53	0.0000	0.0012	0.0012	0.0006	0.0012
(8) Relative Weights			1.0000	0.0944	0.0907	

**Notes:**

- (3): Single policy earned premium is earned uniformly through the one year policy term.
- (4): Exhibit 2, (16). Annual values divided by 4.0.
- (7): Loss & LAE Payout = ( 1.000 x (4) + 0.0944 x (5) + 0.0907 x (6)) / ( 1.000 + 0.0944 + 0.0907 )
- (8): DCC relative weight = 1.000 x 0.185 x 0.51; AO relative weight = 1.000 x 0.185 x 0.49  
 where 0.185 is the LAE factor calculated in Section VI-H, Exhibit 1 and 0.51, 0.49  
 are the DCC and AO relative weights from Section VI-H, Exhibit 1.

Loss Payment Pattern

Age In Months (1)	Remainder of Industry							AIG							Total
	Indemnity Unadjusted LDF to Ult (2)	Indemnity % Paid =1.0 / (2) (3)	Indemnity Incremental % Paid (3) - 1st Diff (4)	Medical LDF to Ult (5)	Medical %Paid =1.0 / (5) (6)	Medical Incremental % Paid (6) - 1st Diff (7)	Indemnity & Medical Incremental % Paid (8)	Indemnity Unadjusted LDF to Ult (9)	Indemnity % Paid =1.0 / (9) (10)	Indemnity Incremental % Paid (10) - 1st Diff (11)	Medical LDF to Ult (12)	Medical %Paid =1.0 / (12) (13)	Medical Incremental % Paid (13) - 1st Diff (14)	Indemnity & Medical Incremental % Paid (15)	Indemnity & Medical Incremental % Paid (16)
12	7.505	13.32%	13.32%	2.928	34.15%	34.15%	20.39%	9.102	10.99%	10.99%	3.470	28.82%	28.82%	16.20%	19.86%
24	2.575	38.83%	25.51%	1.502	66.58%	32.43%	27.86%	2.882	34.69%	23.71%	1.612	62.03%	33.21%	26.48%	27.68%
36	1.629	61.40%	22.56%	1.316	75.99%	9.42%	18.10%	1.743	57.36%	22.67%	1.364	73.34%	11.31%	19.35%	18.26%
48	1.339	74.67%	13.28%	1.251	79.93%	3.94%	10.11%	1.385	72.21%	14.85%	1.272	78.61%	5.27%	12.05%	10.36%
60	1.227	81.49%	6.82%	1.222	81.81%	1.88%	5.14%	1.239	80.70%	8.49%	1.231	81.22%	2.61%	6.77%	5.35%
72	1.183	84.52%	3.02%	1.198	83.50%	1.69%	2.57%	1.193	83.82%	3.11%	1.206	82.94%	1.72%	2.70%	2.59%
84	1.158	86.33%	1.81%	1.186	84.29%	0.79%	1.47%	1.168	85.59%	1.77%	1.201	83.25%	0.32%	1.35%	1.45%
96	1.141	87.66%	1.34%	1.174	85.17%	0.88%	1.18%	1.161	86.14%	0.55%	1.188	84.21%	0.95%	0.67%	1.12%
108	1.130	88.52%	0.85%	1.162	86.05%	0.88%	0.86%	1.154	86.63%	0.48%	1.172	85.34%	1.13%	0.67%	0.84%
120	1.124	88.97%	0.46%	1.152	86.81%	0.76%	0.56%	1.148	87.12%	0.50%	1.156	86.47%	1.14%	0.68%	0.58%
132	1.116	89.59%	0.62%	1.144	87.44%	0.63%	0.62%	1.140	87.71%	0.59%	1.145	87.36%	0.89%	0.68%	0.63%
144	1.106	90.44%	0.85%	1.134	88.17%	0.74%	0.81%	1.134	88.19%	0.48%	1.133	88.26%	0.90%	0.60%	0.78%
156	1.100	90.89%	0.45%	1.125	88.88%	0.70%	0.54%	1.126	88.84%	0.64%	1.121	89.17%	0.91%	0.72%	0.56%
168	1.098	91.11%	0.21%	1.115	89.66%	0.78%	0.41%	1.119	89.35%	0.51%	1.109	90.16%	0.99%	0.65%	0.44%
180	1.096	91.26%	0.15%	1.107	90.36%	0.70%	0.34%	1.106	90.42%	1.07%	1.097	91.13%	0.97%	1.04%	0.42%
192	1.091	91.69%	0.44%	1.097	91.14%	0.78%	0.55%	1.105	90.53%	0.11%	1.089	91.81%	0.68%	0.28%	0.52%
204	1.089	91.86%	0.17%	1.087	92.03%	0.90%	0.42%	1.096	91.20%	0.67%	1.081	92.55%	0.74%	0.69%	0.45%
216	1.084	92.23%	0.37%	1.080	92.56%	0.52%	0.42%	1.088	91.95%	0.75%	1.069	93.51%	0.97%	0.81%	0.47%
228	1.083	92.38%	0.14%	1.073	93.22%	0.66%	0.32%	1.081	92.54%	0.59%	1.066	93.80%	0.28%	0.50%	0.34%
240	1.081	92.53%	0.15%	1.063	94.05%	0.83%	0.38%	1.081	92.54%	0.00%	1.063	94.09%	0.29%	0.09%	0.34%
252	1.079	92.64%	0.12%	1.057	94.62%	0.57%	0.27%	1.079	92.64%	0.10%	1.057	94.62%	0.53%	0.23%	0.27%
264		0.53%			0.38%	0.38%	0.48%		0.53%	0.53%		0.38%	0.38%	0.48%	0.48%
276		0.53%			0.38%	0.38%	0.48%		0.53%	0.53%		0.38%	0.38%	0.48%	0.48%
288		0.53%			0.38%	0.38%	0.48%		0.53%	0.53%		0.38%	0.38%	0.48%	0.48%
300		0.53%			0.38%	0.38%	0.48%		0.53%	0.53%		0.38%	0.38%	0.48%	0.48%
312		0.53%			0.38%	0.38%	0.48%		0.53%	0.53%		0.38%	0.38%	0.48%	0.48%
324		0.53%			0.38%	0.38%	0.48%		0.53%	0.53%		0.38%	0.38%	0.48%	0.48%
336		0.53%			0.38%	0.38%	0.48%		0.53%	0.53%		0.38%	0.38%	0.48%	0.48%
348		0.53%			0.38%	0.38%	0.48%		0.53%	0.53%		0.38%	0.38%	0.48%	0.48%
360		0.53%			0.38%	0.38%	0.48%		0.53%	0.53%		0.38%	0.38%	0.48%	0.48%
372		0.53%			0.38%	0.38%	0.48%		0.53%	0.53%		0.38%	0.38%	0.48%	0.48%
384		0.53%			0.38%	0.38%	0.48%		0.53%	0.53%		0.38%	0.38%	0.48%	0.48%
396		0.53%			0.38%	0.38%	0.48%		0.53%	0.53%		0.38%	0.38%	0.48%	0.48%
408		0.53%			0.38%	0.38%	0.48%		0.53%	0.53%		0.38%	0.38%	0.48%	0.48%
420		0.53%			0.38%	0.38%	0.48%		0.53%	0.53%		0.38%	0.38%	0.48%	0.48%
Total			100.00%			100.00%	100.00%			100.00%			100.00%	100.00%	100.00%

VII 000100 STIP

Notes:  
 (2), (5): Section II - E, Exhibit 1, Page 1.  
 (8) = (4) x 66.08% + (7) x 33.92%, where 66.08% and 33.92% are indemnity and medical estimated ultimate losses respectively, from Section II - A, Exhibit 1, Page 2.  
 (9), (12): Section II - E, Exhibit 1, Page 4.  
 (15) = (11) x 70.78% + (14) x 29.22%, where 70.78% and 29.22% are indemnity and medical estimated ultimate losses respectively, from Section II - A, Exhibit 1, Page 3.  
 (16) = (8) x 87.38% + (15) x 12.62%, where 87.38% and 12.62% are estimated ultimate losses for Remainder of Industry and AIG respectively, from Section II - A, Exhibit 1, Pages 2 and 3.

# VII 000101 STIP

Section VII - Profit  
 Subsection J - Portfolio Rate of Return  
 7/1/2018

Section VII - J  
 Exhibit 1  
 Page 1

## Calculation of Portfolio Rate of Return

Asset Class (1)	Proportion (2)	Pre-tax Return (3)	Tax Rate (4)	After-tax Return (5)
Cash and Short-term Investments	5.97%	0.98%	21.00%	0.77%
Governments	9.63%	1.61%	21.00%	1.28%
States & Territories	8.77%	1.58%	5.25%	1.50%
Special Revenue	17.32%	1.88%	5.25%	1.78%
Industrials	27.04%	2.44%	21.00%	1.93%
Common Stocks	21.66%	10.182%	14.86%	8.67%
Real Estate	0.77%	5.00%	21.00%	3.95%
Preferred Stocks	0.68%	5.42%	13.13%	4.71%
Other Assets	8.17%	5.42%	13.13%	4.71%
(6) Total	100.00%	4.06%	14.93%	3.45%
(7) Investment Expenses		0.24%	21.00%	0.19%
(8) Portfolio Rate of Return		3.82%		3.27%

Notes:

(2): Page 2, Total US Property/Casualty Industry.

(3): Pretax bond returns are from Exhibit 2, page 1.

Cash and short term investments: using short horizon CAPM with beta=0.00. Exhibit 2, Page 3, line (2).

Pretax return for Common Stock has been hardcoded to derive a rate change of -12.9% as stipulated.

The original calculated value as filed was 9.45%.

Pretax return for Real Estate: 3 month treasury rate, 1.06% Exhibit 2, page 3, line (3) plus the real estate differential, 3.94% from Ibbotson and Siegel, "Real Estate Returns: A Comparison with Other Investments".

Pretax return for Preferred Stock: calculated using data from yahoo finance.

Pretax return for Other Assets: equal to the pretax return for Preferred Stock.

(4): Governments and Other taxable bonds taxed at Federal Tax Rate of 0.21.

Tax rate for Tax Exempt Bonds =  $0.25 \times 0.21$

Tax rate for Preferred stock =  $(0.50 \times 0.21) + (0.50 \times 0.25 \times 0.21)$

Tax rate for Common Stocks from Exhibit 6, page 1.

Tax rate for Other Assets = Tax rate for Preferred stock =  $(0.50 \times 0.21) + (0.50 \times 0.25 \times 0.21)$

(5) = (3) x [ 1.0 - (4) ]

(7): Exhibit 5.

(8) = (6) - (7)

## VII 000102 STIP

Section VII - Profit  
 Subsection J - Portfolio Rate of Return  
 7/1/2018

Section VII - J  
 Exhibit 1  
 Page 2

### Asset Distribution for Property-Casualty Industry

Assets (1)	Net Admitted Assets (\$000) (2)	Share = (2) / (4) (3)
Cash and Short Term Investments	95,632,669	5.97%
Bonds:	1,005,988,651	62.76%
Governments		9.63%
States & Territories		8.77%
Special Revenue		17.32%
Industrials		27.04%
Common Stocks	347,223,223	21.66%
Real Estate	12,291,019	0.77%
Preferred Stocks	10,822,877	0.68%
Other Invested Assets	130,917,023	8.17%
 (4) Total	 1,602,875,462	 100.00%

Notes:

Source: Best's Aggregates and Averages, 2017 edition, page 140.

(2): Real estate is sum of: properties occupied by the company, properties held for the production of income and properties held for sale.

None of the values include investments in affiliates.

The Bond Share in total is 62.76%. This is allocated to the subcategories (Governments, States & Territories, Special Revenue and Industrials) by multiplying 62.76% by the adjusted bond weights from Exhibit 3.

## VII 000103 STIP

Section VII - Profit  
 Subsection J - Portfolio Rate of Return  
 7/1/2018

Section VII - J  
 Exhibit 2  
 Page 1

### Calculation of Pretax Returns on Bonds

% of Bonds (adjusted for removal of Other Bonds category) by Class, by Maturity for P/C Industry				
Term to Maturity in years	Governments	States and Territories	Special Revenue	Industrials
0.5	4.23%	0.82%	1.61%	3.08%
3	6.79%	3.71%	8.56%	19.72%
7	2.88%	6.58%	10.88%	16.31%
15	0.55%	2.47%	4.59%	1.80%
25	0.89%	0.39%	1.96%	2.17%
Total	15.34%	13.97%	27.60%	43.09%

As of	Term to Maturity in years	Yield Data			
		Governments	States and Territories	Special Revenue	Industrials
Jul-17	0.5	1.13%	0.78%	0.75%	1.31%
	3	1.54%	1.18%	1.28%	2.04%
	7	2.13%	1.77%	2.06%	2.90%
	15	2.49%	2.18%	2.79%	3.58%
	25	2.77%	2.58%	3.54%	3.93%
Aug-17	0.5	1.13%	0.69%	0.67%	1.38%
	3	1.48%	1.07%	1.15%	1.97%
	7	2.03%	1.66%	1.91%	2.82%
	15	2.38%	2.10%	2.67%	3.49%
	25	2.68%	2.51%	3.49%	3.87%
Sep-17	0.5	1.17%	0.68%	0.66%	1.41%
	3	1.51%	1.07%	1.14%	2.01%
	7	2.03%	1.67%	1.88%	2.83%
	15	2.37%	2.12%	2.65%	3.50%
	25	2.66%	2.54%	3.49%	3.87%
	Average	Weighted Yields			
		1.64%	1.65%	1.97%	2.47%
		1.59%	1.55%	1.84%	2.41%
		1.61%	1.55%	1.82%	2.43%
	<b>Average</b>	<b>1.61%</b>	<b>1.58%</b>	<b>1.88%</b>	<b>2.44%</b>

**Notes:**

% of Bonds by Class and by Maturity for P/C Industry are from Exhibit 3.

Yield Data are from Page 2.

Example of Weighted Yield calculation for Jul-17, States and Territories:

$$1.65 = (0.78 \times 0.82 + 1.18 \times 3.71 + 1.77 \times 6.58 + 2.18 \times 2.47 + 2.58 \times 0.39) / 13.97$$

# VII 000104 STIP

Section VII - Profit  
 Subsection J - Portfolio Rate of Return  
 7/1/2018

Section VII - J  
 Exhibit 2  
 Page 2

## Calculation of Yield Data

Term to Maturity in Years	Jul-17	Aug-17	Sep-17	Formulas used to derive the yields (reference to data on page 3)
<b>Governments</b>				
0.5	1.13%	1.13%	1.17%	=(4)
3	1.54%	1.48%	1.51%	=(7)
7	2.13%	2.03%	2.03%	=(9)
10	2.32%	2.21%	2.20%	=(10)
20	2.65%	2.55%	2.53%	=(11)
30	2.88%	2.80%	2.78%	=(12)
<b>States and Territories</b>				
0.5	0.78%	0.69%	0.68%	=(4) + 9.5/9.0 x [ (20) - (5) ] - 0.5/9.0 x [ (21) - (10) ]
3	1.18%	1.07%	1.07%	=(7) + 7.0/9.0 x [ (20) - (5) ] + 2.0/9.0 x [ (21) - (10) ]
7	1.77%	1.66%	1.67%	=(9) + 1.0/3.0 x [ (20) - (5) ] + 2.0/3.0 x [ (21) - (10) ]
10	1.95%	1.87%	1.89%	=(21)
20	2.40%	2.33%	2.35%	=(11) + 0.5 x [ (21) - (10) ] + 0.5 x [ (22) - (12) ]
30	2.75%	2.69%	2.73%	=(22)
<b>Special Revenue</b>				
0.5	0.75%	0.67%	0.66%	=(4) + 29.5/29.0 x [ (20) - (5) ] - 0.5/29.0 x [ (19) - (12) ]
3	1.28%	1.15%	1.14%	=(7) + 27.0/29.0 x [ (20) - (5) ] + 2.0/29.0 x [ (19) - (12) ]
7	2.06%	1.91%	1.88%	=(9) + 23.0/29.0 x [ (20) - (5) ] + 6.0/29.0 x [ (19) - (12) ]
10	2.39%	2.24%	2.21%	=(10) + 20.0/29.0 x [ (20) - (5) ] + 9.0/29.0 x [ (19) - (12) ]
20	3.19%	3.10%	3.09%	=(11) + 10.0/29.0 x [ (20) - (5) ] + 19.0/29.0 x [ (19) - (12) ]
30	3.89%	3.87%	3.89%	=(19)
<b>Industrial</b>				
0.5	1.31%	1.38%	1.41%	=(4) + 18.0/21.0 x [ (1) - (3) ] + 3.0/21.0 x [ (14) - (6) ]
3	2.04%	1.97%	2.01%	=(7) + 2.0/3.0 x [ (14) - (6) ] + 1.0/3.0 x [ (15) - (8) ]
7	2.90%	2.82%	2.83%	=(9) + 3.0/5.0 x [ (15) - (8) ] + 2.0/5.0 x [ (16) - (10) ]
10	3.38%	3.28%	3.29%	=(16)
20	3.78%	3.71%	3.71%	=(11) + 1.0/2.0 x [ (16) - (10) ] + 1.0/2.0 x [ (17) - (12) ]
30	4.08%	4.04%	4.04%	=(17)

# VII 000105 STIP

Section VII - Profit  
 Subsection J - Portfolio Rate of Return  
 7/1/2018

Section VII - J  
 Exhibit 2  
 Page 3

## Yield Data

	Jul-17	Aug-17	Sep-17	Average
<b>FEDERAL RESERVE STATISTICAL RELEASE</b>				
Commercial Paper				
(1) 3-month	1.22%	1.25%	1.25%	1.24%
U.S. Govt Securities - Secondary Market				
Treasury Constant Maturities				
(2) 1-month	0.97%	0.98%	0.99%	0.98%
(3) 3-month	1.09%	1.03%	1.05%	1.06%
(4) 6-month	1.13%	1.13%	1.17%	1.14%
(5) 1-year	1.22%	1.23%	1.28%	1.24%
(6) 2-year	1.37%	1.34%	1.38%	1.36%
(7) 3-year	1.54%	1.48%	1.51%	1.51%
(8) 5-year	1.87%	1.78%	1.80%	1.82%
(9) 7-year	2.13%	2.03%	2.03%	2.06%
(10) 10-year	2.32%	2.21%	2.20%	2.24%
(11) 20-year	2.65%	2.55%	2.53%	2.58%
(12) 30-year	2.88%	2.80%	2.78%	2.82%
<b>YAHOO</b>				
(13) Preferred Stock	5.41%	5.44%	5.41%	5.42%
<b>US DEPARTMENT OF THE TREASURY</b>				
HQM Corporate Bond Yield Curve Par Yields				
(14) 2-year	1.83%	1.78%	1.83%	1.81%
(15) 5-year	2.45%	2.38%	2.40%	2.41%
(16) 10-year	3.38%	3.28%	3.29%	3.32%
(17) 30-year	4.08%	4.04%	4.04%	4.05%
<b>VALUE LINE INVESTMENT SURVEY (Part II)</b>				
Bond Buyer Indexes				
(18) 20-Bond Index (GOs)	3.58%	3.53%	3.54%	3.55%
(19) Calculated 30-Bond Index (= (18) x [ (12) / (11) ] )	3.89%	3.87%	3.89%	3.88%
General Obligation Bonds (GOs)				
(20) 1-year Aaa	0.87%	0.80%	0.80%	0.82%
(21) 10-year Aaa	1.95%	1.87%	1.89%	1.90%
(22) 25/30-year Aaa	2.75%	2.69%	2.73%	2.72%

Note:

Sources: Federal Reserve Statistical Release, H.15, Yahoo Finance, US Department of the Treasury and various issues of Value Line Investment Survey, Part II.

# VII 000106 STIP

Section VII - Profit  
 Subsection J - Portfolio Rate of Return  
 7/1/2018

Section VII - J  
 Exhibit 3

## Bond Distribution by Class and by Maturity for Property-Casualty Industry

### 2016 Industry Totals (\$000)

Term to Maturity in Years	Governments	States and Territories	Special Revenue	Industrials	Other Bonds	Total Bonds
0.5	41,785,600	8,138,065	15,887,966	30,445,515	24,216	96,281,361
3	67,094,882	36,630,114	84,549,454	194,729,848	9,339,538	392,343,836
7.5	28,410,583	64,975,203	107,427,059	161,087,401	1,762,526	363,662,772
15	5,431,259	24,379,809	45,310,742	17,825,883	370,170	93,317,863
25	8,818,979	3,858,240	19,402,850	21,479,866	2,740,325	56,300,260
Total	151,541,303	137,981,431	272,578,071	425,568,513	14,236,775	1,001,906,092

### % of Bonds by Class, by Maturity for P/C Industry

Term to Maturity in Years	Governments	States and Territories	Special Revenue	Industrials	Other Bonds	Total Bonds
0.5	4.17%	0.81%	1.59%	3.04%	0.00%	9.61%
3	6.70%	3.66%	8.44%	19.44%	0.93%	39.16%
7.5	2.84%	6.49%	10.72%	16.08%	0.18%	36.30%
15	0.54%	2.43%	4.52%	1.78%	0.04%	9.31%
25	0.88%	0.39%	1.94%	2.14%	0.27%	5.62%
Total	15.13%	13.77%	27.21%	42.48%	1.42%	100.00%

### % of Bonds (adjusted for removal of Other Bonds category) by Class, by Maturity for P/C Industry

Term to Maturity in Years	Governments	States and Territories	Special Revenue	Industrials	Total Bonds
0.5	4.23%	0.82%	1.61%	3.08%	9.75%
3	6.79%	3.71%	8.56%	19.72%	38.78%
7.5	2.88%	6.58%	10.88%	16.31%	36.64%
15	0.55%	2.47%	4.59%	1.80%	9.41%
25	0.89%	0.39%	1.96%	2.17%	5.42%
Total	15.34%	13.97%	27.60%	43.09%	100.00%

Notes:

Source: Best's Aggregates and Averages - Property-Casualty, 2017 edition, pages 199-200.  
 Bonds less than a year adjusted to remove cash and short term investments.



Market Risk Premium

Year (1)	Large Company Stocks Total Returns (2)	Long-Term Government Bonds Income Returns (3)	Intermediate-Term Government Bonds Income Returns (4)	Short-Term Total Returns (5)	Long-Term Market Risk Premium = (2) - (3) (6)	Intermediate-Term Market Risk Premium = (2) - (4) (7)	Short-Term Market Risk Premium = (2) - (5) (8)
1926	11.62	3.73	3.78	3.27	7.89	7.84	8.35
1927	37.49	3.41	3.49	3.12	34.08	34.00	34.37
1928	43.61	3.22	3.64	3.56	40.39	39.97	40.05
1929	-8.42	3.47	4.07	4.75	-11.89	-12.49	-13.17
1930	-24.90	3.32	3.30	2.41	-28.22	-28.20	-27.31
1931	-43.34	3.33	3.16	1.07	-46.67	-46.50	-44.41
1932	-8.19	3.69	3.63	0.96	-11.88	-11.82	-9.15
1933	53.99	3.12	2.83	0.30	50.87	51.16	53.69
1934	-1.44	3.18	2.93	0.16	-4.62	-4.37	-1.60
1935	47.67	2.81	2.02	0.17	44.86	45.65	47.50
1936	33.92	2.77	1.44	0.18	31.15	32.48	33.74
1937	-35.03	2.66	1.48	0.31	-37.69	-36.51	-35.34
1938	31.12	2.64	1.82	-0.02	28.48	29.30	31.14
1939	-0.41	2.40	1.31	0.02	-2.81	-1.72	-0.43
1940	-9.78	2.23	0.90	0.00	-12.01	-10.68	-9.78
1941	-11.59	1.94	0.67	0.06	-13.53	-12.26	-11.65
1942	20.34	2.46	0.76	0.27	17.88	19.58	20.07
1943	25.90	2.44	1.56	0.35	23.46	24.34	25.55
1944	19.75	2.46	1.44	0.33	17.29	18.31	19.42
1945	36.44	2.34	1.19	0.33	34.10	35.25	36.11
1946	-8.07	2.04	1.08	0.35	-10.11	-9.15	-8.42
1947	5.71	2.13	1.21	0.50	3.58	4.50	5.21
1948	5.50	2.40	1.56	0.81	3.10	3.94	4.69
1949	18.79	2.25	1.36	1.10	16.54	17.43	17.69
1950	31.71	2.12	1.39	1.20	29.59	30.32	30.51
1951	24.02	2.38	1.98	1.49	21.64	22.04	22.53
1952	18.37	2.66	2.19	1.66	15.71	16.18	16.71
1953	-0.99	2.84	2.55	1.82	-3.83	-3.54	-2.81
1954	52.62	2.79	1.60	0.86	49.83	51.02	51.76
1955	31.56	2.75	2.45	1.57	28.81	29.11	29.99
1956	6.56	2.99	3.05	2.46	3.57	3.51	4.10
1957	-10.78	3.44	3.59	3.14	-14.22	-14.37	-13.92
1958	43.36	3.27	2.93	1.54	40.09	40.43	41.82
1959	11.96	4.01	4.18	2.95	7.95	7.78	9.01
1960	0.47	4.26	4.15	2.66	-3.79	-3.68	-2.19
1961	26.89	3.83	3.54	2.13	23.06	23.35	24.76
1962	-8.73	4.00	3.73	2.73	-12.73	-12.46	-11.46
1963	22.80	3.89	3.71	3.12	18.91	19.09	19.68
1964	16.48	4.15	4.00	3.54	12.33	12.48	12.94
1965	12.45	4.20	4.15	3.93	8.25	8.30	8.52
1966	-10.06	4.49	4.93	4.76	-14.55	-14.99	-14.82
1967	23.98	4.59	4.88	4.21	19.39	19.10	19.77
1968	11.06	5.50	5.49	5.21	5.56	5.57	5.85
1969	-8.50	5.95	6.65	6.58	-14.45	-15.15	-15.08
1970	3.86	6.74	7.49	6.52	-2.88	-3.63	-2.66
1971	14.30	6.32	5.75	4.39	7.98	8.55	9.91
1972	18.99	5.87	5.75	3.84	13.12	13.24	15.15
1973	-14.69	6.51	6.58	6.93	-21.20	-21.27	-21.62
1974	-26.47	7.27	7.24	8.00	-33.74	-33.71	-34.47
1975	37.23	7.99	7.35	5.80	29.24	29.88	31.43
1976	23.93	7.89	7.10	5.08	16.04	16.83	18.85

VII 000107 STIP

Market Risk Premium

Year (1)	Large Company Stocks Total Returns (2)	Long-Term Government Bonds Income Returns (3)	Intermediate-Term Government Bonds Income Returns (4)	Short-Term Total Returns (5)	Long-Term Market Risk Premium = (2) - (3) (6)	Intermediate-Term Market Risk Premium = (2) - (4) (7)	Short-Term Market Risk Premium = (2) - (5) (8)
1977	-7.16	7.14	6.49	5.12	-14.30	-13.65	-12.28
1978	6.57	7.90	7.83	7.18	-1.33	-1.26	-0.61
1979	18.61	8.86	9.04	10.38	9.75	9.57	8.23
1980	32.50	9.97	10.55	11.24	22.53	21.95	21.26
1981	-4.92	11.55	12.97	14.71	-16.47	-17.89	-19.63
1982	21.55	13.50	12.81	10.54	8.05	8.74	11.01
1983	22.56	10.38	10.35	8.80	12.18	12.21	13.76
1984	6.27	11.74	11.68	9.85	-5.47	-5.41	-3.58
1985	31.73	11.25	10.29	7.72	20.48	21.44	24.01
1986	18.67	8.98	7.72	6.16	9.69	10.95	12.51
1987	5.25	7.92	7.47	5.47	-2.67	-2.22	-0.22
1988	16.61	8.97	8.24	6.35	7.64	8.37	10.26
1989	31.69	8.81	8.46	8.37	22.88	23.23	23.32
1990	-3.10	8.19	8.15	7.81	-11.29	-11.25	-10.91
1991	30.47	8.22	7.43	5.60	22.25	23.04	24.87
1992	7.62	7.26	6.27	3.51	0.36	1.35	4.11
1993	10.08	7.17	5.53	2.90	2.91	4.55	7.18
1994	1.32	6.59	6.07	3.90	-5.27	-4.75	-2.58
1995	37.58	7.60	6.69	5.60	29.98	30.89	31.98
1996	22.96	6.18	5.82	5.21	16.78	17.14	17.75
1997	33.36	6.64	6.14	5.26	26.72	27.22	28.10
1998	28.58	5.83	5.29	4.86	22.75	23.29	23.72
1999	21.04	5.57	5.30	4.68	15.47	15.74	16.36
2000	-9.10	6.50	6.19	5.89	-15.60	-15.29	-14.99
2001	-11.89	5.53	4.27	3.83	-17.42	-16.16	-15.72
2002	-22.10	5.59	3.98	1.65	-27.69	-26.08	-23.75
2003	28.68	4.80	2.85	1.02	23.88	25.83	27.66
2004	10.88	5.02	3.28	1.20	5.86	7.60	9.68
2005	4.91	4.69	3.92	2.98	0.22	0.99	1.93
2006	15.79	4.68	4.54	4.80	11.11	11.25	10.99
2007	5.49	4.86	4.44	4.66	0.63	1.05	0.83
2008	-37.00	4.45	2.96	1.60	-41.45	-39.96	-38.60
2009	26.46	3.47	2.01	0.10	22.99	24.45	26.36
2010	15.06	4.25	1.92	0.12	10.81	13.14	14.94
2011	2.11	3.82	1.64	0.04	-1.71	0.47	2.07
2012	16.00	2.46	0.73	0.06	13.54	15.27	15.94
2013	32.39	2.88	1.02	0.02	29.51	31.37	32.37
2014	13.69	3.41	1.63	0.02	10.28	12.06	13.67
2015	1.38	2.47	1.51	0.02	-1.09	-0.13	1.36
2016	11.96	2.30	1.36	0.20	9.66	10.60	11.76
Average	11.95	5.02	4.44	3.43	6.93	7.51	8.52

VII 000108 STIP

Notes:

Source: 2017 SBBI Yearbook.

(2):Appendix A-1: Large-Capitalization Stocks, Total Returns.

(3): Appendix A-7: Long Term Government Bonds: Income Returns.

(4):Appendix A-11: Intermediate Term Government Bonds: Income Returns.

(5):Appendix A-14: U.S. Treasury Bills, Total Returns.

# VII 000109 STIP

Section VII - Profit  
 Subsection J - Portfolio Rate of Return  
 7/1/2018

Section VII - J  
 Exhibit 5

## Investment Expense to Invested Assets Ratio

Calendar Year (1)	Total Investment Expense Incurred (\$000) (2)	Aggregate Write-ins (\$000) (3)	Total Deductions = (2) + (3) (4)	Total Cash and Invested Assets (\$000) (5)	Ratio = (4) / (5) (6)
2007	2,829,153	655,075	3,484,228	1,330,400,451	0.26%
2008	2,799,958	281,611	3,081,569	1,246,387,298	0.25%
2009	2,811,669	216,379	3,028,048	1,302,970,319	0.23%
2010	3,065,150	197,863	3,263,013	1,359,025,844	0.24%
2011	3,138,189	186,536	3,324,725	1,374,110,208	0.24%
2012	3,201,888	172,506	3,374,394	1,427,203,029	0.24%
2013	3,243,277	179,579	3,422,856	1,519,998,639	0.23%
2014	3,229,177	296,458	3,525,635	1,567,766,111	0.22%
2015	3,403,729	292,688	3,696,417	1,567,456,043	0.24%
2016	3,381,665	282,368	3,664,033	1,626,418,896	0.23%
Average	3,110,386	276,106	3,386,492	1,432,173,684	0.24%

**Notes:**

Source: Various issues of Best's Aggregates and Averages.

(1) - (4): Exhibit of Net Investment Income, page 150 (calendar year 2016).

(5): Exhibit of Assets, page 140 (calendar year 2016).

**VII 000110 STIP**

Calculation of Common Stock Total Return Tax Rate

Year (1)	Income Returns (2)	Capital Appreciation Returns (3)
1926	5.41	5.72
1927	5.71	30.91
1928	4.81	37.88
1929	3.98	-11.91
1930	4.57	-28.48
1931	5.35	-47.07
1932	6.16	-15.15
1933	6.39	46.59
1934	4.46	-5.94
1935	4.95	41.37
1936	5.36	27.92
1937	4.66	-38.59
1938	4.83	25.21
1939	4.69	-5.45
1940	5.36	-15.29
1941	6.71	-17.86
1942	6.79	12.43
1943	6.24	19.45
1944	5.48	13.80
1945	4.97	30.72
1946	4.09	-11.87
1947	5.49	0.00
1948	6.08	-0.65
1949	7.50	10.26
1950	8.77	21.78
1951	6.91	16.46
1952	5.93	11.78
1953	5.46	-6.62
1954	6.21	45.02
1955	4.56	26.40
1956	3.83	2.62
1957	3.84	-14.31
1958	4.38	38.06
1959	3.31	8.48
1960	3.26	-2.97
1961	3.48	23.13
1962	2.98	-11.81
1963	3.61	18.89
1964	3.33	12.97
1965	3.21	9.06
1966	3.11	-13.09
1967	3.64	20.09
1968	3.18	7.66
1969	2.98	-11.36
1970	3.33	0.10
1971	3.49	10.63
1972	2.95	15.79
1973	2.86	-17.37
1974	3.69	-29.72
1975	5.37	31.55
1976	4.49	19.15
1977	4.35	-11.50
1978	5.33	1.06
1979	5.89	12.31
1980	5.74	25.77
1981	4.88	-9.73
1982	5.61	14.76
1983	5.04	17.27
1984	4.57	1.40

Calculation of Common Stock Total Return Tax Rate

Year (1)	Income Returns (2)	Capital Appreciation Returns (3)
1985	4.72	26.33
1986	3.92	14.62
1987	3.64	2.03
1988	3.99	12.40
1989	4.03	27.25
1990	3.43	-6.56
1991	3.76	26.31
1992	2.98	4.46
1993	2.91	7.06
1994	2.83	-1.54
1995	3.04	34.11
1996	2.43	20.26
1997	2.10	31.01
1998	1.67	26.67
1999	1.36	19.53
2000	1.11	-10.14
2001	1.18	-13.04
2002	1.39	-23.37
2003	1.99	26.38
2004	1.76	8.99
2005	1.84	3.00
2006	2.01	13.62
2007	1.96	3.53
2008	1.92	-38.49
2009	2.48	23.45
2010	2.02	12.78
2011	2.13	0.00
2012	2.50	13.41
2013	2.48	29.60
2014	2.16	11.39
2015	2.10	-0.73
2016	2.26	9.54
Average	4.00	7.71

	Dividend	Capital Gains
(4) Weights	34.14%	65.86%
(5) Tax Rate	13.13%	15.76%
(6) Common Stock Tax Rate		<b>14.86%</b>

Notes:

Source: 2017 SBBI Yearbook.

(2):Appendix A-2: Large-Capitalization Stocks, Income Returns.

(3):Appendix A-3: Large-Capitalization Stocks, Capital Appreciation Returns.

(5) = Dividend Tax Rate =  $0.5 \times 0.21 + 0.5 \times 0.21 \times 0.25$

Capital Gains Tax Rate is from page 2.

Calculation of Capital Gains Tax Rate

(1) Turnover Rate	36.00%
(2) Weighted Average Cost of Capital	7.23%
(3) Marginal Tax Rate	21.00%
(4) Annual Expected Capital Gains Rate	7.71%

Year (5)	Investment Basis (6) <sub>t-1</sub> x [1.0 - (1)] (6)	Investment Value		Investment Sold (8) x (1) (9)	Realized Capital Gains [(8) - (6)] x (1) (10)	Taxes Paid (10) x (3) (11)	Present Value of the Taxes (12)
		Beg of Year (8) <sub>t-1</sub> - (9) <sub>t-1</sub> (7)	End of Year (7) x [1.0 + (4)] (8)				
0	1,000,000.00	1,000,000.00	1,077,095.60	387,754.42	27,754.42	5,828.43	5,628.38
1	640,000.00	689,341.19	742,486.36	267,295.09	36,895.09	7,747.97	6,977.23
2	409,600.00	475,191.27	511,826.43	184,257.51	36,801.51	7,728.32	6,489.99
3	262,144.00	327,568.92	352,823.04	127,016.29	32,644.45	6,855.34	5,368.48
4	167,772.16	225,806.74	243,215.45	87,557.56	27,159.59	5,703.51	4,165.13
5	107,374.18	155,657.89	167,658.43	60,357.03	21,702.33	4,557.49	3,103.67
6	68,719.48	107,301.39	115,573.86	41,606.59	16,867.58	3,542.19	2,249.50
7	43,980.47	73,967.27	79,669.82	28,681.14	12,848.17	2,698.12	1,597.85
8	28,147.50	50,988.69	54,919.69	19,771.09	9,637.99	2,023.98	1,117.75
9	18,014.40	35,148.60	37,858.40	13,629.03	7,143.84	1,500.21	772.60
10	11,529.22	24,229.38	26,097.36	9,395.05	5,244.53	1,101.35	528.92
11	7,378.70	16,702.31	17,989.98	6,476.39	3,820.06	802.21	359.27
12	4,722.37	11,513.59	12,401.24	4,464.45	2,764.39	580.52	242.45
13	3,022.31	7,936.79	8,548.68	3,077.53	1,989.49	417.79	162.71
14	1,934.28	5,471.16	5,892.96	2,121.47	1,425.12	299.28	108.69
15	1,237.94	3,771.49	4,062.26	1,462.41	1,016.76	213.52	72.31
16	792.28	2,599.85	2,800.28	1,008.10	722.88	151.80	47.94
17	507.06	1,792.18	1,930.35	694.93	512.38	107.60	31.69
18	324.52	1,235.42	1,330.67	479.04	362.21	76.07	20.89
19	207.69	851.63	917.29	330.22	255.45	53.65	13.74
20	132.92	587.06	632.32	632.32	499.40	104.87	25.05
Total					248,067.66	52,094.21	39,084.25

(13) Implied Tax Rate on Capital Gains 15.76%

Notes:

- (1): Turnover Rate is based on AIB Stock Turnover Study of 1988 transactions. (2001 AIB Profit Filing, R2000-10, 100H-3, Exhibits 15 and 16)
- (2): Interest Rate is the weighted average cost of capital, Section VII - E, Exhibit 1.
- (4): Page 1.
- (10) Year 20 : All remaining capital gains are assumed realized in year 20.
- (12) = (11) x { [ 1.0 + (2) ]<sup>n</sup> - [ (5) + 0.5 ] }
- (13) = (12) Total / (10) Total

VII 000112 STIP

Calculation of Common Stock Tax Rate for Different Discount Rates and Turnover Rates

		Discount Rate											
		4%	5%	6%	7%	8%	9%	10%	11%	12%	13%	14%	15%
Turnover Rate	0.10	12.39%	11.45%	10.65%	9.96%	9.38%	8.87%	8.44%	8.07%	7.74%	7.45%	7.21%	6.99%
	0.15	13.37%	12.53%	11.80%	11.17%	10.61%	10.13%	9.70%	9.31%	8.97%	8.67%	8.40%	8.16%
	0.20	14.27%	13.55%	12.90%	12.33%	11.82%	11.36%	10.94%	10.57%	10.23%	9.92%	9.64%	9.38%
	0.25	15.03%	14.41%	13.85%	13.34%	12.88%	12.45%	12.06%	11.71%	11.38%	11.08%	10.80%	10.54%
	0.30	15.64%	15.10%	14.62%	14.17%	13.75%	13.37%	13.01%	12.68%	12.37%	12.09%	11.82%	11.56%
	0.35	16.10%	15.65%	15.22%	14.83%	14.46%	14.12%	13.79%	13.49%	13.20%	12.94%	12.68%	12.44%
	0.40	16.46%	16.07%	15.70%	15.36%	15.03%	14.72%	14.43%	14.16%	13.90%	13.65%	13.42%	13.19%
	0.45	16.75%	16.41%	16.09%	15.79%	15.50%	15.22%	14.96%	14.72%	14.48%	14.25%	14.04%	13.83%
	0.50	16.98%	16.69%	16.41%	16.14%	15.89%	15.64%	15.41%	15.19%	14.97%	14.77%	14.57%	14.38%
	0.55	17.17%	16.91%	16.67%	16.44%	16.21%	16.00%	15.79%	15.59%	15.40%	15.21%	15.03%	14.86%
	0.60	17.33%	17.11%	16.89%	16.69%	16.49%	16.30%	16.11%	15.94%	15.76%	15.60%	15.44%	15.28%
	0.65	17.47%	17.27%	17.09%	16.90%	16.73%	16.56%	16.40%	16.24%	16.08%	15.94%	15.79%	15.65%
	0.70	17.58%	17.41%	17.25%	17.09%	16.94%	16.79%	16.65%	16.50%	16.37%	16.23%	16.11%	15.98%

## VIII 000009 STIP

Section VIII - F-Class Recommendation  
 Subsection A - Indicated Rate Change  
 7/1/2018

Section VIII-A  
 Exhibit 1

### F-Class Rate Review Overall Indicated Rate Change

(1)	5-Year Adjusted Standard Plus ARAP Earned Premium	9,135,471
(2)	5-Year Adjusted Losses, LAE, and LBA	4,074,988
(3)	5-Year Adjusted Loss, LAE, and LBA Ratio = (2) / (1)	44.6%
(4)	Fixed Expense Ratio	4.3%
(5)	Indicated Policy Year 7/1/2018 Loss, LAE, Fixed Expense Ratio = (3) + (4)	48.9%
(6)	Variable Expense Ratio	19.9%
(7)	Profit and Contingencies	-1.4%
(8)	Permissible Loss, LAE, LBA, and Fixed Expense Ratio = 1.000 - [ (6) + (7) ]	81.5%
(9)	Indicated Average Rate Change = [ (5) / (8) ] - 1.000	-40.0%
(10)	Rate Changed based on Trended On-Level Expected Loss Ratio	-6.1%
(11)	5-Year Total Claim Count	181
(12)	Credibility of the Indicated Average Rate Change = [ (11) / 4,000 ] <sup>0.5</sup>	21.3%
(13)	Credibility Weighted Average Rate Change = [ (9) x (12) ] + { (10) x [100% - (12)] }	-13.3%

**Notes:**

- (1): Section VIII-B, Exhibit 1.
- (2): Section VIII-C, Exhibit 1, Page 2 and 4.
- (4), (6): Section VI-A, Exhibit 1.
- (7): Section VII-A, Exhibit 1.
- (10): Exhibit 2.
- (11): Unit Statistical Plan Data.



## VIII 000010 STIP

Section VIII - F-Class Recommendation  
 Subsection A - Indicated Rate Change  
 7/1/2018

Section VIII-A  
 Exhibit 2

### F-Class Rate Review Complement of Credibility based on Trended On-Level Expected Loss Ratio

(1) State Class Expected Loss and LAE Ratio from Prior Revision	77.0%	
(2) Loss Adjustment Expense Ratio from Prior Revision	0.200	
(3) Special Fund Assessment Rate as a % of Federal Indemnity Losses from Prior Revision	11.0%	
	Indemnity	Medical
(4) Federal Indemnity/Medical Losses as % of Total Federal Losses	55.5%	44.5%
(5) F-Class Expected Loss Ratio from Prior Revision	61.1%	
= (1) / {(4) for Indemnity x [ 1.000 + (2) + (3) ] + (4) for Medical x [ 1.000 + (2) ] }		
(6) Benefit Level Change Factor	1.002	1.000
(7) Net Indemnity/Medical Trend	-2.6%	-2.9%
(8) Years since Prior Revision	2.0	2.0
(9) Trended On-Level Loss Ratio	32.2%	25.6%
= (4) x (5) x (6) x [ 1.000 + (7) ] ^ (8)		
(10) Special Fund Assessment Rate as a % of Federal Indemnity Losses	11.9%	
(11) Loss Adjustment Expense Factor	1.185	
(12) Trended Loss, LAE and LBA Ratio	72.3%	
= [ (9) for indemnity x (10) ] + [ (9) Total x (11) ]		
(13) Fixed Expense Ratio	4.3%	
(14) Trended Loss, LAE and Fixed Expense Ratio	76.5%	
= (12) + (13)		
(15) Variable Expense Ratio	19.9%	
(16) Underwriting Profit Provision	-1.4%	
(17) Permissible Loss, LAE, LBA, and Fixed Expense Ratio	81.5%	
= 1.000 - [ (15) + (16) ]		
(18) Rate Changed based on Trended On-Level Expected Loss Ratio from Prior Revision	-6.1%	
= [ (14) / (17) ] - 1.000		

**Notes:**

- (1): Section VI-J, Exhibit 1 of 07/01/2016 Stipulation.
- (2), (3), (4): Section VIII-J, Exhibit 1 of 07/01/2016 Stipulation.
- (6): Section VIII-F, Exhibit 2.
- (7): Section V-A, Exhibit 1.
- (10): Section VIII-E, Exhibit 1, Page 2.
- (11), (15),(16): Section VI-J, Exhibit 1.
- (13): Section VI-A, Exhibit 1.

# VIII 000011 STIP

Section VIII - F-Class Recommendation  
Subsection B - Adjusted Premium  
7/1/2018

Section VIII-B  
Exhibit 1

## 5 Year Adjusted Standard Plus ARAP Earned Premium

Policy Year (1)	Manual Premium (2)	Premium Development Factor (3)	Experience & Merit Rating Adjustment (4)	ARAP Adjustment (5)	Total Adj Standard Plus ARAP Premium (6)
2011	1,919,152	1.000	0.997	1.052	2,012,891
2012	1,797,136	1.000	0.997	1.052	1,884,258
2013	1,639,616	0.999	0.997	1.052	1,718,386
2014	1,476,342	0.999	0.997	1.052	1,546,792
2015	1,883,128	0.999	0.997	1.052	1,973,143
Total	8,715,374				9,135,471

Notes:

(2): Section VIII-F, Exhibit 1, Page 3.

(3): Section V-E, Exhibit 1.

(4): The offset for Merit Rating and Average Experience Modification from the 07/01/2016 Stipulation.

(5): The offset for ARAP from the 07/01/2016 Stipulation.

(6) = (2) x (3) x (4) x (5)

## VIII 000012 STIP

Section VIII - F-Class Recommendation  
 Subsection C - Adjusted Losses  
 7/1/2018

Section VIII-C  
 Exhibit 1  
 Page 1

### Calculation of Adjusted Indemnity and Medical Losses Federal Losses

(A). Unit Statistical Plan Limited Reported Losses

Indemnity	Policy Year				
	2011	2012	2013	2014	2015
Fatal	0	0	0	0	0
Permanent Total	0	0	0	0	0
Permanent Partial	97,454	554,817	143,946	86,463	124,666
Temporary Total	51,953	72,658	154,123	68,539	95,138
<b>Medical</b>					
Fatal	0	0	0	0	0
Permanent Total	0	0	0	0	0
Permanent Partial	4,581	162,758	226,668	27,030	81,825
Temporary Total	63,337	105,939	69,981	98,282	122,740
Medical Only	8,880	36,839	18,081	29,545	12,475

(B). Unit Statistical Plan Converted Unlimited Losses

Converted unlimited Losses are Limited Losses after the application of Primary, Excess and Secondary Conversion Factors.

Indemnity	Policy Year				
	2011	2012	2013	2014	2015
Fatal	0	0	0	0	0
Permanent Total	0	0	0	0	0
Permanent Partial	128,574	857,427	221,622	142,193	411,511
Temporary Total	71,157	104,226	243,148	125,886	249,156
<b>Medical</b>					
Fatal	0	0	0	0	0
Permanent Total	0	0	0	0	0
Permanent Partial	12,473	288,653	322,020	44,497	171,989
Temporary Total	82,883	134,604	109,706	148,696	218,075
Medical Only	8,566	37,774	19,484	36,041	16,947

Note:

(B): Section VIII-G.

## VIII 000013 STIP

Section VIII - F-Class Recommendation  
 Subsection C - Adjusted Losses  
 7/1/2018

Section VIII-C  
 Exhibit 1  
 Page 2

### Calculation of Adjusted Indemnity and Medical Losses Federal Losses

(C). Investment Income Offset Factor

The impact from this factor needs to be removed from the Federal Conversion Factors.

Indemnity	Investment Income Offset Factor
Fatal	0.812
Permanent Total	0.762
Permanent Partial	1.030
Temporary Total	1.039
<b>Medical</b>	
Fatal	1.000
Permanent Total	0.763
Permanent Partial	1.031
Temporary Total	1.040
Medical Only	1.000

(D). Adjusted Losses

Indemnity	Policy Year				
	2011	2012	2013	2014	2015
Fatal	0	0	0	0	0
Permanent Total	0	0	0	0	0
Permanent Partial	124,836	832,502	215,180	138,060	399,549
Temporary Total	68,496	100,328	234,053	121,177	239,837
<b>Medical</b>					
Fatal	0	0	0	0	0
Permanent Total	0	0	0	0	0
Permanent Partial	12,102	280,059	312,433	43,172	166,869
Temporary Total	79,726	129,475	105,526	143,031	209,766
Medical Only	8,566	37,774	19,484	36,041	16,947
Adjusted Losses, LAE, LBA	4,074,988				

Notes:

(C): Section IX-B, Exhibit 4.

(D) = (B) / (C)

# VIII 000014 STIP

Section VIII - F-Class Recommendation  
 Subsection C - Adjusted Losses  
 7/1/2018

Section VIII-C  
 Exhibit 1  
 Page 3

## Calculation of Adjusted Indemnity and Medical Losses State Losses

### (A). Unit Statistical Plan Limited Reported Losses

Indemnity	Policy Year				
	2011	2012	2013	2014	2015
Fatal	0	0	0	0	0
Permanent Total	0	0	0	0	0
Permanent Partial	0	0	0	0	0
Temporary Total	0	0	0	0	0
<b>Medical</b>					
Fatal	0	0	0	0	0
Permanent Total	0	0	0	0	0
Permanent Partial	0	0	0	0	0
Temporary Total	0	0	0	0	0
Medical Only	0	0	0	0	0

### (B). Unit Statistical Plan Converted Unlimited Losses

Unlimited Losses are Limited Losses after the application of Primary, Excess and Secondary Conversion Factors.

Indemnity	Policy Year				
	2011	2012	2013	2014	2015
Fatal	0	0	0	0	0
Permanent Total	0	0	0	0	0
Permanent Partial	0	0	0	0	0
Temporary Total	0	0	0	0	0
<b>Medical</b>					
Fatal	0	0	0	0	0
Permanent Total	0	0	0	0	0
Permanent Partial	0	0	0	0	0
Temporary Total	0	0	0	0	0
Medical Only	0	0	0	0	0

Notes:

(B): Section VIII-G.

## VIII 000015 STIP

Section VIII - F-Class Recommendation  
 Subsection C - Adjusted Losses  
 7/1/2018

Section VIII-C  
 Exhibit 1  
 Page 4

### Calculation of Adjusted Indemnity and Medical Losses State Losses

(C). Investment Income Offset Factor

The impact from this factor needs to be removed from the State Conversion Factors.

Indemnity	Investment Income Offset Factor
Fatal	0.812
Permanent Total	0.762
Permanent Partial	1.030
Temporary Total	1.039

Medical	
Fatal	1.000
Permanent Total	0.763
Permanent Partial	1.031
Temporary Total	1.040
Medical Only	1.000

(D). Adjusted Losses

Indemnity	Policy Year				
	2011	2012	2013	2014	2015
Fatal	0	0	0	0	0
Permanent Total	0	0	0	0	0
Permanent Partial	0	0	0	0	0
Temporary Total	0	0	0	0	0
<b>Medical</b>					
Fatal	0	0	0	0	0
Permanent Total	0	0	0	0	0
Permanent Partial	0	0	0	0	0
Temporary Total	0	0	0	0	0
Medical Only	0	0	0	0	0
Adjusted Losses, LAE	0				

Notes:

(C): Section IX-B, Exhibit 4.

(D) = (B) / (C)

# VIII 000016 STIP

Section VIII - F-Class Recommendation  
Subsection D - Proposed Rates  
7/1/2018

Section VIII-D  
Exhibit 1

## Proposed Rates and Rating Values to be Effective 7/1/2018

Class Code (1)	Manual Rate (2)	Minimum Premium (3)	Loss Constant (4)	Expected Loss Rate (5)	D-Ratio (6)
6801	6.25	469	0	2.57	0.17
6824	9.70	500	0	3.87	0.17
6826	7.47	500	0	3.07	0.16
6843	12.46	500	0	3.73	0.15
6872	16.38	500	0	4.90	0.17
6874	15.00	500	0	4.48	0.15
7309	14.69	500	0	4.39	0.16
7313	15.48	500	0	4.63	0.13
7317	15.31	500	0	4.58	0.15
7327	27.64	500	0	8.26	0.16
7350	18.12	500	0	7.23	0.15
8709	4.92	331	0	1.47	0.16
8726	5.26	343	0	2.16	0.17
9077	5.00	334	0	2.29	0.20

Notes:

(2),(3): Calculated as per Section VIII-I, Exhibit 4.

(4): F-Classes have no loss constant.

(5),(6): Calculated as per Section X.

# VIII 000017 STIP

Section VIII - F-Class Recommendation  
 Subsection E - Conversion/Excess Loss Factors  
 7/1/2018

Section VIII-E  
 Exhibit 1  
 Page 1

## Calculation of Indemnity and Medical Conversion Factors Federal Losses

### (A). Benefit Level Adjustment Factors

The following factors are used to bring MA Unit Statistical Plan losses to the benefit level of the proposed effective policy year period.

Indemnity	Policy Year				
	2011	2012	2013	2014	2015
Fatal	1.033	1.027	1.023	1.019	1.015
Permanent Total	1.027	1.022	1.019	1.015	1.011
Permanent Partial	1.010	1.008	1.007	1.005	1.004
Temporary Total	1.027	1.022	1.019	1.015	1.011
<b>Medical</b>					
All Injury Types	1.000	1.000	1.000	1.000	1.000

### (B). Loss Development Factors

The following factors are used to bring MA Unit Statistical Plan losses from first through fifth report to an ultimate basis.

Indemnity	Policy Year				
	2011	2012	2013	2014	2015
Likely	1.107	1.152	1.260	1.455	2.500
Not Likely	1.021	1.038	1.097	1.214	1.747
<b>Medical</b>					
Likely	1.205	1.213	1.277	1.365	1.680
Not Likely	1.017	1.021	1.044	1.049	1.113

### (C). Trend Factors

The following factors trend the MA Unit Statistical Plan losses from the reported period to the proposed effective period for new rates.

Indemnity	Policy Year				
	2011	2012	2013	2014	2015
All Injury Types	0.820	0.852	0.879	0.836	0.911
<b>Medical</b>					
Lost Time Medical	0.789	0.780	0.845	0.797	0.914
Medical Only	0.641	0.674	0.701	0.773	0.817

### (D). Primary Conversion Factors (PCF)

Indemnity	Policy Year				
	2011	2012	2013	2014	2015
Fatal - LD	0.938	1.008	1.133	1.241	2.311
Fatal - NLD	0.866	0.908	0.986	1.035	1.615
Permanent Total	0.932	1.003	1.128	1.235	2.302
Permanent Partial - LD	0.917	0.989	1.115	1.223	2.285
Permanent Partial - NLD	0.846	0.891	0.971	1.021	1.597
Temporary Total - LD	0.932	1.003	1.128	1.235	2.302
Temporary Total - NLD	0.860	0.903	0.982	1.031	1.609
<b>Medical</b>					
Lost Time Medical -LD	0.951	0.946	1.080	1.088	1.536
Lost Time Medical -NLD	0.803	0.797	0.883	0.836	1.018
Medical - NLD	0.652	0.688	0.732	0.810	0.909

#### Notes:

- (A): Section IV-F, Exhibit 1.
- (B): NCCI.
- (C): Section IX-B, Exhibit 1, Page 1.
- (D) = (A) x (B) x (C)



## VIII 000018 STIP

Section VIII - F-Class Recommendation  
 Subsection E - Conversion/Excess Loss Factors  
 7/1/2018

Section VIII-E  
 Exhibit 1  
 Page 2

### Calculation of Indemnity and Medical Conversion Factors Federal Losses

(A). Loss Adjustment Expense Factor

The following factor is applied to include the proposed loss adjustment expense.

	Indemnity	Medical
Loss Adjustment Expense Factor	1.185	1.185

(B). Loss Based Assessments (Special Fund Assessment)

	Indemnity	Medical
Loss Based Assessments	0.119	0.000

(C). Investment Income Offset Factor

The following factor is applied to adjust for investment income.

	Investment Income Offset Factor
<b>Indemnity</b>	
Fatal	0.812
Permanent Total	0.762
Permanent Partial	1.030
Temporary Total	1.039
<b>Medical</b>	
Fatal	1.000
Permanent Total	0.763
Permanent Partial	1.031
Temporary Total	1.040
Medical Only	1.000

(D). Secondary Conversion Factors (SCF)

<b>Indemnity</b>	
Fatal	1.059
Permanent Total	0.994
Permanent Partial	1.343
Temporary Total	1.355
<b>Medical</b>	
Fatal	1.185
Permanent Total	0.904
Permanent Partial	1.221
Temporary Total	1.232
Medical Only	1.185

Notes:

(A): 1.000 + Loss Adjustment Expense (as a percent of losses) from Section VI-A, Exhibit 1.

(B): NCCI Tax and Assessment Directory.

(C): Section IX-B, Exhibit 4.

(D) = [(A) + (B)] x (C)

# VIII 000019 STIP

Section VIII - F-Class Recommendation  
 Subsection E - Conversion/Excess Loss Factors  
 7/1/2018

Section VIII-E  
 Exhibit 1  
 Page 3

## Calculation of Indemnity and Medical Conversion Factors State Losses

The MA Indicated Pure Premium Relativities are calculated from exposure and loss data for the latest available 5 policy years of Unit Statistical Plan data. Below are adjustment factors used to put the losses at the level proposed in this filing.

### (A). Primary State Conversion Factors

Remainder of Industry	Policy Year				
	2011	2012	2013	2014	2015
<b>Indemnity</b>					
Fatal - LD	0.878	0.921	1.010	1.071	1.674
Fatal - NLD	0.881	0.928	1.004	1.060	1.494
Permanent Total	0.878	0.919	1.008	1.070	1.681
Permanent Partial - LD	0.902	0.940	1.029	1.089	1.703
Permanent Partial - NLD	0.906	0.947	1.023	1.078	1.521
Temporary Total - LD	0.864	0.907	0.995	1.059	1.667
Temporary Total - NLD	0.867	0.914	0.990	1.047	1.488
<b>Medical</b>					
Lost Time Medical - LD	0.778	0.765	0.835	0.796	0.931
Lost Time Medical - NLD	0.789	0.779	0.847	0.798	0.927
Medical - NLD	0.641	0.673	0.702	0.774	0.828
<b>AIG</b>					
<b>Indemnity</b>					
Fatal - LD	0.885	0.939	1.037	1.195	2.073
Fatal - NLD	0.870	0.928	1.001	1.103	1.802
Permanent Total	0.886	0.937	1.035	1.194	2.082
Permanent Partial - LD	0.910	0.958	1.056	1.215	2.110
Permanent Partial - NLD	0.894	0.947	1.019	1.121	1.834
Temporary Total - LD	0.871	0.925	1.022	1.181	2.065
Temporary Total - NLD	0.856	0.914	0.986	1.089	1.795
<b>Medical</b>					
Lost Time Medical - LD	0.708	0.678	0.752	0.742	0.983
Lost Time Medical - NLD	0.773	0.757	0.825	0.790	0.974
Medical - NLD	0.628	0.654	0.684	0.766	0.870

### (B). Secondary State Conversion Factors

<b>Indemnity</b>	
Fatal	0.963
Permanent Total	0.903
Permanent Partial	1.220
Temporary Total	1.231
<b>Medical</b>	
Fatal	1.185
Permanent Total	0.904
Permanent Partial	1.221
Temporary Total	1.232
Medical Only	1.185

**Notes:**

- (A): Section IX-B, Exhibit 1, Page 2.
- (B): Section IX-B, Exhibit 1, Page 3.

Calculation of Converted Limited Losses by Indemnity Likely/Not-Likely and Medical Likely/Not-Likely  
 Federal Industry Group  
 All Classes

Policy Year (1)	Injury Type (2)	Limited Losses					Converted Limited Losses				
		Indemnity		Medical		Total (7)	Indemnity		Medical		Total (12)
		Likely (3)	Not Likely (4)	Likely (5)	Not Likely (6)		Likely (8)	Not Likely (9)	Likely (10)	Not Likely (11)	
2011	1	0	0	0	0	0	0	0	0	0	0
	2	0	0	0	0	0	0	0	0	0	0
	9	0	97,454	0	4,581	102,035	0	82,454	0	3,677	86,131
	5	0	51,953	0	63,337	115,290	0	44,665	0	50,835	95,500
	6	0	0	0	8,880	8,880	0	0	0	5,793	5,793
2012	1	0	0	0	0	0	0	0	0	0	0
	2	0	0	0	0	0	0	0	0	0	0
	9	273,952	280,865	49,290	113,468	717,575	270,960	250,307	46,648	90,389	658,304
	5	0	72,658	0	105,939	178,597	0	65,635	0	84,391	150,026
	6	0	0	0	36,839	36,839	0	0	0	25,349	25,349
2013	1	0	0	0	0	0	0	0	0	0	0
	2	0	0	0	0	0	0	0	0	0	0
	9	0	143,946	0	226,668	370,614	0	139,728	0	200,065	339,793
	5	0	154,123	0	69,981	224,104	0	151,349	0	61,768	213,117
	6	0	0	0	18,081	18,081	0	0	0	13,227	13,227
2014	1	0	0	0	0	0	0	0	0	0	0
	2	0	0	0	0	0	0	0	0	0	0
	9	0	86,463	0	27,030	113,493	0	88,250	0	22,609	110,859
	5	23,610	44,929	16,251	82,031	166,821	29,161	46,301	17,688	68,613	161,763
	6	0	0	0	29,545	29,545	0	0	0	23,943	23,943
2015	1	0	0	0	0	0	0	0	0	0	0
	2	0	0	0	0	0	0	0	0	0	0
	9	81,162	43,504	12,220	69,605	206,491	185,462	69,468	18,771	70,835	344,536
	5	1,534	93,604	8,500	114,240	217,878	3,532	150,607	13,057	116,259	283,455
	6	0	0	0	12,475	12,475	0	0	0	11,344	11,344
All Years, All Injury		380,258	1,069,499	86,261	982,700	2,518,718	489,115	1,088,764	96,164	849,097	2,523,140

VIII 000020 STIP

Notes:

(3),(4),(5),(6): Unit Statistical Plan data, excluding Large Deductibles.

(8), (9), (10), (11): Limited Incurred Losses x Primary Conversion Factors from Section VIII-E, Exhibit 1, Page 1.

(12) = (8) + (9) + (10) + (11)

Calculation of Converted Unlimited Losses by Indemnity Likely/Not-Likely and Medical Likely/Not-Likely  
 Federal Industry Group  
 All Classes

Policy Year (1)	Injury Type (2)	Adjusted Excess Losses					Converted Unlimited Losses					Exposure (13)	
		Indemnity		Medical		Total (7)	Indemnity		Medical		Total (12)		
		Likely (3)	Not Likely (4)	Likely (5)	Not Likely (6)		Likely (8)	Not Likely (9)	Likely (10)	Not Likely (11)			
2011	1	0	0	0	0	0	0	0	0	0	0	0	182,991
	2	0	0	0	0	0	0	0	0	0	0	0	
	9	0	13,276	0	6,535	19,811	0	128,574	0	12,473	141,047		
	5	0	7,861	0	16,442	24,303	0	71,157	0	82,883	154,040		
	6	0	0	0	1,436	1,436	0	0	0	8,566	8,566		
2012	1	0	0	0	0	0	0	0	0	0	0	0	179,133
	2	0	0	0	0	0	0	0	0	0	0	0	
	9	52,256	64,879	35,248	64,044	216,427	434,106	423,321	100,028	188,625	1,146,080		
	5	0	11,302	0	24,867	36,169	0	104,226	0	134,604	238,830		
	6	0	0	0	6,527	6,527	0	0	0	37,774	37,774		
2013	1	0	0	0	0	0	0	0	0	0	0	0	172,600
	2	0	0	0	0	0	0	0	0	0	0	0	
	9	0	25,282	0	63,582	88,864	0	221,622	0	322,020	543,642		
	5	0	28,134	0	27,281	55,415	0	243,148	0	109,706	352,854		
	6	0	0	0	3,215	3,215	0	0	0	19,484	19,484		
2014	1	0	0	0	0	0	0	0	0	0	0	0	166,923
	2	0	0	0	0	0	0	0	0	0	0	0	
	9	0	17,621	0	13,822	31,443	0	142,193	0	44,497	186,690		
	5	4,695	12,767	6,081	28,316	51,859	45,865	80,021	29,282	119,414	274,582		
	6	0	0	0	6,470	6,470	0	0	0	36,041	36,041		
2015	1	0	0	0	0	0	0	0	0	0	0	0	196,085
	2	0	0	0	0	0	0	0	0	0	0	0	
	9	29,861	21,601	17,115	34,091	102,668	289,197	122,314	43,832	128,157	583,500		
	5	569	29,210	3,247	44,449	77,475	5,555	243,601	20,086	197,989	467,231		
	6	0	0	0	2,957	2,957	0	0	0	16,947	16,947		
(14) All Years and Injury Types		87,381	231,933	61,691	344,034	725,039	774,723	1,780,177	193,228	1,459,180	4,207,308		897,732
(15) Pure Premium							0.863	1.983	0.215	1.625	4.687		

Notes:  
 (3), (4) = 0.7 x [ Excess Factor - 1.0 ] x Indemnity Converted Limited Losses. Excess Factor from Section IX-B, Exhibit 5 and Indemnity Converted Limited Losses from Page 1, Columns (8) and (9).  
 (5), (6) = [ Excess Factor - 1.0 ] x Medical Converted Limited Losses + 0.3 x [ Excess Factor - 1.0 ] x Indemnity Converted Limited Losses. Excess Factor from Section IX-B, Exhibit 5 and Medical Converted Limited Losses from Page 1, Columns (10) and (11).  
 (7) = (3) + (4) + (5) + (6)  
 (8), (9), (10), (11): (Converted Limited Losses from Page 1 + Adjusted Excess Losses) x Secondary Conversion Factors from Section VIII-E, Exhibit 1, Page 2.  
 (12) = (8) + (9) + (10) + (11)  
 (13): From Page 3.  
 (15): Pure Premium calculated as the All Years, All Injury Types Adjusted Converted Losses divided by the All Years, All Injury Types Exposure.

VIII 000021 STIP

Calculation of Manual Premium by Extension of Exposures  
 Federal Industry Group  
 All Classes

Class Code	Exposure By Policy Year						Current Rate	Manual Premium						
	2011	2012	2013	2014	2015	Total		2011	2012	2013	2014	2015	Total	
	(2)	(3)	(4)	(5)	(6)	(7)		= (2) x (8) (9)	= (3) x (8) (10)	= (4) x (8) (11)	= (5) x (8) (12)	= (6) x (8) (13)	= (7) x (8) (14)	
6801	2,923	0	0	0	0	2,923	8.98	26,249	0	0	0	0	0	26,249
6824	42,935	50,915	49,827	51,022	52,497	247,196	10.26	440,513	522,388	511,225	523,486	538,619	2,536,231	
6826	3,867	237	612	100	0	4,816	9.84	38,051	2,332	6,022	984	0	47,389	
6843	0	0	6,561	100	18,335	24,996	14.29	0	0	93,757	1,429	262,007	357,193	
6872	9,147	9,553	7,712	7,107	7,445	40,964	21.87	200,045	208,924	168,661	155,430	162,822	895,883	
6874	7,171	2,803	383	94	10	10,461	19.47	139,619	54,574	7,457	1,830	195	203,676	
7309	15,897	13,196	13,835	7,342	12,589	62,859	21.11	335,586	278,568	292,057	154,990	265,754	1,326,953	
7313	0	0	0	0	0	0	15.29	0	0	0	0	0	0	
7317	1,974	319	1,559	5,260	4,441	13,553	14.61	28,840	4,661	22,777	76,849	64,883	198,009	
7327	150	182	113	126	88	659	33.44	5,016	6,086	3,779	4,213	2,943	22,037	
7350	11,382	11,270	0	0	0	22,652	17.29	196,795	194,858	0	0	0	391,653	
8709	2,909	5,659	3,682	1,820	1,581	15,651	5.16	15,010	29,200	18,999	9,391	8,158	80,759	
8726	84,636	84,999	88,316	93,952	99,099	451,002	5.83	493,428	495,544	514,882	547,740	577,747	2,629,342	
9077	0	0	0	0	0	0	4.77	0	0	0	0	0	0	
Total	182,991	179,133	172,600	166,923	196,085	897,732		1,919,152	1,797,136	1,639,616	1,476,342	1,883,128	8,715,374	

Notes:  
 (2) - (7): Unit Statistical Plan data.  
 (8): Section VIII-D, Exhibit 1 of the 7/1/2016 Stipulation.

VIII 000022 STIP

Calculation of Pure Premium Underlying Present Rate Factor

Industry Group (1)	Injury Type (2)	Uncapped Rate Level Factor (3)	Industry Group Pure Premium From Previous Revision (4)	Percent of Pure Premium = $(4) / [\text{Total of (4)}]$ (5)	Expected Loss and LAE Ratio (6)	Loss Based Assessment Change Factor (7)	Federal Losses as a % of Total Losses (8)	Benefit Level Change Factor (9)	Trend (10)	Pure Premium Underlying Present Rate Factor = $(3) \times (5) \times (6) \times (7) \times (9) \times (10)$ (11)
Federal	Indemnity	10.717	3.046	0.580	0.770	1.005	1.000	1.002	0.948	4.567
	Medical	10.717	2.205	0.420	0.770	1.005	1.000	1.000	0.942	3.281
	Total		5.251							

Notes:

- (3): Section VIII-H, Exhibit 1 of the 7/1/2016 Stipulation.
- (4): Section VIII-G of the 7/1/2016 Stipulation.
- (6): Section VI-J, Exhibit 1 of the 7/1/2016 Stipulation.
- (7): Change in load from Section VIII-K, Exhibit 1 and the 7/1/2016 Stipulation.
- (8): Based on ratio of Federal losses to sum of Federal and State losses from Section VIII-C, Exhibit 1, Pages 1 & 3.
- (9): Weighted average of Section IV-A, Exhibit 1 and Section IV-F, Exhibit 1, using weights from Column (8).
- (10): Section V-A, Exhibit 1.

## VIII 00024 STIP

Section VIII - F-Class Recommendation  
 Subsection F - Proposed Pure Premium Relativities  
 7/1/2018

Section VIII-F  
 Exhibit 3

### Calculation of Pure Premiums Underlying Present Rate Federal Industry Group

Class Code	Adopted Relativities		Pure Premiums Underlying Present Rate		
	Indemnity	Medical	Indemnity	Medical	Total = (4) + (5)
(1)	(2)	(3)	(4)	(5)	(6)
6801	0.746	0.890	3.407	2.919	6.327
6824	0.961	1.192	4.389	3.911	8.300
6826	1.103	0.892	5.037	2.928	7.965
6843	2.791	1.652	12.748	5.420	18.168
6872	1.648	1.662	7.526	5.454	12.979
6874	1.704	1.264	7.784	4.148	11.932
7309	1.485	1.208	6.784	3.963	10.747
7313	2.970	0.789	13.564	2.588	16.153
7317	3.360	1.914	15.345	6.278	21.623
7327	4.140	3.462	18.907	11.360	30.267
7350	2.765	1.973	12.630	6.472	19.102
8709	0.547	0.511	2.499	1.677	4.176
8726	0.553	0.666	2.527	2.185	4.712
9077	0.892	1.973	4.072	6.473	10.545

Notes:

(2), (3): Section VIII-H, Exhibit 2 of the 07/01/2016 Stipulation.

(4), (5) = (2),(3) x Pure Premium Underlying Present Rate Factors from Exhibit 2.

# VIII 00025 STIP

Section VIII - F-Class Recommendation  
 Subsection G - Class Relativities  
 7/1/2018

Section VIII - G  
 Exhibit 1

## Calculation of Class Relativities

Class(es):		Effective: 7/1/2018							Federal Class Codes		
6801 BOAT BUILDING - WOOD - NOC & DRIVERS: US ACT											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period (1)	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2011	2,923	0	0	0	0	0	0	0	0.000	0.000	0.000
2012	0	0	0	0	0	0	0	0	0.000	0.000	0.000
2013	0	0	0	0	0	0	0	0	0.000	0.000	0.000
2014	0	0	0	0	0	0	0	0	0.000	0.000	0.000
2015	0	0	0	0	0	0	0	0	0.000	0.000	0.000
<b>MA Total:</b>	<b>2,923</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0.000</b>	<b>0.000</b>	<b>0.000</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.000	0.000	.
(14) Massachusetts Credibility:	0.040	0.070	.
(15) Countrywide Pure Premium:	0.016	0.414	0.430
(16) Countrywide Indicated Relativity:	0.007	0.355	.
(17) Countrywide Credibility:	0.080	0.080	.
(18) Countrywide Lost-Time Claims:	2.000	.	.
(19) Pure Premium Underlying Present Rate:	3.407	2.919	6.327
(20) Relativity to Underlying Present Rate:	0.777	0.906	.
(21) Credibility to Underlying Relativity:	0.880	0.850	.
(22) Industry Group Converted Pure Premium:	2.846	1.841	4.687
(23) Formula Relativity:	0.684	0.799	.
(24) Balanced Formula Relativity:	0.657	0.766	0.700

Class(es):		Effective: 7/1/2018							Federal Class Codes		
6824 BOAT BUILDING OR REPAIRING & DRIVERS: US ACT											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period (1)	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2011	42,935	0	5	0	3,149	0	4,095	7,244	0.073	0.095	0.169
2012	50,915	1	3	234,233	0	79,628	5,306	319,168	4.600	1.668	6,269
2013	49,827	0	7	0	304,263	0	270,904	575,167	6.106	5.437	11,543
2014	51,022	0	6	0	3,694	0	6,571	10,265	0.072	0.129	0,201
2015	52,497	0	6	0	84,867	0	66,761	151,627	1.617	1.272	2,888
<b>MA Total:</b>	<b>247,195</b>	<b>1</b>	<b>27</b>	<b>234,233</b>	<b>395,972</b>	<b>79,628</b>	<b>353,637</b>	<b>1,063,471</b>	<b>2,549</b>	<b>1,753</b>	<b>4,302</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.896	0.952	.
(14) Massachusetts Credibility:	0.280	0.480	.
(15) Countrywide Pure Premium:	3.464	2.149	5,613
(16) Countrywide Indicated Relativity:	1.624	1.844	.
(17) Countrywide Credibility:	0.360	0.260	.
(18) Countrywide Lost-Time Claims:	95.000	.	.
(19) Pure Premium Underlying Present Rate:	4.389	3.911	8,300
(20) Relativity to Underlying Present Rate:	1.000	1.214	.
(21) Credibility to Underlying Relativity:	0.360	0.260	.
(22) Industry Group Converted Pure Premium:	2.846	1.841	4,687
(23) Formula Relativity:	1.196	1.252	.
(24) Balanced Formula Relativity:	1.148	1,201	1,169



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Section VIII - G  
 Exhibit 2

## Calculation of Class Relativities

Class(es):		Effective: 7/1/2018							Federal Class Codes		
6826 MARINA & DRIVERS: US ACT											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period (1)	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2011	3,867	0	0	0	0	0	0	0	0.000	0.000	0.000
2012	237	0	0	0	0	0	0	0	0.000	0.000	0.000
2013	612	0	0	0	0	0	0	0	0.000	0.000	0.000
2014	100	0	0	0	0	0	0	0	0.000	0.000	0.000
2015	0	0	0	0	0	0	0	0	0.000	0.000	0.000
MA Total:	4,816	0	0	0	0	0	0	0	0.000	0.000	0.000

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.000	0.000	.
(14) Massachusetts Credibility:	0.060	0.090	.
(15) Countrywide Pure Premium:	1.857	0.912	2.769
(16) Countrywide Indicated Relativity:	0.871	0.782	.
(17) Countrywide Credibility:	0.190	0.200	.
(18) Countrywide Lost-Time Claims:	17.000	.	.
(19) Pure Premium Underlying Present Rate:	5.037	2.928	7.965
(20) Relativity to Underlying Present Rate:	1.148	0.909	.
(21) Credibility to Underlying Relativity:	0.750	0.710	.
(22) Industry Group Converted Pure Premium:	2.846	1.841	4.687
(23) Formula Relativity:	1.026	0.802	.
(24) Balanced Formula Relativity:	0.986	0.769	0.901

Class(es):		Effective: 7/1/2018							Federal Class Codes		
6843 SHIP BUILDING-IRON OR STEEL-NOC & DRIVERS: US ACT											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period (1)	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2011	0	0	0	0	0	0	0	0	0.000	0.000	0.000
2012	0	0	0	0	0	0	0	0	0.000	0.000	0.000
2013	6,561	0	3	0	5,368	0	4,399	9,767	0.818	0.670	1.489
2014	100	0	9	0	43,359	0	24,154	67,514	433.59	241.54	675.14
2015	18,335	0	3	0	8,494	0	2,907	11,401	0.463	0.159	0.622
MA Total:	24,996	0	15	0	57,222	0	31,460	88,682	2.289	1.259	3.548

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.804	0.684	.
(14) Massachusetts Credibility:	0.170	0.220	.
(15) Countrywide Pure Premium:	2.219	1.343	3.562
(16) Countrywide Indicated Relativity:	1.040	1.152	.
(17) Countrywide Credibility:	0.420	0.390	.
(18) Countrywide Lost-Time Claims:	169.00	.	.
(19) Pure Premium Underlying Present Rate:	12.748	5.420	18.168
(20) Relativity to Underlying Present Rate:	2.905	1.683	.
(21) Credibility to Underlying Relativity:	0.410	0.390	.
(22) Industry Group Converted Pure Premium:	2.846	1.841	4.687
(23) Formula Relativity:	1.765	1.256	.
(24) Balanced Formula Relativity:	1.695	1.205	1.502

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Section VIII - G  
 Exhibit 3

## Calculation of Class Relativities

Class(es):		Effective: 7/1/2018							Federal Class Codes		
6872 SHIP REPAIR CONVERSION- ALL OP & DR: US ACT											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period (1)	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2011	9,147	0	1	0	6,159	0	10,292	16,450	0.673	1,125	1,798
2012	9,553	0	3	0	246,979	0	135,004	381,983	25.854	14,132	39,986
2013	7,712	0	1	0	0	0	173	173	0.000	0.022	0.022
2014	7,107	0	4	0	13,270	0	19,457	32,727	1.867	2,738	4,605
2015	7,445	0	1	0	0	0	295	295	0.000	0.040	0.040
<b>MA Total:</b>	<b>40,964</b>	<b>0</b>	<b>10</b>	<b>0</b>	<b>266,408</b>	<b>0</b>	<b>165,219</b>	<b>431,627</b>	<b>6.503</b>	<b>4.033</b>	<b>10.537</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	2.285	2.191	.
(14) Massachusetts Credibility:	0.170	0.270	.
(15) Countrywide Pure Premium:	4.732	2.863	7.594
(16) Countrywide Indicated Relativity:	2.219	2.455	.
(17) Countrywide Credibility:	0.420	0.370	.
(18) Countrywide Lost-Time Claims:	267.00	.	.
(19) Pure Premium Underlying Present Rate:	7.526	5.454	12.979
(20) Relativity to Underlying Present Rate:	1.715	1.693	.
(21) Credibility to Underlying Relativity:	0.410	0.360	.
(22) Industry Group Converted Pure Premium:	2.846	1.841	4.687
(23) Formula Relativity:	2.023	2.110	.
(24) Balanced Formula Relativity:	1.944	2.023	1.975

Class(es):		Effective: 7/1/2018							Federal Class Codes		
6874 PAINTING: SHIP HULLS - US ACT											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period (1)	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2011	7,171	0	1	0	0	0	95	95	0.000	0.013	0.013
2012	2,803	0	0	0	0	0	0	0	0.000	0.000	0.000
2013	383	0	0	0	0	0	0	0	0.000	0.000	0.000
2014	94	0	0	0	0	0	0	0	0.000	0.000	0.000
2015	10	0	0	0	0	0	0	0	0.000	0.000	0.000
<b>MA Total:</b>	<b>10,460</b>	<b>0</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>95</b>	<b>95</b>	<b>0.000</b>	<b>0.009</b>	<b>0.009</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.000	0.005	.
(14) Massachusetts Credibility:	0.100	0.140	.
(15) Countrywide Pure Premium:	11.122	3.094	14.216
(16) Countrywide Indicated Relativity:	5.215	2.654	.
(17) Countrywide Credibility:	0.180	0.190	.
(18) Countrywide Lost-Time Claims:	16.000	.	.
(19) Pure Premium Underlying Present Rate:	7.784	4.148	11.932
(20) Relativity to Underlying Present Rate:	1.774	1.288	.
(21) Credibility to Underlying Relativity:	0.720	0.670	.
(22) Industry Group Converted Pure Premium:	2.846	1.841	4.687
(23) Formula Relativity:	2.216	1.368	.
(24) Balanced Formula Relativity:	2.128	1.312	1.808

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Section VIII - G  
 Exhibit 4

## Calculation of Class Relativities

Class(es):		Effective: 7/1/2018							Federal Class Codes		
7309 STEVEDORING: NOC - US ACT											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period (1)	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2011	15.897	0	0	0	0	0	0	0	0.000	0.000	0.000
2012	13.196	0	0	0	0	0	0	0	0.000	0.000	0.000
2013	13.835	0	0	0	0	0	0	0	0.000	0.000	0.000
2014	7.342	0	0	0	0	0	0	0	0.000	0.000	0.000
2015	12.589	0	2	0	24,841	0	26,189	51,030	1,973	2,080	4,054
<b>MA Total:</b>	<b>62,859</b>	<b>0</b>	<b>2</b>	<b>0</b>	<b>24,841</b>	<b>0</b>	<b>26,189</b>	<b>51,030</b>	<b>0.395</b>	<b>0.417</b>	<b>0.812</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.139	0.226	.
(14) Massachusetts Credibility:	0.190	0.280	.
(15) Countrywide Pure Premium:	3.004	1.516	4,520
(16) Countrywide Indicated Relativity:	1.409	1.300	.
(17) Countrywide Credibility:	0.360	0.360	.
(18) Countrywide Lost-Time Claims:	90.000	.	.
(19) Pure Premium Underlying Present Rate:	6.784	3.963	10.747
(20) Relativity to Underlying Present Rate:	1.546	1.230	.
(21) Credibility to Underlying Relativity:	0.450	0.360	.
(22) Industry Group Converted Pure Premium:	2.846	1.841	4,687
(23) Formula Relativity:	1.229	0.974	.
(24) Balanced Formula Relativity:	1.181	0.934	1.084

Class(es):		Effective: 7/1/2018							Federal Class Codes		
7313 COAL DOCK OPERATION & STEVEDORING: US ACT											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period (1)	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2011	0	0	0	0	0	0	0	0	0.000	0.000	0.000
2012	0	0	0	0	0	0	0	0	0.000	0.000	0.000
2013	0	0	0	0	0	0	0	0	0.000	0.000	0.000
2014	0	0	0	0	0	0	0	0	0.000	0.000	0.000
2015	0	0	0	0	0	0	0	0	0.000	0.000	0.000
<b>MA Total:</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>.</b>	<b>.</b>	<b>.</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.000	0.000	.
(14) Massachusetts Credibility:	0.000	0.000	.
(15) Countrywide Pure Premium:	2.652	0.757	3,408
(16) Countrywide Indicated Relativity:	1.243	0.649	.
(17) Countrywide Credibility:	0.210	0.220	.
(18) Countrywide Lost-Time Claims:	24.000	.	.
(19) Pure Premium Underlying Present Rate:	13.564	2.588	16.153
(20) Relativity to Underlying Present Rate:	3.091	0.804	.
(21) Credibility to Underlying Relativity:	0.790	0.780	.
(22) Industry Group Converted Pure Premium:	2.846	1.841	4,687
(23) Formula Relativity:	2.703	0.770	.
(24) Balanced Formula Relativity:	2.596	0.738	1.867

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Section VIII - G  
 Exhibit 5

## Calculation of Class Relativities

Class(es):		Effective: 7/1/2018							Federal Class Codes		
7317 STEVEDORING: BY HAND OR HAND TRUCKS: US ACT											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period (1)	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2011	1,974	0	0	0	0	0	0	0	0.000	0.000	0.000
2012	319	0	1	0	0	0	2,541	2,541	0.000	7.964	7.964
2013	1,559	0	0	0	0	0	0	0	0.000	0.000	0.000
2014	5,260	0	1	0	30,769	0	28,461	59,230	5.849	5.411	11.260
2015	4,441	0	2	0	104,675	0	71,633	176,308	23.569	16.129	39.699
<b>MA Total:</b>	<b>13,554</b>	<b>0</b>	<b>4</b>	<b>0</b>	<b>135,444</b>	<b>0</b>	<b>102,634</b>	<b>238,078</b>	<b>9.993</b>	<b>7.572</b>	<b>17.566</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	3.511	4.114	.
(14) Massachusetts Credibility:	0.140	0.180	.
(15) Countrywide Pure Premium:	4.778	1.702	6.481
(16) Countrywide Indicated Relativity:	2.241	1.460	.
(17) Countrywide Credibility:	0.400	0.410	.
(18) Countrywide Lost-Time Claims:	115.00	.	.
(19) Pure Premium Underlying Present Rate:	15.345	6.278	21.623
(20) Relativity to Underlying Present Rate:	3.497	1.949	.
(21) Credibility to Underlying Relativity:	0.460	0.410	.
(22) Industry Group Converted Pure Premium:	2.846	1.841	4.687
(23) Formula Relativity:	2.996	2.138	.
(24) Balanced Formula Relativity:	2.878	2.050	2.553

Class(es):		Effective: 7/1/2018							Federal Class Codes		
7327 STEVEDORING: CONTAINERIZED FREIGHT & DRIVERS: US ACT											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period (1)	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2011	150	0	0	0	0	0	0	0	0.000	0.000	0.000
2012	182	0	0	0	0	0	0	0	0.000	0.000	0.000
2013	113	0	0	0	0	0	0	0	0.000	0.000	0.000
2014	126	0	0	0	0	0	0	0	0.000	0.000	0.000
2015	88	0	0	0	0	0	0	0	0.000	0.000	0.000
<b>MA Total:</b>	<b>658</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0.000</b>	<b>0.000</b>	<b>0.000</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.000	0.000	.
(14) Massachusetts Credibility:	0.050	0.070	.
(15) Countrywide Pure Premium:	4.844	3.099	7.943
(16) Countrywide Indicated Relativity:	2.271	2.659	.
(17) Countrywide Credibility:	0.190	0.200	.
(18) Countrywide Lost-Time Claims:	17.000	.	.
(19) Pure Premium Underlying Present Rate:	18.907	11.360	30.267
(20) Relativity to Underlying Present Rate:	4.309	3.527	.
(21) Credibility to Underlying Relativity:	0.760	0.730	.
(22) Industry Group Converted Pure Premium:	2.846	1.841	4.687
(23) Formula Relativity:	3.706	3.106	.
(24) Balanced Formula Relativity:	3.560	2.979	3.332

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 Exhibit 6

## Calculation of Class Relativities

Class(es):		Effective: 7/1/2018							Federal Class Codes		
7350 FREIGHT HANDLING NOC: US ACT											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period (1)	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2011	11,382	0	0	0	0	0	0	0	0.000	0.000	0.000
2012	11,270	1	4	199,873	37,232	20,400	24,224	281,728	21,038	3,960	24,998
2013	0	0	0	0	0	0	0	0	0.000	0.000	0.000
2014	0	0	0	0	0	0	0	0	0.000	0.000	0.000
2015	0	0	0	0	0	0	0	0	0.000	0.000	0.000
<b>MA Total:</b>	<b>22,652</b>	<b>1</b>	<b>4</b>	<b>199,873</b>	<b>37,232</b>	<b>20,400</b>	<b>24,224</b>	<b>281,728</b>	<b>10.467</b>	<b>1.970</b>	<b>12.437</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	3.678	1.070	.
(14) Massachusetts Credibility:	0.160	0.230	.
(15) Countrywide Pure Premium:	9.876	3.319	13.194
(16) Countrywide Indicated Relativity:	4.631	2.847	.
(17) Countrywide Credibility:	0.320	0.340	.
(18) Countrywide Lost-Time Claims:	65.000	.	.
(19) Pure Premium Underlying Present Rate:	12.630	6.472	19.102
(20) Relativity to Underlying Present Rate:	2.878	2.009	.
(21) Credibility to Underlying Relativity:	0.520	0.430	.
(22) Industry Group Converted Pure Premium:	2.846	1.841	4.687
(23) Formula Relativity:	3.567	2.078	.
(24) Balanced Formula Relativity:	3.426	1.993	2.863

Class(es):		Effective: 7/1/2018							Federal Class Codes		
8709 STEVEDORING:TALLIERS & CHECKING CLERKS: US ACT											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period (1)	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2011	2,909	0	0	0	0	0	0	0	0.000	0.000	0.000
2012	5,659	0	0	0	0	0	0	0	0.000	0.000	0.000
2013	3,682	0	0	0	0	0	0	0	0.000	0.000	0.000
2014	1,820	0	0	0	0	0	0	0	0.000	0.000	0.000
2015	1,581	0	0	0	0	0	0	0	0.000	0.000	0.000
<b>MA Total:</b>	<b>15,651</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0.000</b>	<b>0.000</b>	<b>0.000</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.000	0.000	.
(14) Massachusetts Credibility:	0.070	0.110	.
(15) Countrywide Pure Premium:	2.309	1.337	3.646
(16) Countrywide Indicated Relativity:	1.082	1.147	.
(17) Countrywide Credibility:	0.200	0.210	.
(18) Countrywide Lost-Time Claims:	21.000	.	.
(19) Pure Premium Underlying Present Rate:	2.499	1.677	4.176
(20) Relativity to Underlying Present Rate:	0.570	0.521	.
(21) Credibility to Underlying Relativity:	0.730	0.680	.
(22) Industry Group Converted Pure Premium:	2.846	1.841	4.687
(23) Formula Relativity:	0.632	0.595	.
(24) Balanced Formula Relativity:	0.607	0.571	0.593

# VIII 00031 STIP

Section VIII - F-Class Recommendation  
 Subsection G - Class Relativities  
 7/1/2018

Section VIII - G  
 Exhibit 7

## Calculation of Class Relativities

Class(es):		Effective: 7/1/2018							Federal Class Codes			
8726 STEAMSHIP LINE OR AGENCY-PORT EMP: SPRVRS, CAPTNS, ENGRS, STWR												
Converted Unlimited Losses												
Amount												
		Claim Count		Indemnity		Medical			MA Indicated Pure Premiums			
Policy Period (1)	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)	
2011	84,636	0	18	0	190,423	0	89,441	279,864	2,250	1,057	3,307	
2012	84,999	0	27	0	243,336	0	193,928	437,264	2,863	2,282	5,144	
2013	88,316	0	26	0	155,139	0	175,734	330,873	1,757	1,990	3,746	
2014	93,952	1	25	45,865	131,121	29,282	121,310	327,578	1,884	1,603	3,487	
2015	99,099	2	17	294,753	143,038	63,918	175,309	677,018	4,418	2,414	6,832	
<b>MA Total:</b>	<b>451,002</b>	<b>3</b>	<b>113</b>	<b>340,618</b>	<b>863,058</b>	<b>93,200</b>	<b>755,722</b>	<b>2,052,597</b>	<b>2,669</b>	<b>1,882</b>	<b>4,551</b>	

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.938	1.023	.
(14) Massachusetts Credibility:	0.280	0.490	.
(15) Countrywide Pure Premium:	0.370	0.244	0.614
(16) Countrywide Indicated Relativity:	0.174	0.209	.
(17) Countrywide Credibility:	0.190	0.200	.
(18) Countrywide Lost-Time Claims:	18.000	.	.
(19) Pure Premium Underlying Present Rate:	2.527	2.185	4.712
(20) Relativity to Underlying Present Rate:	0.576	0.678	.
(21) Credibility to Underlying Relativity:	0.530	0.310	.
(22) Industry Group Converted Pure Premium:	2.846	1.841	4.687
(23) Formula Relativity:	0.601	0.753	.
(24) Balanced Formula Relativity:	0.577	0.722	0.634

Class(es):		Effective: 7/1/2018							Federal Class Codes			
9077 UNITED STATES ARMED SERVICE RISK-ALL EMPLOYEES & DRIVERS												
Converted Unlimited Losses												
Amount												
		Claim Count		Indemnity		Medical			MA Indicated Pure Premiums			
Policy Period (1)	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)	
2011	0	0	0	0	0	0	0	0	0.000	0.000	0.000	
2012	0	0	0	0	0	0	0	0	0.000	0.000	0.000	
2013	0	0	0	0	0	0	0	0	0.000	0.000	0.000	
2014	0	0	0	0	0	0	0	0	0.000	0.000	0.000	
2015	0	0	0	0	0	0	0	0	0.000	0.000	0.000	
<b>MA Total:</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.000	0.000	.
(14) Massachusetts Credibility:	0.000	0.000	.
(15) Countrywide Pure Premium:	0.000	0.000	0.000
(16) Countrywide Indicated Relativity:	0.928	2.010	.
(17) Countrywide Credibility:	0.000	0.000	.
(18) Countrywide Lost-Time Claims:	0.000	.	.
(19) Pure Premium Underlying Present Rate:	4.072	6.473	10.545
(20) Relativity to Underlying Present Rate:	0.928	2.010	.
(21) Credibility to Underlying Relativity:	1.000	1.000	.
(22) Industry Group Converted Pure Premium:	2.846	1.841	4.687
(23) Formula Relativity:	0.928	2.010	.
(24) Balanced Formula Relativity:	0.891	1.927	1.298

## VIII 000032 STIP

Section VIII - F-Class Recommendation  
Subsection H - Proposed Rates  
7/1/2018

Section VIII-H  
Exhibit 1

### Calculation of Federal Industry Group Rate Change and Limits

(1) Industry Group Differential	1.000
(2) Experience and Benefit Level Change - Overall	-13.3%
(3) Target Rate Change = (1) x [ 1.000 + (2) ] - 1.000	-13.3%
(4) Maximum Rate Change = (3) + 20.0%	6.7%
(5) Minimum Rate Change = (3) - 20.0%	-33.3%
(6) Present Average Rate	10.205
(7) Uncapped Rate Level Factor = [ 1.000 + (3) ] x (6)	8.848
(8) Capped Rate Level Factor	8.670

In addition, the WCRIBMA is limiting the increase in average rates for any class to \$15 and no average rate shall exceed \$90 per \$100 of payroll.

#### Notes:

- (1): Federal Industry Group is the only group being evaluated.
- (2): Selected Rate Change, from Section VIII-A, Exhibit 1.
- (6): Rates by class consistent with the 07/01/16 stipulation, weighted by five years of exposure.
- (8): Proposed average uncapped rates are capped by an iterative process using rate levels to determine if the required change is achieved.

## VIII 000033 STIP

Section VIII - F-Class Recommendation  
 Subsection H - Proposed Rates  
 7/1/2018

Section VIII-H  
 Exhibit 2

### Calculation of Average Uncapped Rates

Class Code	Balanced Formula Relativity			Uncapped Rate Level Factor	Proposed Average Uncapped Rate = (4) x (5)
	Indemnity	Medical	Total		
(1)	(2)	(3)	(4)	(5)	(6)
6801	0.657	0.766	0.700	8.848	6.19
6824	1.148	1.201	1.169	8.848	10.34
6826	0.986	0.769	0.901	8.848	7.97
6843	1.695	1.205	1.502	8.848	13.29
6872	1.944	2.023	1.975	8.848	17.47
6874	2.128	1.312	1.808	8.848	15.99
7309	1.181	0.934	1.084	8.848	9.59
7313	2.596	0.738	1.867	8.848	16.51
7317	2.878	2.050	2.553	8.848	22.59
7327	3.560	2.979	3.332	8.848	29.48
7350	3.426	1.993	2.863	8.848	25.33
8709	0.607	0.571	0.593	8.848	5.25
8726	0.577	0.722	0.634	8.848	5.61
9077	0.891	1.927	1.298	8.848	11.49

Notes:

(2),(3),(4): Section VIII-G.

(5): Exhibit 1.



# VIII 00034 STIP

Section VIII - F-Class Recommendation  
Subsection H - Proposed Rates  
7/1/2018

Section VIII-H  
Exhibit 3

## Comparison of Average Rates

Class Code (1)	Present Average Capped Rate (2)	Proposed Average Uncapped Rate (3)	Proposed Average Capped Rate (4)
6801	9.44	6.19	6.53
6824	10.79	10.34	10.13
6826	10.35	7.97	7.81
6843	15.02	13.29	13.03
6872	22.99	17.47	17.12
6874	20.47	15.99	15.67
7309	22.19	9.59	15.36
7313	16.07	16.51	16.18
7317	15.35	22.59	16.00
7327	35.15	29.48	28.89
7350	18.17	25.33	18.94
8709	5.43	5.25	5.14
8726	6.13	5.61	5.50
9077	5.01	11.49	5.22

Notes:

(2): from Section VIII-H, Exhibit 3 of the 07/01/16 Stipulation.

(3): Exhibit 2.

(4) = Total Balanced Formula Relativity (Section VIII-G) x Capped Rate Level Factor Subject to maximum and minimum caps (Exhibit 1).

# VIII 000035 STIP

Section VIII - F-Class Recommendation  
Subsection H - Proposed Rates  
7/1/2018

Section VIII-H  
Exhibit 4

## Summary of Proposed Premium Change

Industry Group (1)	Present Premium (2)	Proposed Premium (3)	Proposed Change (4)	Target Change (5)	Capped Rate Level Factor (6)
Federal	9,161,414	7,942,943	-13.3%	-13.3%	8.67

Notes:

(2): Exposure x Present Average Rates, from Exhibit 3.

(3): Exposure x Proposed Average Rates, from Exhibit 3.

(4) = [(3) - (2)] / (2)

(5), (6): Exhibit 1.

# VIII 000036 STIP

## Pricing Example for Class 6824 BOAT BUILDING OR REPAIRING & DRIVERS: US ACT

Calculation of MA Indicated Relativity:

		(A). Federal Benefits - Limited Losses (Unit Statistical Plan data, Excluding Large Deductibles)							
	Policy Year	Fatal		Permanent Total	Permanent Partial		Temporary Total		Medical Only
		LD	NLD		LD	NLD	LD	NLD	
Indemnity	2011	0	0	0	0	0	0	2,267	
	2012	0	0	0	147,818	0	0	0	
	2013	0	0	0	0	90,071	0	103,465	
	2014	0	0	0	0	0	0	2,218	
	2015	0	0	0	0	0	0	32,640	
Medical	2011	0	0	0	0	0	0	729	3,019
	2012	0	0	0	43,996	0	0	0	5,102
	2013	0	0	0	0	167,573	0	13,922	1,807
	2014	0	0	0	0	0	0	2,059	2,965
	2015	0	0	0	0	0	0	36,458	2,263

		(B). Federal Benefits Primary Conversion Factors (Section VIII-E, Exhibit 1, Page 1)							
	Policy Year	Fatal		Permanent Total	Permanent Partial		Temporary Total		Medical Only
		LD	NLD		LD	NLD	LD	NLD	
Indemnity	2011	0.938	0.866	0.932	0.917	0.846	0.932	0.860	
	2012	1.008	0.908	1.003	0.989	0.891	1.003	0.903	
	2013	1.133	0.986	1.128	1.115	0.971	1.128	0.982	
	2014	1.241	1.035	1.235	1.223	1.021	1.235	1.031	
	2015	2.311	1.615	2.302	2.285	1.597	2.302	1.609	
Medical	2011	0.951	0.803	0.951	0.951	0.803	0.951	0.803	0.652
	2012	0.946	0.797	0.946	0.946	0.797	0.946	0.797	0.688
	2013	1.080	0.883	1.080	1.080	0.883	1.080	0.883	0.732
	2014	1.088	0.836	1.088	1.088	0.836	1.088	0.836	0.810
	2015	1.536	1.018	1.536	1.536	1.018	1.536	1.018	0.909

		(C). Federal Converted Limited Losses [ (A) x (B) ]							
	Policy Year	Fatal		Permanent Total	Permanent Partial		Temporary Total		Medical Only
		LD	NLD		LD	NLD	LD	NLD	
Indemnity	2011	0	0	0	0	0	0	1,949	
	2012	0	0	0	146,203	0	0	0	
	2013	0	0	0	0	87,432	0	101,603	
	2014	0	0	0	0	0	0	2,286	
	2015	0	0	0	0	0	0	52,517	
Medical	2011	0	0	0	0	0	0	585	1,969
	2012	0	0	0	41,638	0	0	0	3,511
	2013	0	0	0	0	147,906	0	12,288	1,322
	2014	0	0	0	0	0	0	1,722	2,403
	2015	0	0	0	0	0	0	37,102	2,058

# VIII 00037 STIP

Section VIII - F-Class Recommendation  
 Subsection I - Pricing Example  
 7/1/2018

Section VIII-I  
 Exhibit 1  
 Page 2

## Pricing Example for Class 6824 BOAT BUILDING OR REPAIRING & DRIVERS: US ACT

Calculation of MA Indicated Relativity (cont.):

		(D). Federal Unadjusted Excess Losses [ (Excess Factor - 1.0) x (C) ]							
Policy Year		Fatal		Permanent Total	Permanent Partial		Temporary Total		Medical Only
		LD	NLD		LD	NLD	LD	NLD	
Indemnity	2011	0	0	0	0	0	0	537	
	2012	0	0	0	40,281	0	0	0	
	2013	0	0	0	0	24,088	0	27,993	
	2014	0	0	0	0	0	0	630	
	2015	0	0	0	0	0	0	14,469	
Medical	2011	0	0	0	0	0	0	161	543
	2012	0	0	0	11,472	0	0	0	967
	2013	0	0	0	0	40,750	0	3,385	364
	2014	0	0	0	0	0	0	474	662
	2015	0	0	0	0	0	0	10,222	567

		(E). Federal Adjusted Excess Losses							
Policy Year		Fatal		Permanent Total	Permanent Partial		Temporary Total		Medical Only
		LD	NLD		LD	NLD	LD	NLD	
Indemnity	2011	0	0	0	0	0	0	376	
	2012	0	0	0	28,196	0	0	0	
	2013	0	0	0	0	16,862	0	19,595	
	2014	0	0	0	0	0	0	441	
	2015	0	0	0	0	0	0	10,128	
Medical	2011	0	0	0	0	0	0	322	543
	2012	0	0	0	23,556	0	0	0	967
	2013	0	0	0	0	47,976	0	11,783	364
	2014	0	0	0	0	0	0	663	662
	2015	0	0	0	0	0	0	14,563	567

		(F). Federal Secondary Conversion Factors				
		Fatal	Permanent Total	Permanent Partial	Temporary Total	Medical Only
Indemnity		1.059	0.994	1.343	1.355	
Medical		1.185	0.904	1.221	1.232	1.185

		(G). Federal Converted Unlimited Losses							
Policy Year		Fatal		Permanent Total	Permanent Partial		Temporary Total		Medical Only
		LD	NLD		LD	NLD	LD	NLD	
Indemnity	2011	0	0	0	0	0	0	3,149	
	2012	0	0	0	234,233	0	0	0	
	2013	0	0	0	0	140,075	0	164,188	
	2014	0	0	0	0	0	0	3,694	
	2015	0	0	0	0	0	0	84,867	
Medical	2011	0	0	0	0	0	0	1,118	2,977
	2012	0	0	0	79,628	0	0	0	5,306
	2013	0	0	0	0	239,251	0	29,655	1,998
	2014	0	0	0	0	0	0	2,939	3,632
	2015	0	0	0	0	0	0	63,650	3,111

		(H). Total Federal Converted Unlimited Losses			
Policy Year		Indemnity		Medical	
		LD	NLD	LD	NLD
2011		0	3,149	0	4,095
2012		234,233	0	79,628	5,306
2013		0	304,263	0	270,904
2014		0	3,694	0	6,571
2015		0	84,867	0	66,761
Total		234,233	395,972	79,628	353,637

Notes:

(E): Indemnity Adjusted Excess Losses = Indemnity Unadjusted Excess Losses x 0.7

Medical Adjusted Excess Losses = Medical Unadjusted Excess Losses + 0.3 x Indemnity Unadjusted Excess Losses

(F): Section VIII-E, Exhibit 1, Page 2.

(G) = [ (C) + (E) ] x (F)



# VIII 00039 STIP

Section VIII - F-Class Recommendation  
 Subsection I - Pricing Example  
 7/1/2018

Section VIII-I  
 Exhibit 1  
 Page 4

## Pricing Example for Class 6824 BOAT BUILDING OR REPAIRING & DRIVERS: US ACT

Calculation of MA Indicated Relativity (cont.):

		(D). State Unadjusted Excess Losses [ (Excess Factor -1.0) x (C) ]							
Policy Year	Fatal	Fatal		Permanent Total	Permanent Partial		Temporary Total		Medical Only
		LD	NLD		LD	NLD	LD	NLD	
Indemnity	2011	0	0	0	0	0	0	0	
	2012	0	0	0	0	0	0	0	
	2013	0	0	0	0	0	0	0	
	2014	0	0	0	0	0	0	0	
	2015	0	0	0	0	0	0	0	
Medical	2011	0	0	0	0	0	0	0	0
	2012	0	0	0	0	0	0	0	0
	2013	0	0	0	0	0	0	0	0
	2014	0	0	0	0	0	0	0	0
	2015	0	0	0	0	0	0	0	0

		(E). State Adjusted Excess Losses							
Policy Year	Fatal	Fatal		Permanent Total	Permanent Partial		Temporary Total		Medical Only
		LD	NLD		LD	NLD	LD	NLD	
Indemnity	2011	0	0	0	0	0	0	0	
	2012	0	0	0	0	0	0	0	
	2013	0	0	0	0	0	0	0	
	2014	0	0	0	0	0	0	0	
	2015	0	0	0	0	0	0	0	
Medical	2011	0	0	0	0	0	0	0	0
	2012	0	0	0	0	0	0	0	0
	2013	0	0	0	0	0	0	0	0
	2014	0	0	0	0	0	0	0	0
	2015	0	0	0	0	0	0	0	0

		(F). State Secondary Conversion Factors				
		Fatal	Permanent Total	Permanent Partial	Temporary Total	Medical Only
Indemnity		0.963	0.903	1.220	1.231	
Medical		1.185	0.904	1.221	1.232	1.185

		(G). State Converted Unlimited Losses							
Policy Year	Fatal	Fatal		Permanent Total	Permanent Partial		Temporary Total		Medical Only
		LD	NLD		LD	NLD	LD	NLD	
Indemnity	2011	0	0	0	0	0	0	0	
	2012	0	0	0	0	0	0	0	
	2013	0	0	0	0	0	0	0	
	2014	0	0	0	0	0	0	0	
	2015	0	0	0	0	0	0	0	
Medical	2011	0	0	0	0	0	0	0	0
	2012	0	0	0	0	0	0	0	0
	2013	0	0	0	0	0	0	0	0
	2014	0	0	0	0	0	0	0	0
	2015	0	0	0	0	0	0	0	0

		(H). Total State Converted Unlimited Losses			
Policy Year	Indemnity		Medical		
	LD	NLD	LD	NLD	
2011	0	0	0	0	
2012	0	0	0	0	
2013	0	0	0	0	
2014	0	0	0	0	
2015	0	0	0	0	
Total	0	0	0	0	

Notes:

(E): Indemnity Adjusted Excess Losses = Indemnity Unadjusted Excess Losses x 0.7

Medical Adjusted Excess Losses = Medical Unadjusted Excess Losses + 0.3 x Indemnity Unadjusted Excess Losses

(F): Section IX-B, Exhibit 1, Page 3.

(G) = [ (C) + (E) ] x (F)

## VIII 000040 STIP

Section VIII - F-Class Recommendation  
 Subsection I - Pricing Example  
 7/1/2018

Section VIII-I  
 Exhibit 1  
 Page 5

### Pricing Example for Class 6824 BOAT BUILDING OR REPAIRING & DRIVERS: US ACT

Calculation of MA Indicated Relativity (cont.):

Exposure, Converted Unlimited Losses (Both Federal & State)			
Policy Year (1)	Exposure (2)	Indemnity (3)	Medical (4)
2011	42,935	3,149	4,095
2012	50,915	234,233	84,934
2013	49,827	304,263	270,904
2014	51,022	3,694	6,571
2015	52,497	84,867	66,761
Total	247,196	630,206	433,265
(5)	Indicated Pure Premium	2.549	1.753
(6)	Federal Class Codes Industry Group Pure Premium	2.846	1.841
(7)	MA Indicated Relativity	0.896	0.952

Notes:

- (2): Unit Statistical Plan data, excluding Large Deductibles
- (3), (4): Converted Unlimited Losses from Pages 2 & 4.
- (5): Totals of (3) and (4), divided by Total of (2), respectively.
- (6): Section VIII-F, Exhibit 1, Page 2.
- (7) = (5) / (6)

# VIII 000041 STIP

## Pricing Example for Class 6824 BOAT BUILDING OR REPAIRING & DRIVERS: US ACT

Calculation of Countrywide Relativity

State (1)	State Code (2)	Losses				Lost-Time Claims		Payroll (9)
		Indemnity		Medical		Likely (7)	Not Likely (8)	
		Likely (3)	Not Likely (4)	Likely (5)	Not Likely (6)			
Alabama	1	0	15,167	0	46,248	0	1	3,876,532
Arizona	2	0	0	0	0	0	0	359,968
Arkansas	3	0	0	0	0	0	0	211,606
Colorado	5	0	0	0	0	0	0	0
Connecticut	6	267,913	14,007	252,679	66,340	1	1	902,602
D.C.	8	0	0	0	0	0	0	0
Florida	9	452,215	951,664	452,075	811,756	5	8	15,742,434
Georgia	10	0	0	0	1,478	0	0	1,776,176
Idaho	11	0	0	0	0	0	0	190,334
Illinois	12	0	0	0	0	0	0	1,073,127
Indiana	13	0	0	0	0	0	0	67,422
Iowa	14	0	0	0	559	0	0	1,013,787
Kansas	15	0	0	0	0	0	0	0
Kentucky	16	0	19,290	0	33,491	0	2	1,369,685
Louisiana	17	497,795	70,222	873,244	149,028	2	8	8,867,737
Maine	18	0	25,445	0	64,402	0	6	16,607,325
Maryland	19	45,740	0	0	9,201	1	0	2,617,075
Michigan	21	0	0	0	0	0	0	0
Minnesota	22	0	0	0	0	0	0	0
Mississippi	23	157,533	47,937	144,663	211,411	1	6	22,135,220
Missouri	24	0	0	0	0	0	0	1,158,634
Montana	25	0	0	0	0	0	0	0
Nebraska	26	0	0	0	0	0	0	0
Nevada	27	0	0	0	0	0	0	0
New Hampshire	28	0	0	0	1,931	0	0	970,065
New Mexico	30	0	0	0	0	0	0	0
North Carolina	32	0	68,564	0	133,315	0	2	4,073,292
Oklahoma	35	61,830	66,727	59,951	58,804	2	3	707,262
Oregon	36	0	177,155	0	167,697	0	4	8,958,573
Rhode Island	38	0	91,103	0	100,453	0	4	3,822,232
South Carolina	39	10,080	75,144	43,343	75,486	1	1	4,330,012
South Dakota	40	0	0	0	0	0	0	0
Tennessee	41	0	28,221	0	13,853	0	2	111,694
Utah	43	0	0	0	0	0	0	0
Vermont	44	0	0	0	0	0	0	72,800
Virginia	45	0	72,795	0	85,413	0	2	7,516,759
West Virginia	47	0	0	0	0	0	0	0
Wisconsin	48	0	0	0	0	0	0	0
Hawaii	52	675,650	0	344,703	16,127	3	0	4,392,316
Alaska	54	261,569	542,145	212,638	2,507,189	4	25	18,955,314
<b>Total</b>		<b>2,430,325</b>	<b>2,265,586</b>	<b>2,383,296</b>	<b>4,554,182</b>	<b>20</b>	<b>75</b>	<b>131,879,983</b>

Notes:  
 (3) - (9): Data are total for latest three policy years. See Section IX-D, Exhibit 3.  
 (7), (8): Used in calculating countrywide credibilities.



# VIII 000042 STIP

## Pricing Example for Class 6824 BOAT BUILDING OR REPAIRING & DRIVERS: US ACT

### Calculation of Countrywide Relativity

State (1)	State Code (2)	Federal Class Codes Pitch Factors		Pure Premiums, on MA Level		Total (7)
		Indemnity (3)	Medical (4)	Indemnity (5)	Medical (6)	
Alabama	1	2.215	0.878	0.867	1.047	
Arizona	2	0.000	0.000	0.000	0.000	
Arkansas	3	0.404	0.195	0.000	0.000	
Colorado	5	0.000	0.000	0.000	0.000	
Connecticut	6	0.140	0.110	4.374	3.876	
D.C.	8	0.000	0.000	0.000	0.000	
Florida	9	0.851	0.516	7.586	4.145	
Georgia	10	1.263	1.203	0.000	0.100	
Idaho	11	0.000	0.000	0.000	0.000	
Illinois	12	0.883	0.426	0.000	0.000	
Indiana	13	3.211	0.800	0.000	0.000	
Iowa	14	0.535	0.230	0.000	0.013	
Kansas	15	0.000	0.000	0.000	0.000	
Kentucky	16	2.174	0.867	3.062	2.121	
Louisiana	17	1.011	0.459	6.475	5.287	
Maine	18	0.036	0.018	0.006	0.007	
Maryland	19	1.680	1.191	2.937	0.419	
Michigan	21	0.000	0.000	0.000	0.000	
Minnesota	22	0.000	0.000	0.000	0.000	
Mississippi	23	2.738	0.903	2.542	1.452	
Missouri	24	0.190	0.119	0.000	0.000	
Montana	25	0.000	0.000	0.000	0.000	
Nebraska	26	0.000	0.000	0.000	0.000	
Nevada	27	0.000	0.000	0.000	0.000	
New Hampshire	28	0.000	6.629	0.000	1.320	
New Mexico	30	0.000	0.000	0.000	0.000	
North Carolina	32	1.406	0.638	2.366	2.088	
Oklahoma	35	0.174	0.122	3.156	2.047	
Oregon	36	1.489	0.883	2.945	1.652	
Rhode Island	38	0.761	0.675	1.814	1.775	
South Carolina	39	0.820	0.386	1.613	1.059	
South Dakota	40	0.000	0.000	0.000	0.000	
Tennessee	41	0.177	0.235	4.462	2.917	
Utah	43	0.000	0.000	0.000	0.000	
Vermont	44	0.000	0.000	0.000	0.000	
Virginia	45	3.002	1.450	2.907	1.648	
West Virginia	47	2.866	1.076	0.000	0.000	
Wisconsin	48	0.000	0.000	0.000	0.000	
Hawaii	52	0.245	0.286	3.765	2.347	
Alaska	54	1.411	0.246	5.982	3.529	
(8)	Average of (5), (6) weighted by Payroll from Page 1, respectively			3.464	2.149	5.613
(9)	CW Federal Class Codes Pure Premium			2.133	1.166	3.298
(10)	CW Relativity = (8) / (9)			1.624	1.844	1.702
(11)	CW Relativity, balanced to unity			1.624	1.844	

**Notes:**

(3), (4) = (MA Total Federal Class Code Limited Losses) / [( Federal Class Code Pure Premium by State) x (MA Total Federal Class Code Exposure)].

(5) = 100 x [ State Indemnity Losses / State Payroll ] x (3), where State Indemnity Losses and State Payroll from page 1.

(6) = 100 x [ State Medical Losses / State Payroll ] x (4), where State Medical Losses and State Payroll from page 1.

(9) = (8) weighted by MA five year Federal Class Codes Exposure

(11): Relativities balanced to unity (weighted by MA exposure) over Federal Class Codes Industry Group.

## VIII 00043 STIP

Section VIII - F-Class Recommendation  
 Subsection I - Pricing Example  
 7/1/2018

Section VIII-I  
 Exhibit 3

### Pricing Example for Class 6824 BOAT BUILDING OR REPAIRING & DRIVERS: US ACT

Calculation of Credibility and Balanced Formula Relativity:

- (1) MA Indicated Relativity
- (2) Countrywide Indicated Relativity
- (3) Relativity to Underlying Present Rate

Injury Type	
Indemnity	Medical
0.896	0.952
1.624	1.844
1.000	1.214

Calculation of MA Credibility:

The MA Credibilities are calculated using the formula  $Z=(E / F)^{0.4}$  where E are expected losses for that injury type.

- (4) Adopted Relativity
- (5) Industry Group Pure Premium Underlying Present Rate Factor
- (6) Pure Premium Underlying Present Rate  
= (4) x (5)
- (7) Expected Losses  
= (6) x [(Total Exposure from Exhibit 1, Page 5)]
- (8) Full Credibility Standards
- (9) MA Credibility  
= Minimum of {100%, [(7) / (8)]<sup>0.4</sup>}

Injury Type	
Indemnity	Medical
0.961	1.192
4.567	3.281
4.389	3.911
1,084,901	966,708
27,200,000	6,000,000
28%	48%

Calculation of Countrywide Credibility

The Countrywide Credibilities are calculated using the formula  $Z=(E / F)^{0.4}$  where E are the countrywide claim counts for that injury type. The countrywide credibility is limited to no more than half of the complement of the credibility assigned to the Massachusetts data.

- (10) Countrywide Lost-Time Claims
- (11) Countrywide Claim Count Standard
- (12) Countrywide Credibility  
= Minimum of { [(10) / (11)]<sup>0.4</sup>, 0.5 x [100% - (9)] }
- (13) Credibility to Underlying  
= 100% - (9) - (12)
- (14) Formula Relativity  
= [(1) x (9)] + [(2) x (12)] + [(3) x (13)]
- (15) Off Balance Factor

Injury Type	
Indemnity	Medical
95	95
1,150	1,000
36%	26%
36%	26%
1.196	1.252
1.041	1.043

- (16) Balanced Formula Relativity

Injury Type		
Indemnity	Medical	Total
1.148	1.201	1.169

Notes:

- (1): Exhibit 1, Page 5.
- (2): Exhibit 2, Page 2.
- (3): Relativity to Industry Group average, using 5 year Schedule Z exposure as weights.
- (4): Section VIII-F, Exhibit 3.
- (5): Section VIII-F, Exhibit 2.
- (8), (11): Section IX-D, Exhibit 1, Page 1.
- (10): Exhibit 2, Page 1.
- (15): Factor to balance Formula relativities across industry group to unity using 5 year Schedule Z exposure by injury type.
- (16) = (14) / (15) , Total Balanced Formula Relativity is the weighted average of Partial Relativities using the MA Industry Group Pure Premium as weights.

## VIII 000044 STIP

Section VIII - F-Class Recommendation  
Subsection I - Pricing Example  
7/1/2018

Section VIII-I  
Exhibit 4

### Pricing Example for Class 6824 BOAT BUILDING OR REPAIRING & DRIVERS: US ACT

Calculation of Proposed Average Rate and Proposed Manual Rate:

(1) Present Average Rate	10.79
(2) Total Balanced Formula Relativity	1.169
(3) Capped Rate Level Factor	8.670
(4) Maximum Average Rate	11.51
(5) Minimum Average Rate	7.20
(6) Proposed Average Capped Rate = (2) x (3), Subject to Caps (4), (5)	10.13
(7) Offset for Merit Rating	0.997
(8) Offset for ARAP	1.051
(9) Offset for Construction Classification Premium Adjustment Program	1.000
(10) Provision for Insolvency Fund Assessment Recoupment	0.0026
(11) Proposed Manual Rate = { (6) / [ (7) x (8) x (9) ] } x { 1.000 / [ 1.000 - (10) ] }	9.70
(12) Minimum Premium	500
(13) Loss Constant	0
(14) Expected Loss Rate	3.87
(15) D-Ratio	0.17

#### Notes:

(1): Section VIII-H, Exhibit 3.

(2): Exhibit 3.

(3): Section VIII-H, Exhibit 1. Proposed average uncapped rates are capped by an iterative process using rate levels to determine if the required change is achieved. Class 6824 is in the Federal Class Codes Industry Group.

(4): Multiple caps apply including the maximum increase for any class within the industry group, a maximum absolute dollar change of \$15, and a maximum absolute average rate of \$90.

(5): Based on the minimum decrease for any class within the industry group.

(7), (8), (9), (10): Section IX - K, Exhibit 1. Class 6824 is not eligible for the Construction Credit prog

(12) = { [ (11) x 35.0 ] + (13) + Expense Constant } subject to a maximum of \$500

Where Expense Constant = 159 if (11) x 35 + (13) < 200,

= 250 if (11) x 35 + (13) >= 200 and < 1000

or = 338 if (11) x 35 + (13) >= 1000.

(13): No loss constant for Federal classes.

(14) = (6) x Ratio of Experience Rating ELR to Average Rate, from Section X-C, Exhibit 1.

Class 6824 is in Hazard Group F.

(15): See text of Section X for an explanation of the calculation of D-Ratios.

## VIII 000045 STIP

Section VIII - F-Class Recommendation  
Subsection J - U.S.L.H. & H.W. Coverage Percentage  
7/1/2018

Section VIII-J  
Exhibit 1

### Calculation of USLH & HW Compensation Coverage Percentage

(1)	Benefits Differential Underlying Current USLH & HW Coverage Percentage	1.186
(2)	State Benefit Level Adjustments Since Last Approval	1.012
(3)	Federal Benefit Level Adjustments Since Last Approval	1.000
(4)	Revised Benefits Differential = (1) x [ (3) / (2) ]	1.171
(5)	Federal Indemnity Losses as % of Total Federal Losses	57.6%
(6)	Expected Loss Ratio for State Classes	64.6%
(7)	Fixed Expense Ratio	4.3%
(8)	Special Fund Assessment Rate as % of Federal Indemnity Losses	0.119
(9)	Loss Adjustment Expense Factor (Applies to Losses)	1.185
(10)	USLH & HW Coverage Percentage for Manual Rates	1.226
(11)	USLH & HW Coverage Percentage for Expected Loss Rates	1.162

#### Notes:

(1): Section VIII-J, Exhibit 1 of 7/1/2016 Stipulation.

(2): Total Benefit Level Changes from Prior Effective Period to Prospective Period from Section IV-A, Exhibit 1

(3): Total Benefit Level Changes from Prior Effective Period to Prospective Period from Section IV-F, Exhibit 1

(5): Based on ratio of indemnity losses to total losses from Section VIII-C, Exhibit 1, Page 1.

(6): Section VI-J, Exhibit 1.

(7): Average of Fixed Expense Ratios for 2 PYs from Section VI-B, Exhibit 1.

(8): NCCI's Tax & Assessment Directory.

(9): Section VIII-E, Exhibit 1, Page 2.

(10) = { [ (6) x (4) x (9) ] + [ (6) x (4) x (5) x (8) ] + (7) } / { [ (6) x (9) ] + (7) }

(11) = { [ (6) x (4) x (9) ] + (7) } / { [ (6) x (9) ] + (7) }

## VIII 000046 STIP

Section VIII - F-Class Recommendation  
Subsection K - Federal Tax Multiplier  
7/1/2018

Section VIII-K  
Exhibit 1

### Calculation of Federal Tax Multiplier

(1)	State Tax Multiplier	1.029
(2)	Loading for Taxes and Residual Market Subsidy = $1.0 - [ 1.0 / (1) ]$	2.8%
(3)	Expected Loss Ratio (no LAE)	64.5%
(4)	Federal Special Funds Assessment	11.9%
(5)	Federal Indemnity Losses as % of Total Losses	57.6%
(6)	Loading for Federal Funds Assessment = $(3) \times (4) \times (5)$	4.4%
(7)	Federal Tax Multiplier = $1.0 / [ 1.0 - (2) - (6) ]$	1.078

Notes:

(1),(3): Section XII-A, Exhibit 4.

(4): NCCI Tax and Assessment Directory.

(5): Based on ratio of federal indemnity losses to state and federal total losses from Section VIII-C, Exhibit 1, Pages 1 and 3.

# IX 00020 STIP

**MASSACHUSETTS WORKERS COMPENSATION AND EMPLOYERS LIABILITY INSURANCE MANUAL** **RATES**

Draft *Proposed Effective July 1, 2018* Page RA-1

## RATES

LEGEND

- |  |   |
|--|---|
| (a) Rate for each individual risk must be obtained by Home Office from the MA Bureau.<br><br>D Supplement Disease Loading. Refer to Section IV of the Manual Supplement - - Treatment of Disease Coverage. | F Rate provides for coverage under the United States Longshore and Harbor Workers' Compensation Act.<br><br>M Risks are subject to Admiralty Law or Federal Employers Liability Act (FELA). |
|--|---|

CLASS CODE	RATE	MIN PREM	LOSS CONST	CLASS CODE	RATE	MIN PREM	LOSS CONST	CLASS CODE	RATE	MIN PREM	LOSS CONST	CLASS CODE	RATE	MIN PREM	LOSS CONST
0005	2.03	250.	20.	1924	2.00	229.	--	2501	1.78	221.	--	3082D	4.58	319.	--
0008	2.15	254.	20.	1925	4.69	323.	--	2503	1.17	200.	--	3085D	4.47	315.	--
0016	3.56	304.	20.	2003	3.43	279.	--	2570	5.28	344.	--	3110	8.34	500.	--
0034	3.49	301.	20.	2014	3.10	268.	--	2576	1.72	219.	--	3111	1.81	222.	--
0035	1.91	246.	20.	2021	2.19	236.	--	2585	2.75	255.	--	3113	1.38	207.	--
0036	3.49	301.	20.	2039	3.01	264.	--	2586	1.60	215.	--	3114	2.44	244.	--
0042	3.55	303.	20.	2041	2.57	249.	--	2587	3.28	294.	20.	3118	1.69	218.	--
0046	1.70	239.	20.	2070	3.69	288.	--	2623	4.57	319.	--	3119	0.70	184.	--
0050	4.36	453.	50.	2081	3.00	264.	--	2651	1.37	207.	--	3120	1.34	206.	--
0059D	0.25	.	.	2089	2.70	254.	--	2660	1.75	220.	--	3122	1.92	226.	--
0065D	0.11	.	.	2095	3.19	271.	--	2683	1.67	217.	--	3127	0.96	193.	--
0066D	0.09	.	.	2101	2.70	254.	--	2688	2.08	232.	--	3131	1.38	207.	--
0067D	0.09	.	.	2105	(a)	(a)	(a)	2702	12.82	500.	20.	3132	2.84	258.	--
0079	3.12	288.	20.	2111	1.92	226.	--	2710	6.38	473.	--	3145	1.45	210.	--
0083	3.16	290.	20.	2114	2.70	254.	--	2731	2.93	262.	--	3146	1.88	225.	--
0106	10.05	500.	20.	2115	4.11	303.	--	2747	5.33	346.	--	3169	2.43	244.	--
0113	3.49	301.	20.	2121	1.15	199.	--	2790	1.53	213.	--	3179	1.08	197.	--
0170	3.49	301.	20.	2130	1.62	216.	--	2802	3.67	287.	--	3180	2.54	248.	--
0771b	0.80	.	.	2131	2.39	243.	--	2835	1.69	218.	--	3188	1.85	224.	--
0908	74.00	138.	--	2143	1.76	221.	--	2836	1.77	221.	--	3200	1.86	224.	--
0909	156.00	220.	--	2150	4.12	303.	--	2841	3.18	270.	--	3220	2.70	254.	--
0912	312.00	376.	--	2156	4.32	310.	--	2883	2.89	260.	--	3223	(a)	(a)	(a)
0913	149.00	213.	--	2157	3.49	281.	--	2923	1.56	214.	--	3255	2.03	230.	--
0917	2.75	275.	20.	2172	1.77	221.	--	2942	1.76	221.	--	3257	2.40	243.	--
0918	0.50	197.	20.	2211	5.95	458.	--	3018	2.47	245.	--	3270	1.86	224.	--
1430	6.24	468.	--	2220	2.27	238.	--	3022	3.33	276.	--	3300	3.78	291.	--
1438	2.96	263.	--	2260	5.44	349.	--	3027	4.83	328.	--	3305	(a)	(a)	(a)
1463	8.79	500.	--	2288	2.80	257.	--	3028	2.60	250.	--	3315	2.85	259.	--
1624D	3.60	305.	20.	2305	2.68	253.	--	3030	5.47	350.	--	3336	3.24	272.	--
1655	3.30	295.	20.	2362	1.48	211.	--	3040	4.52	317.	--	3365	5.73	500.	50.
1701	2.58	249.	--	2380	2.24	237.	--	3041	3.40	278.	--	3372	2.07	231.	--
1710D	3.60	305.	20.	2402	2.11	233.	--	3042	5.36	347.	--	3373	3.50	282.	--
1747	2.92	261.	--	2413	3.13	269.	--	3066	2.16	235.	--	3381	2.11	233.	--
1748	2.73	255.	--	2416	2.45	245.	--	3076	2.07	231.	--	3383	1.50	212.	--
1853	1.35	206.	--	2417	2.57	249.	--	3081D	4.58	319.	--	3385	0.64	181.	--

Non-Ratable Code and Rate to be used with the following classifications:

b 4771

# IX 00021 STIP

**MASSACHUSETTS WORKERS COMPENSATION AND EMPLOYERS LIABILITY INSURANCE MANUAL** **RATES**

Draft Proposed Effective July 1, 2018 Page RA-2

### RATES

CLASS CODE	RATE	MIN PREM	LOSS CONST	CLASS CODE	RATE	MIN PREM	LOSS CONST	CLASS CODE	RATE	MIN PREM	LOSS CONST	CLASS CODE	RATE	MIN PREM	LOSS CONST
3400	2.43	244.	--	4150	0.58	179.	--	4771c	5.39	467.	--	5507	5.60	496.	50.
3507	2.42	244.	--	4239	2.13	234.	--	4777	2.95	262.	--	5508D	4.51	458.	50.
3515	2.68	253.	--	4243	2.94	262.	--	4825	0.49	176.	--	5509	3.82	343.	50.
3558	0.80	187.	--	4244	2.16	235.	--	4828	0.99	194.	--	5538	3.82	343.	50.
3571	0.76	186.	--	4250	1.71	219.	--	4829	0.99	194.	--	5545	35.68	500.	50.
3574	1.52	212.	--	4251	2.07	231.	--	4902	1.76	221.	--	5547	11.44	500.	50.
3612	1.59	215.	--	4273	2.40	243.	--	4923	0.71	184.	--	5606	1.47	260.	50.
3620	4.33	311.	--	4279	1.97	228.	--	5020	4.22	357.	50.	5610	5.66	498.	50.
3629	1.52	212.	--	4283	1.88	225.	--	5022	9.60	500.	50.	5645	7.10	500.	50.
3632	1.52	212.	--	4299	1.70	219.	--	5037	16.87	500.	50.	5701	22.00	500.	50.
3634	1.34	206.	--	4304	4.27	308.	--	5040	24.00	500.	50.	5703	14.57	500.	50.
3635	2.53	248.	--	4307	1.47	210.	--	5057	21.61	500.	50.	5705	12.42	500.	50.
3638	1.52	212.	--	4308	1.29	204.	--	5059	16.69	500.	50.	6003	9.15	500.	50.
3642	1.05	196.	--	4351	0.84	188.	--	5102	6.12	500.	50.	6005	4.51	458.	50.
3643	1.41	208.	--	4352	1.22	202.	--	5146	6.57	500.	50.	6204	5.85	500.	50.
3647	1.80	222.	--	4360	0.71	184.	--	5160	2.75	305.	50.	6217	4.03	350.	50.
3648	1.19	201.	--	4361	0.65	202.	20.	5183	2.93	312.	50.	6229	3.77	341.	50.
3681	0.64	181.	--	4362	0.50	197.	20.	5188	4.32	451.	50.	6233	2.88	310.	50.
3685	0.58	179.	--	4410	2.46	245.	--	5190	2.17	285.	50.	6251D	5.22	483.	50.
3724	5.08	478.	50.	4432	0.82	188.	--	5191	0.73	205.	20.	6252D	8.28	500.	50.
3726	8.41	500.	50.	4439	3.32	275.	--	5192	2.63	271.	20.	6306	8.09	500.	50.
3807	2.43	244.	--	4452	2.75	255.	--	5213	11.97	500.	50.	6319	3.55	333.	50.
3808	2.56	249.	--	4459	2.40	243.	--	5215	4.33	452.	50.	6325	3.41	328.	50.
3821	4.09	322.	20.	4470	1.88	225.	--	5221	6.97	500.	50.	6400	4.71	465.	50.
3826	3.29	274.	--	4484	1.82	223.	--	5222	8.58	500.	50.	6504	2.70	254.	--
3830	1.52	212.	--	4493	1.94	227.	--	5223	4.19	356.	50.	6702M	(a)	.	--
3841	1.22	202.	--	4511	0.28	189.	20.	5348	4.15	354.	50.	6703M	(a)	.	--
4000	4.48	336.	20.	4512	0.09	182.	20.	5402	6.27	500.	50.	6704M	(a)	.	--
4021	3.46	280.	--	4557	1.59	215.	--	5403	7.64	500.	50.	6801F	6.25	469.	--
4024	2.75	255.	--	4558	1.24	202.	--	5437	4.49	457.	50.	6811	5.10	358.	20.
4034	5.83	454.	--	4583	2.95	262.	--	5443	3.24	322.	50.	6824F	9.70	500.	--
4036	2.19	236.	--	4611	0.86	189.	--	5445	6.08	500.	50.	6826F	7.47	500.	--
4038	2.62	251.	--	4635	4.10	303.	--	5462	6.18	500.	50.	6834	2.13	254.	20.
4053	1.91	226.	--	4653	1.70	219.	--	5472	8.75	500.	50.	6836	3.26	293.	20.
4062	1.62	216.	--	4665	6.90	492.	--	5473	10.55	500.	50.	6843F	12.46	500.	--
4112	0.46	175.	--	4692	0.55	178.	--	5474	4.25	358.	50.	6854	10.16	500.	20.
4113	1.91	226.	--	4693	0.83	188.	--	5478	4.18	355.	50.	6872F	16.38	500.	--
4114	2.06	231.	--	4720	1.75	220.	--	5479	6.92	500.	50.	6874F	15.00	500.	--
4130	2.79	257.	--	4740	1.08	197.	--	5480	4.04	350.	50.	6882	13.36	500.	20.
4133	1.49	211.	--	4741	2.11	233.	--	5506	5.20	482.	50.	6884	12.23	500.	20.

For Non-Ratable portion of Rate, refer to:

c 0771

# IX 00022 STIP

Section IX - Classification Pricing

Section IX - A

Subsection A - Summary

Exhibit 1

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**MASSACHUSETTS WORKERS COMPENSATION AND EMPLOYERS LIABILITY INSURANCE MANUAL** **RATES**

Draft

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## RATES

CLASS CODE	RATE	MIN PREM	LOSS CONST	CLASS CODE	RATE	MIN PREM	LOSS CONST	CLASS CODE	RATE	MIN PREM	LOSS CONST	CLASS CODE	RATE	MIN PREM	LOSS CONST
7016M	1.88	.	--	7502	2.08	252.	20.	8232	5.81	473.	20.	8829	1.95	247.	20.
7024M	2.35	.	--	7515	2.28	259.	20.	8233	6.03	481.	20.	8831	0.89	210.	20.
7038M	3.55	.	--	7520	2.77	276.	20.	8235	3.84	313.	20.	8832	0.27	188.	20.
7046M	5.06	.	--	7538	6.09	500.	50.	8263	3.84	313.	20.	8833	1.11	218.	20.
7047M	2.95	.	--	7539	1.13	219.	20.	8264	4.61	340.	20.	8835	1.88	245.	20.
7050M	5.57	.	--	7580	3.11	288.	20.	8265	6.03	481.	20.	8837	(a)	(a)	(a)
7090M	4.44	.	--	7590	3.49	301.	20.	8279	4.20	326.	20.	8868	0.68	203.	20.
7098M	5.95	.	--	7600	2.96	283.	20.	8291	3.31	295.	20.	8901	0.07	181.	20.
7099M	7.46	.	--	7601	5.54	494.	50.	8292	3.05	286.	20.	9014	2.28	259.	20.
7133	(a)	(a)	(a)	7610	0.24	187.	20.	8293	7.76	500.	20.	9015	2.89	280.	20.
7151M	8.26	.	--	7704	2.42	264.	20.	8350	5.45	461.	20.	9016	1.98	248.	20.
7152M	12.95	.	--	7720	1.34	226.	20.	8380	2.49	266.	20.	9019	2.57	269.	20.
7153M	10.33	.	--	7855	4.24	357.	50.	8381	1.67	237.	20.	9033	2.78	276.	20.
7219	8.41	500.	20.	8001	1.69	238.	20.	8385	2.56	269.	20.	9040	2.79	277.	20.
7230	8.37	500.	20.	8002	1.35	226.	20.	8392	1.34	226.	20.	9044	1.34	226.	20.
7231	8.49	500.	20.	8006	1.17	220.	20.	8393	1.57	234.	20.	9052	1.49	231.	20.
7309F	14.69	500.	--	8008	0.71	204.	20.	8500	6.03	481.	20.	9058	1.38	227.	20.
7313F	15.48	500.	--	8010	1.49	231.	20.	8601	0.21	186.	20.	9060	0.92	211.	20.
7317F	15.31	500.	--	8013	0.32	190.	20.	8709F	4.92	331.	--	9061	0.90	211.	20.
7327F	27.64	500.	--	8017	0.88	210.	20.	8710	2.95	282.	20.	9062	0.90	211.	20.
7333M	7.53	.	--	8018	2.96	283.	20.	8719	2.95	282.	20.	9063	0.62	201.	20.
7335M	8.85	.	--	8021	2.93	282.	20.	8720	0.84	208.	20.	9077F	5.00	334.	--
7337M	11.10	.	--	8031	1.71	239.	20.	8721	0.22	187.	20.	9079	1.03	215.	20.
7350F	18.12	500.	--	8032	1.25	223.	20.	8726F	5.26	343.	--	9089	0.84	208.	20.
7360	4.36	332.	20.	8033	1.59	235.	20.	8734M	0.44	.	--	9093	1.07	216.	20.
7370	3.14	289.	20.	8034	3.19	291.	20.	8737M	0.35	.	--	9101	2.85	279.	20.
7380	5.96	479.	20.	8039	1.10	218.	20.	8738M	0.55	.	--	9102	2.49	266.	20.
7382	3.38	297.	20.	8044	2.81	277.	20.	8742	0.12	183.	20.	9154	1.61	235.	20.
7394M	9.68	.	--	8046	1.69	238.	20.	8745	4.45	335.	20.	9156	1.43	229.	20.
7395M	12.37	.	--	8048	2.53	268.	20.	8747	0.79	207.	20.	9178	12.18	500.	20.
7398M	15.51	.	--	8058	2.18	255.	20.	8748	0.60	200.	20.	9179	28.45	500.	20.
7403	4.61	340.	20.	8103	2.65	272.	20.	8800	1.02	215.	20.	9180	4.31	330.	20.
7405d	0.83	218.	20.	8105	5.51	463.	20.	8803	0.04	180.	20.	9182	2.84	278.	20.
7420	6.36	493.	20.	8106	5.45	461.	20.	8805M	0.18	.	--	9186	4.31	330.	20.
7421	1.24	222.	20.	8107	2.41	263.	20.	8810	0.07	181.	20.	9220	2.71	274.	20.
7422	1.24	222.	20.	8111	2.49	266.	20.	8814M	0.14	.	--	9402	3.92	316.	20.
7425	2.34	261.	20.	8203	5.50	463.	20.	8815M	0.23	.	--	9403	8.71	500.	20.
7431e	0.93	222.	20.	8204	4.49	336.	20.	8820	0.08	182.	20.	9410	2.61	270.	20.
7445f	0.27	.	.	8215	3.34	296.	20.	8824	1.49	231.	20.	9501	1.98	228.	--
7453g	0.31	.	.	8227	4.79	468.	50.	8826	1.49	231.	20.	9505	1.98	228.	--

For Non-Ratable portion of Rate, refer to:

d 7445

e 7453

Non-Ratable Code and Rate to be used with:

f 7405

g 7431



# IX 000023 STIP

Section IX - Classification Pricing  
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**MASSACHUSETTS WORKERS COMPENSATION  
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**RATES**

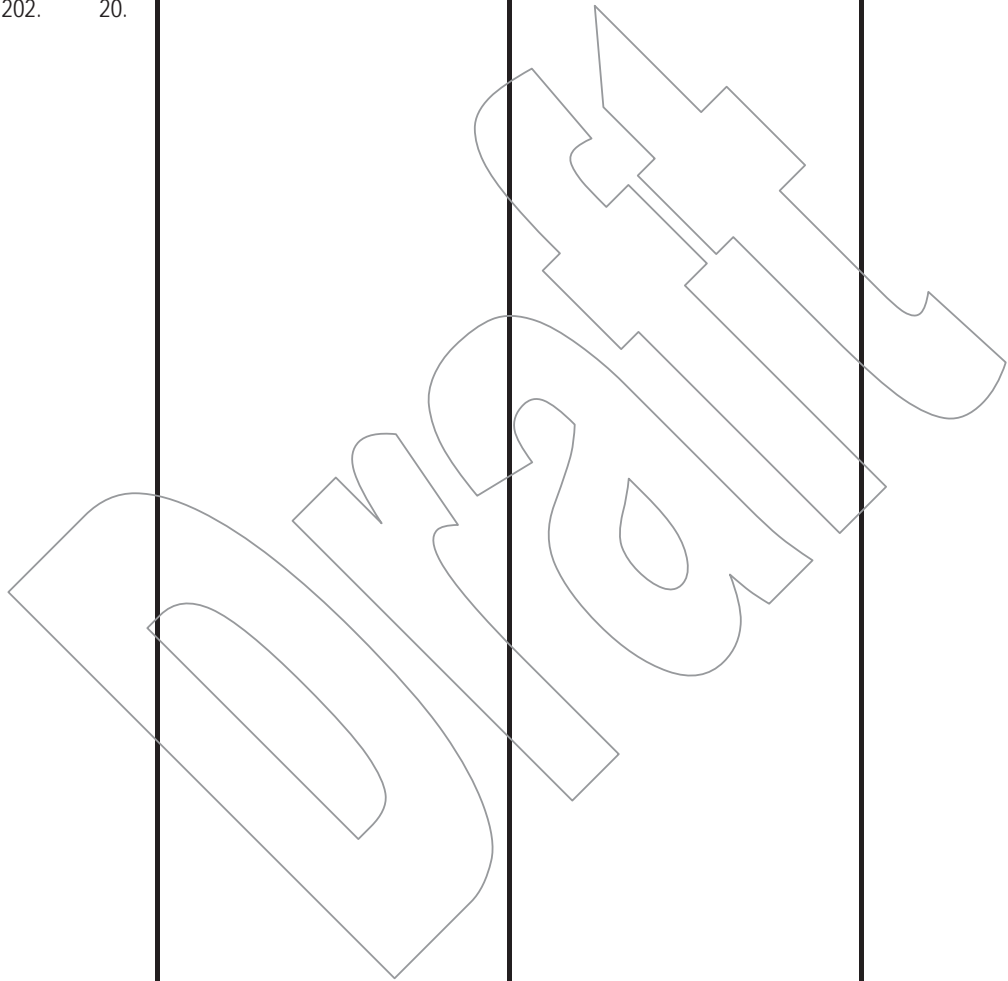
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## RATES

CLASS CODE	RATE	MIN PREM	LOSS CONST	CLASS CODE	RATE	MIN PREM	LOSS CONST	CLASS CODE	RATE	MIN PREM	LOSS CONST	CLASS CODE	RATE	MIN PREM	LOSS CONST
9519	3.32	295.	20.												
9521	2.73	255.	--												
9522	1.68	218.	--												
9533	13.38	500.	50.												
9534	5.29	485.	50.												
9549	4.91	472.	50.												
9552	7.12	500.	50.												
9586	0.29	189.	20.												
9620	0.66	202.	20.												



Calculation of Pure Premium Underlying Proposed Rate Factor

Industry Group (1)	Injury Type (2)	Uncapped Rate Level Factor (3)	Industry Group Pure Premium (4)	Percent of Pure Premium =(4) / [Total of (4)] (5)	Expected Loss and LAE Ratio (6)	Pure Premium Underlying Proposed Rate Factor = (3) x (5) x (6) (7)
Manufacturing	Indemnity	1.801	0.978	0.655	0.766	0.905
	Medical	1.801	0.514	0.345	0.766	0.475
	Total		1.493			
Construction	Indemnity	4.755	2.624	0.689	0.766	2.511
	Medical	4.755	1.182	0.311	0.766	1.131
	Total		3.806			
Office and Clerical	Indemnity	0.143	0.071	0.621	0.766	0.068
	Medical	0.143	0.044	0.379	0.766	0.042
	Total		0.115			
Goods and Services	Indemnity	1.600	0.837	0.637	0.766	0.781
	Medical	1.600	0.476	0.363	0.766	0.444
	Total		1.314			
Miscellaneous	Indemnity	4.432	2.400	0.668	0.766	2.267
	Medical	4.432	1.195	0.332	0.766	1.128
	Total		3.595			

Notes:

- (3): Section IX - H, Exhibit 1.
- (4): Section IX - C, Exhibits 1-5, page 2.
- (6): Section VI - J, Exhibit 1.

IX 000024 STIP

## IX 00025 STIP

Section IX - Classification Pricing  
 Subsection B - Conversion/Excess Loss Factors  
 7/1/2018

Section IX - B  
 Exhibit 1  
 Page 1

### Calculation of Indemnity and Medical Conversion Factors

**(A). Benefit Level Adjustment Factors**

The following factors are used to bring MA Unit Statistical Plan losses to the benefit level of the proposed effective policy year period.

	Policy Year				
	2011	2012	2013	2014	2015
<b>Indemnity</b>					
Fatal	1.044	1.039	1.037	1.032	1.020
Permanent Total	1.045	1.038	1.035	1.031	1.025
Permanent Partial	1.073	1.061	1.056	1.049	1.038
Temporary Total	1.027	1.024	1.022	1.020	1.016
<b>Medical</b>					
All Injury Types	1.000	1.000	1.000	1.000	1.000

**(B). Loss Development Factors**

The following factors are used to bring MA Unit Statistical Plan losses from first through fifth report to an ultimate basis.

	Remainder of Industry				
	Policy Year				
Indemnity	2011	2012	2013	2014	2015
Likely	1.025	1.040	1.108	1.241	1.801
Not Likely	1.029	1.048	1.102	1.228	1.608
<b>Medical</b>					
Likely	0.986	0.981	0.987	0.998	1.018
Not Likely	1.000	0.998	1.002	1.001	1.014

	AIG				
	Policy Year				
Indemnity	2011	2012	2013	2014	2015
Likely	1.034	1.060	1.138	1.385	2.231
Not Likely	1.016	1.048	1.098	1.278	1.939
<b>Medical</b>					
Likely	0.898	0.869	0.889	0.930	1.075
Not Likely	0.979	0.970	0.976	0.991	1.065

**(C). Trend Factors**

The following factors trend the reported pure premiums from the reported period to the proposed effective period for new rates.

	Policy Year				
	2011	2012	2013	2014	2015
<b>Indemnity</b>					
All Injury Types	0.820	0.852	0.879	0.836	0.911
<b>Medical</b>					
Lost Time Medical	0.789	0.780	0.845	0.797	0.914
Medical Only	0.641	0.674	0.701	0.773	0.817

**Notes:**

- (A): Section IV - A, Exhibit 1.
- (B): Development to 10th report (Exhibit 2, Page 1) x Development from 10th to ultimate. The 10th to ultimate development factor was calculated using data from Financial Aggregate Policy Year Call (Call 2) and Large Loss & Catastrophe Call (Call 7).
- (C): Exhibit 3. Frequency x Severity Trends / Wage Trends

# IX 000026 STIP

Section IX - Classification Pricing  
 Subsection B - Conversion/Excess Loss Factors  
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Section IX - B  
 Exhibit 1  
 Page 2

## Calculation of Indemnity and Medical Conversion Factors

### (D). Primary Conversion Factors (PCF)

Remainder of Industry					
Indemnity	Policy Year				
	2011	2012	2013	2014	2015
Fatal - LD	0.878	0.921	1.010	1.071	1.674
Fatal - NLD	0.881	0.928	1.004	1.060	1.494
Permanent Total	0.878	0.919	1.008	1.070	1.681
Permanent Partial - LD	0.902	0.940	1.029	1.089	1.703
Permanent Partial - NLD	0.906	0.947	1.023	1.078	1.521
Temporary Total - LD	0.864	0.907	0.995	1.059	1.667
Temporary Total - NLD	0.867	0.914	0.990	1.047	1.488

Medical					
Lost Time Medical -LD	0.778	0.765	0.835	0.796	0.931
Lost Time Medical -NLD	0.789	0.779	0.847	0.798	0.927
Medical - NLD	0.641	0.673	0.702	0.774	0.828

AIG					
Indemnity	Policy Year				
	2011	2012	2013	2014	2015
Fatal - LD	0.885	0.939	1.037	1.195	2.073
Fatal - NLD	0.870	0.928	1.001	1.103	1.802
Permanent Total	0.886	0.937	1.035	1.194	2.082
Permanent Partial - LD	0.910	0.958	1.056	1.215	2.110
Permanent Partial - NLD	0.894	0.947	1.019	1.121	1.834
Temporary Total - LD	0.871	0.925	1.022	1.181	2.065
Temporary Total - NLD	0.856	0.914	0.986	1.089	1.795

Medical					
Lost Time Medical -LD	0.708	0.678	0.752	0.742	0.983
Lost Time Medical -NLD	0.773	0.757	0.825	0.790	0.974
Medical - NLD	0.628	0.654	0.684	0.766	0.870

Notes:

(D) = (A) x (B) x (C)

# IX 000027 STIP

Section IX - Classification Pricing  
Subsection B - Conversion/Excess Loss Factors  
7/1/2018

Section IX - B  
Exhibit 1  
Page 3

## Calculation of Indemnity and Medical Conversion Factors

### (A). Loss Adjustment Expense Factor

The following factor is applied to include the proposed loss adjustment expense.

	Indemnity	Medical
Loss Adjustment Expense	1.185	1.185

### (B). Investment Income Offset Factor

The following factor is applied to adjust for investment income.

	Investment Income Offset Factor
<b>Indemnity</b>	
Fatal	0.812
Permanent Total	0.762
Permanent Partial	1.030
Temporary Total	1.039
<b>Medical</b>	
Fatal	1.000
Permanent Total	0.763
Permanent Partial	1.031
Temporary Total	1.040
Medical Only	1.000

### (C). Secondary Conversion Factors

The factors above are combined multiplicatively, resulting in the following conversion factors.

<b>Indemnity</b>	
Fatal	0.963
Permanent Total	0.903
Permanent Partial	1.220
Temporary Total	1.231
<b>Medical</b>	
Fatal	1.185
Permanent Total	0.904
Permanent Partial	1.221
Temporary Total	1.232
Medical Only	1.185

#### Notes:

(A): 1.000 + Loss Adjustment Expense (as a percent of losses) from Section VI-A, Exhibit 1.

(B): Exhibit 4.

(C) = (A) x (B)

# IX 000028 STIP

## Summary of Development Factors Remainder of Industry

		Likely to Develop								
		Development Factors From:								
		18-30	30-42	42-54	54-66	66-78	78-90	90-102	102-114	114-126
		<b>(1) Indemnity Losses</b>								
2Yr Weighted Average		1.451	1.120	1.066	1.015	0.997	0.997	1.001	1.005	1.001
Cumulative		1.759	1.212	1.082	1.016	1.001	1.004	1.007	1.006	1.001
		<b>(2) Medical Losses</b>								
2Yr Weighted Average		1.019	1.011	1.007	0.995	0.997	1.002	0.991	1.002	0.994
Cumulative		1.018	0.998	0.987	0.981	0.986	0.989	0.987	0.996	0.994
		<b>(3) Claim Counts</b>								
2Yr Weighted Average		1.020	1.004	1.008	1.004	1.001	0.999	1.001	1.004	1.001
Cumulative		1.042	1.022	1.017	1.009	1.006	1.005	1.006	1.004	1.001
		Not-Likely to Develop								
		Development Factors From:								
		18-30	30-42	42-54	54-66	66-78	78-90	90-102	102-114	114-126
		<b>(4) Indemnity Losses</b>								
2Yr Weighted Average		1.309	1.115	1.051	1.018	1.015	1.002	1.004	1.000	1.002
Cumulative		1.600	1.222	1.096	1.042	1.024	1.008	1.006	1.002	1.002
		<b>(5) Medical Losses</b>								
2Yr Weighted Average		1.012	0.999	1.004	0.998	0.999	1.001	1.000	0.999	1.001
Cumulative		1.014	1.001	1.002	0.998	1.000	1.001	1.000	1.000	1.001
		<b>(6) Claim Counts</b>								
2Yr Weighted Average		1.018	1.005	1.002	1.002	1.001	1.001	1.001	1.001	1.000
Cumulative		1.030	1.012	1.007	1.005	1.003	1.002	1.002	1.001	1.000

Notes:  
 (1), (2), (3): Page 3.  
 (4), (5), (6): Page 5.

# IX 000029 STIP

Section IX - Classification Pricing  
 Subsection B - Conversion/Excess Loss Factors  
 7/1/2018

Section IX - B  
 Exhibit 2  
 Page 2

## Summary of Development Factors AIG

		Likely to Develop								
		Development Factors From:								
		18-30	30-42	42-54	54-66	66-78	78-90	90-102	102-114	114-126
		<b>(1) Indemnity Losses</b>								
5Yr Weighted Average		1.611	1.217	1.073	1.026	1.010	0.999	1.004	1.001	1.001
Cumulative		2.192	1.360	1.117	1.042	1.016	1.005	1.006	1.002	1.001
		<b>(2) Medical Losses</b>								
5Yr Weighted Average		1.156	1.046	1.023	0.968	0.987	0.987	0.988	0.993	0.995
Cumulative		1.139	0.986	0.942	0.921	0.951	0.963	0.976	0.988	0.995
		<b>(3) Claim Counts</b>								
5Yr Weighted Average		1.014	1.009	1.003	1.000	1.004	1.000	0.999	1.001	1.000
Cumulative		1.031	1.017	1.008	1.005	1.004	1.000	1.000	1.001	1.000
		Not-Likely to Develop								
		Development Factors From:								
		18-30	30-42	42-54	54-66	66-78	78-90	90-102	102-114	114-126
		<b>(4) Indemnity Losses</b>								
5Yr Weighted Average		1.518	1.164	1.048	1.032	1.006	0.999	1.001	1.000	1.003
Cumulative		1.928	1.270	1.091	1.042	1.009	1.003	1.003	1.003	1.003
		<b>(5) Medical Losses</b>								
5Yr Weighted Average		1.074	1.016	1.006	0.991	0.995	0.999	0.997	1.002	0.998
Cumulative		1.078	1.004	0.988	0.982	0.991	0.996	0.997	1.001	0.998
		<b>(6) Claim Counts</b>								
5Yr Weighted Average		1.019	1.006	1.003	1.002	1.001	1.000	1.000	1.000	1.000
Cumulative		1.032	1.013	1.006	1.004	1.001	1.001	1.000	1.000	1.000

**Notes:**

(1), (2), (3): Page 4.  
 (4), (5), (6): Page 6.

# IX 000030 STIP

Section IX - Classification Pricing  
 Subsection B - Conversion/Excess Loss Factors  
 7/1/2018

Section IX - B  
 Exhibit 2  
 Page 3

## Calculation of Likely to Develop Development Factors Remainder of Industry

Policy Year	Likely to Develop								
	Indemnity Losses			Medical Losses			Claim Counts		
	Evaluated at month	Link	Ratio	Evaluated at month	Link	Ratio	Evaluated at month	Link	Ratio
18	30	18		30	18		30		
2014	73,469,643	107,939,871	1.469	49,517,121	50,454,478	1.019	1,466	1,495	1.020
2013	62,448,470	89,295,880	1.430	38,491,402	39,252,866	1.020	1,353	1,379	1.019
Weighted Average			1.451			1.019			1.020
2013	30	42	1.113	30	42	1.016	30	42	1.010
2012	95,331,386	106,121,626	1.113	41,131,716	41,776,196	1.016	1,431	1,445	1.010
2012	96,907,604	109,231,774	1.127	46,513,571	46,861,404	1.007	1,463	1,462	0.999
Weighted Average			1.120			1.011			1.004
2012	42	54	1.059	42	54	1.010	42	54	1.009
2011	116,129,154	123,018,555	1.059	49,118,282	49,620,390	1.010	1,493	1,506	1.009
2011	101,615,378	109,012,186	1.073	45,795,568	45,918,536	1.003	1,358	1,367	1.007
Weighted Average			1.066			1.007			1.008
2011	54	66	1.009	54	66	0.985	54	66	1.006
2010	114,501,138	115,583,883	1.009	48,131,755	47,429,298	0.985	1,390	1,399	1.006
2010	98,213,615	100,246,243	1.021	43,586,338	43,822,885	1.005	1,393	1,394	1.001
Weighted Average			1.015			0.995			1.004
2010	66	78	0.988	66	78	1.008	66	78	1.003
2009	102,221,125	100,993,185	0.988	44,360,556	44,704,660	1.008	1,402	1,406	1.003
2009	107,319,294	107,895,401	1.005	44,404,916	43,790,798	0.986	1,309	1,308	0.999
Weighted Average			0.997			0.997			1.001
2009	78	90	0.997	78	90	1.002	78	90	1.002
2008	109,109,471	108,820,057	0.997	44,122,211	44,214,770	1.002	1,317	1,320	1.002
2008	99,263,318	98,901,088	0.996	40,919,169	41,021,267	1.002	1,333	1,327	0.995
Weighted Average			0.997			1.002			0.999
2008	90	102	1.000	90	102	0.983	90	102	1.001
2007	99,552,950	99,562,243	1.000	41,409,104	40,715,908	0.983	1,332	1,333	1.001
2007	98,337,648	98,567,125	1.002	44,470,424	44,365,260	0.998	1,380	1,383	1.002
Weighted Average			1.001			0.991			1.001
2007	102	114	1.006	102	114	0.990	102	114	1.002
2006	98,567,125	99,148,331	1.006	44,346,027	43,886,659	0.990	1,383	1,386	1.002
2006	97,888,173	98,311,743	1.004	43,094,776	43,732,062	1.015	1,455	1,462	1.005
Weighted Average			1.005			1.002			1.004
2006	114	126	1.000	114	126	0.984	114	126	1.001
2005	97,581,559	97,612,648	1.000	43,516,392	42,815,925	0.984	1,460	1,462	1.001
2005	91,867,003	91,997,290	1.001	44,132,733	44,289,651	1.004	1,546	1,546	1.000
Weighted Average			1.001			0.994			1.001

Note:  
 Unit Statistical Plan data, excluding Large Deductibles.



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Section IX - Classification Pricing  
 Subsection B - Conversion/Excess Loss Factors  
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Section IX - B  
 Exhibit 2  
 Page 4

## Calculation of Likely to Develop Development Factors AIG

Policy Year	Likely to Develop								
	Indemnity Losses			Medical Losses			Claim Counts		
	Evaluated at month	Link	Ratio	Evaluated at month	Link	Ratio	Evaluated at month	Link	Ratio
	18	30		18	30		18	30	
2014	9,140,810	13,651,161	1.493	5,145,487	5,526,222	1.074	181	185	1.022
2013	8,251,617	14,148,207	1.715	5,057,184	6,109,008	1.208	205	200	0.976
2012	7,622,437	12,363,463	1.622	4,626,187	5,719,448	1.236	190	191	1.005
2011	14,403,102	22,256,979	1.545	8,928,327	10,181,424	1.140	334	342	1.024
2010	13,983,387	23,627,475	1.690	7,712,669	8,844,853	1.147	373	383	1.027
Weighted Average			1.611			1.156			1.014
	30	42		30	42		30	42	
2013	15,425,902	18,017,002	1.168	6,376,573	6,505,868	1.020	207	209	1.010
2012	13,548,625	16,199,571	1.196	5,977,599	6,143,754	1.028	203	203	1.000
2011	22,574,026	27,283,677	1.209	10,295,119	11,159,816	1.084	348	351	1.009
2010	24,199,919	30,403,309	1.256	9,071,885	9,703,758	1.070	394	398	1.010
2009	18,412,449	22,731,436	1.235	8,617,003	8,680,709	1.007	259	262	1.012
Weighted Average			1.217			1.046			1.009
	42	54		42	54		42	54	
2012	16,756,205	18,081,385	1.079	6,517,843	6,774,768	1.039	208	206	0.990
2011	28,094,353	30,417,111	1.083	11,324,724	11,716,374	1.035	357	359	1.006
2010	30,127,444	31,880,459	1.058	9,624,379	9,876,839	1.026	404	406	1.005
2009	23,460,275	25,140,084	1.072	8,973,194	8,993,320	1.002	266	269	1.011
2008	33,207,152	35,703,156	1.075	12,212,836	12,406,832	1.016	376	376	1.000
Weighted Average			1.073			1.023			1.003
	54	66		54	66		54	66	
2011	30,467,076	30,820,017	1.012	11,907,928	11,448,169	0.961	360	360	1.000
2010	31,619,226	32,709,618	1.034	9,849,190	9,126,816	0.927	405	405	1.000
2009	26,413,158	26,596,379	1.007	9,572,118	9,245,389	0.966	274	274	1.000
2008	36,286,793	37,792,842	1.042	12,812,415	12,568,297	0.981	382	382	1.000
2007	51,114,813	52,502,557	1.027	16,663,753	16,500,307	0.990	615	616	1.002
Weighted Average			1.026			0.968			1.000
	66	78		66	78		66	78	
2010	32,206,870	32,332,376	1.004	9,073,772	8,691,730	0.958	403	405	1.005
2009	26,424,371	26,514,952	1.003	9,189,356	8,767,800	0.954	273	274	1.004
2008	38,835,458	39,211,312	1.010	12,721,780	12,729,457	1.001	388	391	1.008
2007	53,478,055	54,244,628	1.014	16,866,135	16,826,170	0.998	623	625	1.003
2006	64,518,947	65,415,608	1.014	24,702,397	24,628,325	0.997	779	781	1.003
Weighted Average			1.010			0.987			1.004
	78	90		78	90		78	90	
2009	26,694,672	26,580,795	0.996	8,816,373	9,011,502	1.022	275	273	0.993
2008	39,564,899	39,778,773	1.005	12,848,752	12,544,061	0.976	393	395	1.005
2007	54,374,152	54,726,127	1.006	16,863,803	16,570,572	0.983	626	625	0.998
2006	66,465,489	66,015,512	0.993	25,156,804	24,958,782	0.992	786	787	1.001
2005	72,259,547	72,080,692	0.998	27,689,446	27,118,857	0.979	890	891	1.001
Weighted Average			0.999			0.987			1.000
	90	102		90	102		90	102	
2008	39,778,773	39,734,733	0.999	12,544,061	12,148,962	0.969	395	393	0.995
2007	54,726,127	54,478,186	0.995	16,540,791	16,217,672	0.980	625	625	1.000
2006	66,030,919	66,083,903	1.001	24,981,886	25,251,274	1.011	788	788	1.000
2005	72,690,342	73,490,152	1.011	27,475,840	27,252,464	0.992	893	891	0.998
2004	68,251,462	68,798,336	1.008	26,786,058	26,161,421	0.977	941	941	1.000
Weighted Average			1.004			0.988			0.999
	102	114		102	114		102	114	
2007	54,815,848	54,788,576	1.000	16,257,812	16,506,749	1.015	626	626	1.000
2006	66,083,903	66,200,294	1.002	25,251,274	25,177,419	0.997	788	788	1.000
2005	74,489,727	74,441,353	0.999	27,709,248	26,955,596	0.973	894	897	1.003
2004	70,479,555	70,477,945	1.000	26,960,002	26,607,245	0.987	946	946	1.000
2003	59,750,489	59,988,892	1.004	21,759,834	21,860,197	1.005	935	935	1.000
Weighted Average			1.001			0.993			1.001
	114	126		114	126		114	126	
2006	66,200,294	66,458,582	1.004	25,161,273	24,964,173	0.992	788	787	0.999
2005	74,441,353	74,309,630	0.998	26,955,596	27,046,060	1.003	897	898	1.001
2004	70,477,945	70,512,451	1.000	26,607,245	26,304,493	0.989	946	946	1.000
2003	60,570,364	60,711,073	1.002	22,043,712	22,177,008	1.006	937	939	1.002
2002	40,780,517	40,843,002	1.002	15,895,102	15,533,478	0.977	718	718	1.000
Weighted Average			1.001			0.995			1.000

Note:  
 Unit Statistical Plan data, excluding Large Deductibles.

# IX 00032 STIP

Section IX - Classification Pricing  
 Subsection B - Conversion/Excess Loss Factors  
 7/1/2018

Section IX - B  
 Exhibit 2  
 Page 5

## Calculation of Not-Likely to Develop Development Factors Remainder of Industry

Policy Year		Not-Likely to Develop								
		Indemnity Losses			Medical Losses			Claim Counts		
		Evaluated at month	Link	Ratio	Evaluated at month	Link	Ratio	Evaluated at month	Link	Ratio
18	30	18	30		18	30				
2014		139,247,735	185,650,553	1.333	125,017,504	126,402,145	1.011	11,787	11,994	1.018
2013		130,690,665	167,817,918	1.284	120,040,870	121,692,280	1.014	11,466	11,686	1.019
Weighted Average				1.309			1.012			1.018
2013		161,782,412	180,654,417	1.117	119,813,430	119,426,913	0.997	11,634	11,685	1.004
2012		156,562,468	174,235,409	1.113	116,208,741	116,424,403	1.002	11,425	11,479	1.005
Weighted Average				1.115			0.999			1.005
2012		167,338,030	176,293,637	1.054	114,167,524	114,366,780	1.002	11,448	11,471	1.002
2011		163,716,850	171,779,073	1.049	109,641,096	110,326,944	1.006	10,914	10,938	1.002
Weighted Average				1.051			1.004			1.002
2011		166,290,120	169,599,300	1.020	108,113,726	107,919,844	0.998	10,915	10,939	1.002
2010		148,261,613	150,737,061	1.017	100,536,188	100,401,913	0.999	10,478	10,497	1.002
Weighted Average				1.018			0.998			1.002
2010		148,716,129	150,012,784	1.009	99,805,709	99,205,419	0.994	10,488	10,495	1.001
2009		139,770,839	142,787,340	1.022	97,142,856	97,545,981	1.004	9,665	9,676	1.001
Weighted Average				1.015			0.999			1.001
2009		141,573,270	141,957,813	1.003	97,214,568	96,965,281	0.997	9,667	9,671	1.000
2008		134,078,431	134,299,084	1.002	88,448,559	88,869,807	1.005	9,921	9,927	1.001
Weighted Average				1.002			1.001			1.001
2008		133,647,223	133,981,417	1.003	88,481,969	88,223,627	0.997	9,922	9,929	1.001
2007		126,915,002	127,574,766	1.005	89,935,545	90,111,246	1.002	10,345	10,350	1.000
Weighted Average				1.004			1.000			1.001
2007		127,574,766	127,600,587	1.000	90,130,479	89,755,435	0.996	10,350	10,353	1.000
2006		120,445,947	120,447,482	1.000	81,974,706	82,228,461	1.003	10,183	10,193	1.001
Weighted Average				1.000			0.999			1.001
2006		121,177,666	121,855,664	1.006	82,444,131	82,453,845	1.000	10,195	10,199	1.000
2005		118,839,027	118,710,085	0.999	80,355,634	80,485,931	1.002	10,989	10,993	1.000
Weighted Average				1.002			1.001			1.000

Note:  
 Unit Statistical Plan data, excluding Large Deductibles.



# IX 00034 STIP

Section IX - Classification Pricing  
 Subsection B - Conversion/Excess Loss Factors  
 7/1/2018

Section IX - B  
 Exhibit 3

## Trend Factors

Policy Year	Statewide Average Weekly Wage	Indemnity Severity	Lost Time Medical Severity	Medical Only Severity	Lost Time Claim Frequency	Medical Only Claim Frequency
(1) Historical Values						
2011	1,174.21	26,771	12,747	819	187.56	396.13
2012	1,190.50	27,033	13,518	853	181.39	367.06
2013	1,225.60	27,419	13,058	880	178.40	352.35
2014	1,265.09	30,118	14,473	865	176.17	335.26
2015	1,303.66	29,689	13,544	902	169.16	313.41

(2) Trend to PY 2015						
2011	1.110	1.109	1.063	1.102	0.902	0.791
2012	1.095	1.098	1.002	1.058	0.933	0.854
2013	1.064	1.083	1.037	1.026	0.948	0.890
2014	1.030	0.986	0.936	1.042	0.960	0.935
2015	1.000	1.000	1.000	1.000	1.000	1.000

(3) Projected Trend from PY 2015 to Prospective Effective Period						
Selected Annual Trend	2.7%	2.1%	2.2%	1.9%	-2.0%	-4.8%
Trend Factor	1.099	1.074	1.079	1.068	0.932	0.841

(4) Trend Factors from PY 2015 to Prospective Effective Period						
Policy Year	Statewide Average Weekly Wage	Indemnity Severity	Lost Time Medical Severity	Medical Only Severity	Lost Time Claim Frequency	Medical Only Claim Frequency
2011	1.221	1.192	1.146	1.177	0.840	0.665
2012	1.204	1.180	1.081	1.130	0.869	0.718
2013	1.169	1.163	1.119	1.095	0.883	0.748
2014	1.133	1.059	1.010	1.113	0.895	0.786
2015	1.099	1.074	1.079	1.068	0.932	0.841

**Notes:**

- (1): Weekly Wage from Section V-G, Exhibit 2.  
 Indemnity Severity from Section V-C, Exhibit 1, Page 1.  
 Lost Time Medical Severity from Section V-D, Exhibit 1, Page 1.  
 Medical Only Severity from Section V-D, Exhibit 2, Page 1.  
 Lost Time Claim Frequency from Section V-B, Exhibit 1, Page 1.  
 Medical Only Claim Frequency from Section V-B, Exhibit 2, Page 1.
- (2) = (1) / (1) for Policy Year 2015
- (3): Selected Annual Trend from Section I-D, Exhibit 1, Page 1.  
 Trend Factor = ( 1.0 + Selected Annual Trend ) ^ Trend Period, where Trend Period extends from the midpoint of PY 2015 to midpoint of policy effective period 7/1/2018 - 6/30/2019, which is 3.5 years.
- (4) = (2) x (3)

## IX 000035 STIP

Section IX - Classification Pricing  
 Subsection B - Conversion/Excess Loss Factors  
 7/1/2018

Section IX - B  
 Exhibit 4

### Calculation of Investment Income Offset Factor

#### Indemnity

Injury Type (1)	Loss Flow Discounted at 1.37% Post-Chapter 398 (2)	Injury Type Weights At Ultimate (3)	Investment Income Offset Factor (4)
Fatal	0.765	1.50%	0.812
Permanent Total	0.718	6.65%	0.762
Permanent Partial	0.970	40.15%	1.030
Temporary Total	0.979	16.98%	1.039
Total Indemnity			0.942

#### Medical

Injury Type (5)	Loss Flow Discounted at 1.37% Post-Chapter 398 (6)	Injury Type Weights At Ultimate (7)	Investment Income Offset Factor (8)
Fatal	0.765	0.24%	1.000
Permanent Total	0.718	3.80%	0.763
Permanent Partial	0.970	14.95%	1.031
Temporary Total	0.979	11.18%	1.040
Medical Only		4.55%	1.000
Total Medical			0.941

**Notes:**

(2), (6): Loss Flows are from the 8/1/99 rate filing, Section VIII - E, Exhibits 12 and 16. The discount rate is calculated by multiplying the pre-tax rate of return on governments (Section VII-J, Exhibit 1, Page 1) times the complement of the federal tax rate on investment income (Section VII-J, Exhibit 1, Page 1) [1.61% x (1.000 - 14.93%)] = 1.37%

(3): Section IV - E, Exhibit 2, Page 1.

(4)= (2) / 0.942, which is the weighted average of (2) and (3).

(7): Section IV - E, Exhibit 2, Page 2.

(8)= (6) / 0.941, which is the weighted average of (6) and (7). This weighted average excludes Fatal and Medical Only injury types as it is assumed that they generate no investment income.

# IX 000036 STIP

Section IX - Classification Pricing  
Subsection B - Conversion/Excess Loss Factors  
7/1/2018

Section IX - B  
Exhibit 5

## Calculation of Excess Loss Factors

Hazard Group (1)	Excess Ratio (2)	Excess Factor (3) = [ 1.0 / (1.0 - (2)) ]
A	0.094	1.104
B	0.106	1.119
C	0.131	1.151
D	0.172	1.208
E	0.187	1.230
F	0.216	1.276
G	0.327	1.486

**Note:**

(2) = Excess Ratio for Accident Limit of \$500,000 x 0.985, where Excess Ratio from Section XII-F, Exhibit 3, Page 1 and 0.985 is the factor to convert the per occurrence claims to per claim basis.

Calculation of Converted Limited Losses by Indemnity Likely/Not-Likely and Medical Likely/Not-Likely  
 Manufacturing Industry Group, Industry Code 1  
 All Classes

Policy Year (1)	Injury Type (2)	Limited Losses					Converted Limited Losses				
		Indemnity		Medical		Total (7)	Indemnity		Medical		Total (12)
		Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)			Likely (8)	Not-Likely (9)	Likely (10)	
2011	Fatal	165,500	310,144	0	0	475,644	146,086	273,323	0	0	419,409
	Permanent Total	5,516,383	0	1,969,184	0	7,485,567	4,855,026	0	1,489,217	0	6,344,243
	Permanent Partial	10,498,248	18,618,701	3,483,888	7,480,642	40,081,479	9,494,414	16,818,132	2,640,507	5,879,815	34,832,868
	Temporary Total	5,851,229	11,138,293	3,297,050	8,581,542	28,868,114	5,054,595	9,653,010	2,560,924	6,765,268	24,033,797
	Medical Only	0	0	0	4,034,752	4,034,752	0	0	0	2,580,968	2,580,968
2012	Fatal	0	1,927,249	0	72,751	2,000,000	0	1,787,542	0	56,651	1,844,193
	Permanent Total	4,668,007	0	1,665,391	0	6,333,398	4,299,042	0	1,249,653	0	5,548,695
	Permanent Partial	8,637,926	17,032,082	3,344,168	5,861,823	34,875,999	8,153,360	16,129,473	2,503,969	4,543,009	31,329,811
	Temporary Total	5,276,231	10,904,869	2,277,099	7,937,857	26,396,056	4,784,099	9,962,446	1,742,529	6,177,923	22,666,997
	Medical Only	0	0	0	3,618,483	3,618,483	0	0	0	2,427,940	2,427,940
2013	Fatal	8,000	1,000,000	0	0	1,008,000	8,082	1,004,287	0	0	1,012,369
	Permanent Total	2,233,484	0	572,379	0	2,805,863	2,251,300	0	477,747	0	2,729,047
	Permanent Partial	7,163,374	15,218,882	2,646,788	6,094,155	31,123,199	7,410,670	15,554,456	2,159,359	5,142,627	30,267,112
	Temporary Total	4,098,796	11,524,480	1,624,432	8,685,676	25,933,384	4,084,561	11,403,407	1,351,861	7,355,796	24,195,625
	Medical Only	0	0	0	3,922,927	3,922,927	0	0	0	2,749,118	2,749,118
2014	Fatal	0	350,790	0	0	350,790	0	371,790	0	0	371,790
	Permanent Total	2,063,601	0	510,558	0	2,574,159	2,248,965	0	404,096	0	2,653,061
	Permanent Partial	8,537,190	12,554,481	4,742,086	6,120,396	31,954,153	9,483,329	13,613,046	3,715,142	4,879,014	31,690,531
	Temporary Total	4,525,705	12,675,324	1,811,439	9,184,119	28,196,587	4,791,268	13,288,447	1,442,119	7,330,897	26,852,731
	Medical Only	0	0	0	3,127,368	3,127,368	0	0	0	2,416,333	2,416,333
2015	Fatal	0	458,254	0	41,746	500,000	0	684,768	0	38,693	723,461
	Permanent Total	52,000	0	20,700	0	72,700	87,416	0	19,262	0	106,678
	Permanent Partial	4,086,248	8,307,048	2,414,785	5,277,935	20,086,016	7,113,528	13,135,662	2,265,781	4,940,864	27,455,835
	Temporary Total	3,823,352	13,383,862	2,505,134	11,438,691	31,151,039	6,512,358	20,158,104	2,360,612	10,633,984	39,665,058
	Medical Only	0	0	0	3,060,110	3,060,110	0	0	0	2,546,964	2,546,964
(13) All Years, All Injury Types		77,205,274	135,404,459	32,885,081	94,540,973	340,035,787	80,778,099	143,837,893	26,382,778	76,465,864	327,464,634

Notes:

(3), (4), (5), (6): From Unit Statistical Plan data, excluding Large Deductibles.

(7)= (3) + (4) + (5) + (6)

(8)= (3) x Primary Conversion Factors from Section IX - B, Exhibit 1

(9)= (4) x Primary Conversion Factors from Section IX - B, Exhibit 1

(10)= (5) x Primary Conversion Factors from Section IX - B, Exhibit 1

(11)= (6) x Primary Conversion Factors from Section IX - B, Exhibit 1

(12)= (8) + (9) + (10) +(11)

IX 000037 STIP

Calculation of Converted Unlimited Losses by Indemnity Likely/Not-Likely and Medical Likely/Not-Likely  
 Manufacturing Industry Group, Industry Code 1  
 All Classes

Policy Year (1)	Injury Type (2)	Adjusted Excess Losses				Converted Unlimited Losses						Exposure (13)
		Indemnity		Medical		Indemnity		Medical		Total		
		Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Total (7)	Likely (8)	Not-Likely (9)	Likely (10)	Not-Likely (11)	Total (12)	
2011	Fatal	16,586	28,842	7,108	12,361	64,897	156,603	290,893	8,423	14,648	470,567	60,683,304
	Permanent Total	542,033	0	495,592	0	1,037,625	4,875,231	0	1,794,202	0	6,669,433	
	Permanent Partial	1,150,036	1,998,955	976,799	1,855,723	5,981,513	12,991,319	22,965,846	4,418,041	9,447,894	49,823,100	
	Temporary Total	536,966	1,100,235	608,399	1,555,051	3,800,651	6,883,469	13,237,742	3,904,409	10,250,116	34,275,736	
	Medical Only	0	0	0	408,944	408,944	0	0	0	3,543,046	3,543,046	
2012	Fatal	0	214,948	0	105,140	320,088	0	1,927,786	0	191,722	2,119,508	59,921,644
	Permanent Total	461,245	0	388,043	0	849,288	4,300,026	0	1,480,422	0	5,780,448	
	Permanent Partial	915,235	1,830,031	775,997	1,534,796	5,056,059	11,068,024	21,919,183	4,006,027	7,423,201	44,416,435	
	Temporary Total	558,113	1,056,344	533,552	1,405,888	3,553,897	6,576,510	13,564,639	2,803,991	9,342,785	32,287,925	
	Medical Only	0	0	0	386,872	386,872	0	0	0	3,335,552	3,335,552	
2013	Fatal	671	122,526	287	52,511	175,995	8,426	1,084,777	341	62,226	1,155,770	60,231,495
	Permanent Total	232,947	0	169,050	0	401,997	2,244,051	0	584,684	0	2,828,735	
	Permanent Partial	793,685	1,774,056	655,764	1,644,515	4,868,020	10,013,238	21,149,071	3,438,285	8,289,559	42,890,153	
	Temporary Total	462,656	1,245,388	414,188	1,704,944	3,827,176	5,597,835	15,571,251	2,175,663	11,162,269	34,507,018	
	Medical Only	0	0	0	428,750	428,750	0	0	0	3,765,774	3,765,774	
2014	Fatal	0	39,233	0	16,814	56,047	0	395,689	0	19,925	415,614	61,786,450
	Permanent Total	226,322	0	152,963	0	379,285	2,235,957	0	503,562	0	2,739,519	
	Permanent Partial	1,121,654	1,492,378	1,143,457	1,414,526	5,172,015	12,943,151	18,435,841	5,934,109	7,686,692	44,999,793	
	Temporary Total	515,484	1,454,388	455,555	1,792,081	4,217,508	6,532,857	18,149,112	2,337,817	11,238,943	38,258,729	
	Medical Only	0	0	0	381,289	381,289	0	0	0	3,315,182	3,315,182	
2015	Fatal	0	99,573	0	50,712	150,285	0	755,080	0	105,944	861,024	64,030,650
	Permanent Total	9,224	0	6,857	0	16,081	87,296	0	23,611	0	110,907	
	Permanent Partial	832,956	1,605,123	743,995	1,572,267	4,754,341	9,698,510	17,990,806	3,676,027	7,954,892	39,320,235	
	Temporary Total	720,853	2,175,031	663,289	2,565,020	6,124,193	8,904,418	27,493,121	3,725,258	16,260,354	56,383,151	
	Medical Only	0	0	0	393,164	393,164	0	0	0	3,484,051	3,484,051	
(14) All Years, All Injury Types		9,096,666	16,237,051	8,190,895	19,281,368	52,805,980	105,116,921	194,930,837	40,814,872	116,894,775	457,757,405	306,653,544
(15) Pure Premium							0.343	0.636	0.133	0.381	1.493	

Notes:  
 (3), (4) = 0.7 x [ Excess Factor - 1.0 ] x Indemnity Converted Limited Losses. Excess Factor from Section IX-B, Exhibit 5 and Indemnity Converted Limited Losses from Page 1, Columns (8) and (9).  
 (5), (6) = [ Excess Factor - 1.0 ] x Medical Converted Limited Losses + 0.3 x [ Excess Factor - 1.0 ] x Indemnity Converted Limited Losses. Excess Factor from Section IX-B, Exhibit 5 and Medical Converted Limited Losses from Page 1, Columns (10) and (11).  
 (7) = (3) + (4) + (5) + (6)  
 (8), (9), (10), (11): (Converted Limited Losses from Page 1 + Adjusted Excess Losses) x Secondary Conversion Factors from Section IX - B, Exhibit 1, Page 3.  
 (12) = (8) + (9) + (10) + (11)  
 (13): Unit Statistical Plan data, excluding Large Deductibles.  
 (15): Pure Premium calculated as the All Years, All Injury Types Converted Unlimited Losses divided by the All Years, All Injury Types Exposure.

IX 000038 STIP



Calculation of Converted Limited Losses by Indemnity Likely/Not-Likely and Medical Likely/Not-Likely  
 Construction Industry Group, Industry Code 2  
 All Classes

Policy Year (1)	Injury Type (2)	Limited Losses					Converted Limited Losses				
		Indemnity		Medical		Total (7)	Indemnity		Medical		Total (12)
		Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)			Likely (8)	Not-Likely (9)	Likely (10)	
2011	Fatal	101,519	1,403,457	0	81,662	1,586,638	89,124	1,231,172	0	64,411	1,384,707
	Permanent Total	10,317,416	0	3,536,107	0	13,853,523	9,063,228	0	2,731,948	0	11,795,176
	Permanent Partial	23,363,855	38,747,890	7,523,294	11,898,242	81,533,281	21,115,691	34,986,538	5,785,264	9,347,052	71,234,545
	Temporary Total	6,111,189	20,401,961	2,542,340	11,421,933	40,477,423	5,277,488	17,679,140	1,977,935	9,004,224	33,938,787
	Medical Only	0	0	0	3,263,307	3,263,307	0	0	0	2,086,879	2,086,879
2012	Fatal	659,764	2,548,122	128,268	172,690	3,508,844	607,350	2,363,408	98,156	134,472	3,203,386
	Permanent Total	15,456,069	0	5,309,525	0	20,765,594	14,228,822	0	4,038,812	0	18,267,634
	Permanent Partial	23,829,390	38,023,629	7,859,730	13,312,733	83,025,482	22,474,164	36,008,803	5,947,231	10,327,678	74,757,876
	Temporary Total	8,286,724	18,533,940	3,187,011	12,123,055	42,130,730	7,513,793	16,932,244	2,438,830	9,434,855	36,319,722
	Medical Only	0	0	0	3,515,502	3,515,502	0	0	0	2,359,429	2,359,429
2013	Fatal	151,968	2,726,650	16,006	217,626	3,112,250	153,522	2,735,997	13,360	183,528	3,086,407
	Permanent Total	12,498,218	0	4,155,210	0	16,653,428	12,623,708	0	3,459,501	0	16,083,209
	Permanent Partial	18,083,093	39,443,641	6,235,042	13,066,729	76,828,505	18,650,772	40,306,352	5,187,715	11,014,455	75,159,294
	Temporary Total	7,634,001	20,950,425	2,478,915	14,180,932	45,244,273	7,598,927	20,730,740	2,069,074	12,009,289	42,408,030
	Medical Only	0	0	0	3,302,263	3,302,263	0	0	0	2,311,864	2,311,864
2014	Fatal	741,047	500,116	23,810	44,884	1,309,857	793,909	530,056	18,956	35,834	1,378,755
	Permanent Total	7,020,847	0	4,194,714	0	11,215,561	7,515,148	0	3,339,487	0	10,854,635
	Permanent Partial	24,452,730	41,575,440	8,752,237	15,324,052	90,104,459	27,005,100	45,189,810	6,934,443	12,207,323	91,336,676
	Temporary Total	12,301,538	21,830,081	5,476,982	13,075,252	52,683,853	13,024,907	22,876,471	4,360,323	10,437,027	50,698,728
	Medical Only	0	0	0	3,777,150	3,777,150	0	0	0	2,918,461	2,918,461
2015	Fatal	0	4,661,717	0	407,816	5,069,533	0	7,118,742	0	378,160	7,496,902
	Permanent Total	962,537	0	1,403,014	0	2,365,551	1,618,095	0	1,305,572	0	2,923,667
	Permanent Partial	13,694,888	21,274,235	5,921,424	11,157,434	52,047,981	23,660,473	32,958,956	5,537,103	10,383,170	72,539,702
	Temporary Total	12,306,040	23,867,066	8,529,040	17,399,288	62,101,434	21,148,355	35,960,533	7,972,703	16,170,733	81,252,324
	Medical Only	0	0	0	3,592,006	3,592,006	0	0	0	2,987,337	2,987,337
(13) All Years, All Injury Types		197,972,833	296,488,370	77,272,669	151,334,556	723,068,428	214,162,576	317,608,962	63,216,413	123,796,181	718,784,132

Notes:  
 (3), (4), (5), (6): From Unit Statistical Plan data, excluding Large Deductibles.  
 (7)= (3) + (4) + (5) + (6)  
 (8)= (3) x Primary Conversion Factors from Section IX - B, Exhibit 1  
 (9)= (4) x Primary Conversion Factors from Section IX - B, Exhibit 1  
 (10)= (5) x Primary Conversion Factors from Section IX - B, Exhibit 1  
 (11)= (6) x Primary Conversion Factors from Section IX - B, Exhibit 1  
 (12)= (8) + (9) + (10) + (11)

IX 000039 STIP

Calculation of Converted Unlimited Losses by Indemnity Likely/Not-Likely and Medical Likely/Not-Likely  
 Construction Industry Group, Industry Code 2  
 All Classes

Policy Year (1)	Injury Type (2)	Adjusted Excess Losses					Converted Unlimited Losses					Exposure (13)
		Indemnity		Medical		Total	Indemnity		Medical		Total	
		Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	(7)	Likely (8)	Not-Likely (9)	Likely (10)	Not-Likely (11)	(12)	
2011	Fatal	17,188	229,371	7,366	116,048	369,973	102,346	1,406,057	8,729	213,844	1,730,976	48,000,322
	Permanent Total	2,031,725	0	1,806,245	0	3,837,970	10,022,208	0	4,102,375	0	14,124,583	
	Permanent Partial	4,338,515	6,949,559	3,569,478	5,622,832	20,480,384	31,066,303	51,182,093	11,425,529	18,283,652	111,957,577	
	Temporary Total	1,018,384	3,394,526	981,845	3,917,251	9,312,006	7,750,509	25,942,658	3,646,265	15,918,456	53,257,888	
	Medical Only	0	0	0	560,740	560,740	0	0	0	3,137,429	3,137,429	
2012	Fatal	147,193	472,128	102,500	251,465	973,286	726,395	2,729,755	237,777	457,336	4,151,263	51,783,042
	Permanent Total	2,979,931	0	2,602,713	0	5,582,644	15,544,880	0	6,003,718	0	21,548,598	
	Permanent Partial	4,309,366	7,046,802	3,471,572	5,876,818	20,704,558	32,688,715	52,548,428	11,503,770	19,791,559	116,532,472	
	Temporary Total	1,442,216	3,357,852	1,290,516	4,113,836	10,204,420	11,025,261	24,978,046	4,594,323	16,691,146	57,288,776	
	Medical Only	0	0	0	629,613	629,613	0	0	0	3,542,015	3,542,015	
2013	Fatal	24,718	626,390	13,666	346,686	1,011,460	171,591	3,236,952	32,026	628,303	4,068,872	56,065,198
	Permanent Total	2,499,201	0	1,990,244	0	4,489,445	13,660,711	0	4,926,388	0	18,587,099	
	Permanent Partial	3,565,362	8,156,342	2,959,765	6,664,033	21,345,502	27,114,307	59,147,662	9,951,024	21,591,838	117,804,831	
	Temporary Total	1,393,726	3,894,234	1,130,980	4,923,847	11,342,787	11,070,371	30,314,481	3,942,268	20,860,572	66,187,692	
	Medical Only	0	0	0	628,707	628,707	0	0	0	3,484,577	3,484,577	
2014	Fatal	138,971	91,988	64,782	49,708	345,449	898,079	598,838	99,228	101,367	1,697,512	62,967,191
	Permanent Total	1,476,070	0	1,628,755	0	3,104,825	8,121,879	0	4,491,125	0	12,613,004	
	Permanent Partial	5,562,690	8,722,557	4,450,976	7,119,740	25,855,963	39,748,278	65,798,870	13,905,721	23,605,346	143,058,215	
	Temporary Total	2,403,612	4,367,334	2,218,763	4,749,612	13,739,321	18,993,220	33,538,383	8,105,026	18,708,996	79,345,625	
	Medical Only	0	0	0	789,779	789,779	0	0	0	4,394,265	4,394,265	
2015	Fatal	0	1,520,299	0	757,992	2,278,291	0	8,316,757	0	1,346,341	9,663,098	69,893,599
	Permanent Total	327,622	0	527,732	0	855,354	1,757,590	0	1,657,246	0	3,414,836	
	Permanent Partial	4,940,255	6,497,108	3,820,747	5,714,489	20,972,599	34,906,566	48,155,266	11,429,326	19,661,072	114,152,230	
	Temporary Total	4,489,665	6,847,706	4,503,419	7,382,869	23,223,659	31,561,588	52,698,921	15,369,808	29,016,576	128,646,893	
	Medical Only	0	0	0	795,274	795,274	0	0	0	4,482,393	4,482,393	
(14) All Years, All Injury Types		43,106,410	62,174,196	37,142,064	61,011,339	203,434,009	296,930,797	460,593,167	115,431,672	225,917,083	1,098,872,719	288,709,351
(15) Pure Premium							1.028	1.595	0.400	0.783	3.806	

Notes:

- (3), (4) = 0.7 x [ Excess Factor - 1.0 ] x Indemnity Converted Limited Losses. Excess Factor from Section IX-B, Exhibit 5 and Indemnity Converted Limited Losses from Page 1, Columns (8) and (9).
- (5), (6) = [ Excess Factor - 1.0 ] x Medical Converted Limited Losses + 0.3 x [ Excess Factor - 1.0 ] x Indemnity Converted Limited Losses. Excess Factor from Section IX-B, Exhibit 5 and Medical Converted Limited Losses from Page 1, Columns (10) and (11).
- (7) = (3) + (4) + (5) + (6)
- (8), (9), (10), (11): (Converted Limited Losses from Page 1 + Adjusted Excess Losses) x Secondary Conversion Factors from Section IX - B, Exhibit 1, Page 3.
- (12) = (8) + (9) + (10) + (11)
- (13): Unit Statistical Plan data, excluding Large Deductibles.
- (15): Pure Premium calculated as the All Years, All Injury Types Converted Unlimited Losses divided by the All Years, All Injury Types Exposure.

IX 000040 STIP

Calculation of Converted Limited Losses by Indemnity Likely/Not-Likely and Medical Likely/Not-Likely  
 Office and Clerical Industry Group, Industry Code 3  
 All Classes

Policy Year (1)	Injury Type (2)	Limited Losses					Converted Limited Losses				
		Indemnity		Medical		Total (7)	Indemnity		Medical		Total (12)
		Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)			Likely (8)	Not-Likely (9)	Likely (10)	
2011	Fatal	0	833,023	0	49,485	882,508	0	729,810	0	38,995	768,805
	Permanent Total	4,991,621	0	1,791,844	0	6,783,465	4,384,611	0	1,364,767	0	5,749,378
	Permanent Partial	12,286,225	11,000,847	4,986,607	5,367,166	33,640,845	11,114,087	9,924,863	3,784,167	4,204,951	29,028,068
	Temporary Total	5,248,162	9,678,367	2,871,564	8,328,928	26,127,021	4,532,196	8,384,864	2,234,071	6,564,794	21,715,925
	Medical Only	0	0	0	5,585,418	5,585,418	0	0	0	3,569,717	3,569,717
2012	Fatal	150,000	170,000	0	100	320,100	138,083	157,677	0	78	295,838
	Permanent Total	4,746,637	0	1,620,329	0	6,366,966	4,365,972	0	1,219,439	0	5,585,411
	Permanent Partial	7,224,030	13,369,956	3,302,606	5,430,005	29,326,597	6,821,891	12,661,578	2,463,285	4,201,040	26,147,794
	Temporary Total	5,510,813	9,970,736	2,842,393	9,145,262	27,469,204	4,996,801	9,109,051	2,175,114	7,117,840	23,398,806
	Medical Only	0	0	0	5,564,148	5,564,148	0	0	0	3,732,936	3,732,936
2013	Fatal	232,170	957,696	266	9,804	1,199,936	234,544	961,801	222	8,305	1,204,872
	Permanent Total	1,688,150	0	343,117	0	2,031,267	1,713,296	0	281,987	0	1,995,283
	Permanent Partial	7,934,695	11,764,273	3,701,673	5,693,753	29,094,394	8,198,417	12,022,445	3,033,036	4,802,496	28,056,394
	Temporary Total	4,889,145	9,186,008	2,278,418	8,267,796	24,621,367	4,866,682	9,089,531	1,901,725	7,000,525	22,858,463
	Medical Only	0	0	0	5,525,670	5,525,670	0	0	0	3,871,387	3,871,387
2014	Fatal	0	628,406	0	27,244	655,650	0	666,025	0	21,751	687,776
	Permanent Total	533,262	0	60,933	0	594,195	570,806	0	48,510	0	619,316
	Permanent Partial	9,018,602	12,296,814	3,725,889	6,198,828	31,240,133	10,183,603	13,366,836	2,914,784	4,935,766	31,400,989
	Temporary Total	6,865,493	10,658,342	3,471,889	8,934,087	29,929,811	7,268,352	11,189,699	2,764,033	7,130,341	28,352,425
	Medical Only	0	0	0	5,408,215	5,408,215	0	0	0	4,179,332	4,179,332
2015	Fatal	0	312,711	0	44,100	356,811	0	467,284	0	40,874	508,158
	Permanent Total	151,045	0	10,529	0	161,574	253,918	0	9,798	0	263,716
	Permanent Partial	3,128,918	5,251,928	1,955,347	3,651,152	13,987,345	5,462,242	8,248,674	1,823,066	3,398,811	18,932,793
	Temporary Total	5,428,769	10,961,548	3,386,467	9,484,095	29,260,879	9,165,077	17,002,987	3,164,190	8,861,739	38,193,993
	Medical Only	0	0	0	5,712,002	5,712,002	0	0	0	4,758,644	4,758,644
(13)	All Years, All Injury Types	80,027,737	107,040,655	36,349,871	98,427,258	321,845,521	84,270,578	113,983,125	29,182,194	78,440,322	305,876,219

Notes:  
 (3), (4), (5), (6): From Unit Statistical Plan data, excluding Large Deductibles.  
 (7)= (3) + (4) + (5) + (6)  
 (8)= (3) x Primary Conversion Factors from Section IX - B, Exhibit 1  
 (9)= (4) x Primary Conversion Factors from Section IX - B, Exhibit 1  
 (10)= (5) x Primary Conversion Factors from Section IX - B, Exhibit 1  
 (11)= (6) x Primary Conversion Factors from Section IX - B, Exhibit 1  
 (12)= (8) + (9) + (10) + (11)

IX 000041 STIP

Calculation of Converted Unlimited Losses by Indemnity Likely/Not-Likely and Medical Likely/Not-Likely  
 Office and Clerical Industry Group, Industry Code 3  
 All Classes

Policy Year (1)	Injury Type (2)	Adjusted Excess Losses				Converted Unlimited Losses						Exposure (13)
		Indemnity		Medical		Indemnity		Medical		Total		
		Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Total (7)	Likely (8)	Not-Likely (9)	Likely (10)	Not-Likely (11)	Total (12)	
2011	Fatal	0	81,195	0	39,606	120,801	0	780,750	0	93,141	873,891	686,085,808
	Permanent Total	470,945	0	413,260	0	884,205	4,386,084	0	1,607,278	0	5,993,362	
	Permanent Partial	1,339,896	1,096,851	1,178,261	1,146,176	4,761,184	15,199,815	13,451,761	6,060,922	6,535,664	41,248,162	
	Temporary Total	472,549	873,473	521,251	1,340,553	3,207,826	6,161,073	11,397,441	3,394,386	9,738,897	30,691,797	
	Medical Only	0	0	0	552,713	552,713	0	0	0	4,885,079	4,885,079	
2012	Fatal	11,461	25,387	4,912	10,898	52,658	143,965	176,235	5,820	13,007	339,027	701,655,824
	Permanent Total	500,077	0	453,936	0	954,013	4,395,562	0	1,512,675	0	5,908,237	
	Permanent Partial	759,963	1,354,740	713,969	1,212,511	4,041,183	9,253,487	17,106,611	3,880,577	6,611,907	36,852,582	
	Temporary Total	539,494	985,314	575,294	1,496,472	3,596,574	6,815,435	12,426,630	3,388,332	10,612,297	33,242,694	
	Medical Only	0	0	0	574,747	574,747	0	0	0	5,104,604	5,104,604	
2013	Fatal	24,750	111,507	10,641	49,041	195,939	249,621	1,033,268	12,872	67,955	1,363,716	732,939,188
	Permanent Total	173,455	0	112,572	0	286,027	1,704,325	0	356,669	0	2,060,994	
	Permanent Partial	908,378	1,325,602	870,597	1,307,146	4,411,723	11,114,645	16,291,000	4,767,750	7,462,086	39,635,481	
	Temporary Total	577,396	990,532	535,059	1,482,100	3,585,087	6,701,912	12,409,023	3,001,967	10,450,067	32,562,969	
	Medical Only	0	0	0	589,236	589,236	0	0	0	5,285,839	5,285,839	
2014	Fatal	0	64,322	0	30,987	95,309	0	703,101	0	62,494	765,595	770,136,273
	Permanent Total	50,301	0	27,309	0	77,610	561,054	0	68,538	0	629,592	
	Permanent Partial	1,189,838	1,568,320	1,017,349	1,489,142	5,264,649	13,881,036	18,228,033	4,802,559	7,847,140	44,758,768	
	Temporary Total	827,318	1,208,933	792,289	1,590,283	4,418,823	9,966,144	15,263,289	4,381,168	10,743,267	40,353,868	
	Medical Only	0	0	0	642,004	642,004	0	0	0	5,713,283	5,713,283	
2015	Fatal	0	48,224	0	25,576	73,800	0	496,276	0	78,744	575,020	824,488,507
	Permanent Total	36,922	0	17,859	0	54,781	262,719	0	25,001	0	287,720	
	Permanent Partial	621,052	962,241	554,121	1,014,041	3,151,455	7,424,527	11,241,721	2,903,406	5,389,690	26,959,344	
	Temporary Total	989,930	1,924,865	921,074	2,207,239	6,043,108	12,501,283	23,301,062	5,032,791	13,636,293	54,471,429	
	Medical Only	0	0	0	735,213	735,213	0	0	0	6,510,221	6,510,221	
(14) All Years, All Injury Types		9,493,725	12,621,506	8,719,753	17,535,684	48,370,668	110,722,687	154,306,201	45,202,711	116,841,675	427,073,274	3,715,305,600
(15) Pure Premium							0.030	0.042	0.012	0.031	0.115	

Notes:  
 (3) , (4) = 0.7 x [ Excess Factor - 1.0 ] x Indemnity Converted Limited Losses. Excess Factor from Section IX-B, Exhibit 5 and Indemnity Converted Limited Losses from Page 1, Columns (8) and (9).  
 (5), (6) = [ Excess Factor - 1.0 ] x Medical Converted Limited Losses + 0.3 x [ Excess Factor - 1.0 ] x Indemnity Converted Limited Losses. Excess Factor from Section IX-B, Exhibit 5 and Medical Converted Limited Losses from Page 1, Columns (10) and (11).  
 (7) = (3) + (4) + (5) + (6)  
 (8), (9), (10), (11): (Converted Limited Losses from Page 1 + Adjusted Excess Losses) x Secondary Conversion Factors from Section IX - B, Exhibit 1, Page 3.  
 (12) = (8) + (9) + (10) + (11)  
 (13): Unit Statistical Plan data, excluding Large Deductibles.  
 (15): Pure Premium calculated as the All Years, All Injury Types Converted Unlimited Losses divided by the All Years, All Injury Types Exposure.

IX 000042 STIP

Calculation of Converted Limited Losses by Indemnity Likely/Not-Likely and Medical Likely/Not-Likely  
 Goods and Services Industry Group, Industry Code 9  
 All Classes

Policy Year (1)	Injury Type (2)	Limited Losses					Converted Limited Losses				
		Indemnity		Medical		Total (7)	Indemnity		Medical		Total (12)
		Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)			Likely (8)	Not-Likely (9)	Likely (10)	
2011	Fatal	132,719	3,101,201	13,739	39,898	3,287,557	117,507	2,728,752	9,733	31,440	2,887,432
	Permanent Total	9,445,375	0	3,369,447	0	12,814,822	8,309,647	0	2,592,724	0	10,902,371
	Permanent Partial	23,685,636	36,597,594	10,321,118	15,687,292	86,291,640	21,424,899	33,038,481	7,826,617	12,295,946	74,585,943
	Temporary Total	11,612,621	25,489,079	6,327,457	20,135,624	63,564,781	10,028,403	22,087,483	4,922,748	15,870,650	52,909,284
	Medical Only	0	0	0	10,285,343	10,285,343	0	0	0	6,574,577	6,574,577
2012	Fatal	383,239	410,011	74,116	2,570	869,936	352,793	380,301	56,717	1,978	791,789
	Permanent Total	9,586,359	0	4,111,300	0	13,697,659	8,821,259	0	3,111,144	0	11,932,403
	Permanent Partial	20,549,102	35,339,526	8,393,545	14,969,584	79,251,757	19,378,215	33,466,965	6,291,192	11,592,319	70,728,691
	Temporary Total	11,698,816	24,496,925	6,230,949	20,175,913	62,602,603	10,607,627	22,379,873	4,768,176	15,697,013	53,452,689
	Medical Only	0	0	0	10,167,600	10,167,600	0	0	0	6,816,442	6,816,442
2013	Fatal	513,995	1,301,179	277,046	95,164	2,187,384	519,624	1,306,107	208,296	80,615	2,114,642
	Permanent Total	4,530,865	0	1,624,889	0	6,155,754	4,573,415	0	1,353,805	0	5,927,220
	Permanent Partial	24,371,214	32,190,007	10,361,876	14,458,083	81,381,180	25,192,845	32,890,429	8,497,066	12,162,270	78,742,610
	Temporary Total	10,447,962	27,426,880	4,318,042	20,889,000	63,081,884	10,399,960	27,138,452	3,604,137	17,681,456	58,824,005
	Medical Only	0	0	0	10,125,961	10,125,961	0	0	0	7,086,939	7,086,939
2014	Fatal	497,977	805,897	54,661	19,797	1,378,332	533,500	854,142	43,517	15,805	1,446,964
	Permanent Total	3,904,577	0	1,286,738	0	5,191,315	4,223,717	0	1,020,977	0	5,244,694
	Permanent Partial	21,094,688	34,796,555	10,482,364	18,323,197	84,696,804	23,349,357	37,733,169	8,281,839	14,600,098	83,964,463
	Temporary Total	13,958,622	29,089,126	7,245,945	23,713,467	74,007,160	14,777,697	30,496,644	5,768,627	18,926,243	69,969,211
	Medical Only	0	0	0	9,595,089	9,595,089	0	0	0	7,413,551	7,413,551
2015	Fatal	0	927,113	0	17,081	944,194	0	1,385,384	0	15,832	1,401,216
	Permanent Total	831,826	0	337,451	0	1,169,277	1,398,360	0	314,014	0	1,712,374
	Permanent Partial	12,278,305	18,426,461	6,313,896	11,097,801	48,116,463	21,113,341	28,328,835	5,893,727	10,328,991	65,664,894
	Temporary Total	12,531,006	29,142,214	9,988,256	25,963,681	77,625,157	21,397,712	44,333,860	9,349,214	24,194,123	99,274,909
	Medical Only	0	0	0	10,355,649	10,355,649	0	0	0	8,627,805	8,627,805
(13) All Years, All Injury Types		192,054,904	299,539,768	91,132,835	236,117,794	818,845,301	206,519,878	318,548,877	73,914,270	190,014,093	788,997,118

Notes:  
 (3), (4), (5), (6): From Unit Statistical Plan data, excluding Large Deductibles.  
 (7)= (3) + (4) + (5) + (6)  
 (8)= (3) x Primary Conversion Factors from Section IX - B, Exhibit 1  
 (9)= (4) x Primary Conversion Factors from Section IX - B, Exhibit 1  
 (10)= (5) x Primary Conversion Factors from Section IX - B, Exhibit 1  
 (11)= (6) x Primary Conversion Factors from Section IX - B, Exhibit 1  
 (12)= (8) + (9) + (10) + (11)

IX 000043 STIP

Calculation of Converted Unlimited Losses by Indemnity Likely/Not-Likely and Medical Likely/Not-Likely  
 Goods and Services Industry Group, Industry Code 9  
 All Classes

Policy Year (1)	Injury Type (2)	Indemnity		Adjusted Excess Losses Medical		Total (7)	Indemnity		Converted Unlimited Losses Medical		Total (12)	Exposure (13)
		Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)		Likely (8)	Not-Likely (9)	Likely (10)	Not-Likely (11)		
2011	Fatal	9,946	309,194	5,416	138,938	463,494	122,698	2,924,614	17,952	201,898	3,267,162	153,945,334
	Permanent Total	935,122	0	816,612	0	1,751,734	8,350,915	0	3,081,927	0	11,432,842	
	Permanent Partial	2,411,426	3,663,259	2,280,778	3,496,474	11,851,937	29,091,715	44,793,675	12,344,790	19,288,265	105,518,445	
	Temporary Total	1,084,522	2,380,682	1,204,839	3,478,261	8,148,304	13,680,524	30,121,442	7,548,806	23,836,657	75,187,429	
	Medical Only	0	0	0	953,339	953,339	0	0	0	8,920,581	8,920,581	
2012	Fatal	39,525	28,356	28,374	12,370	108,625	377,682	393,412	100,832	17,002	888,928	155,875,245
	Permanent Total	1,093,863	0	1,003,256	0	2,097,119	8,956,452	0	3,719,280	0	12,675,732	
	Permanent Partial	2,177,026	3,624,239	1,977,799	3,342,937	11,122,001	26,307,702	45,269,006	10,099,433	18,241,358	99,917,499	
	Temporary Total	1,285,717	2,475,163	1,353,773	3,506,482	8,621,135	14,641,256	30,597,698	7,541,861	23,657,514	76,438,329	
	Medical Only	0	0	0	991,697	991,697	0	0	0	9,252,645	9,252,645	
2013	Fatal	83,438	140,318	79,028	72,348	375,132	580,565	1,392,465	340,480	181,262	2,494,772	165,546,109
	Permanent Total	511,932	0	420,148	0	932,080	4,593,657	0	1,603,594	0	6,197,251	
	Permanent Partial	2,812,724	3,592,822	2,586,016	3,429,506	12,421,068	34,180,187	44,527,013	13,536,459	19,043,206	111,286,865	
	Temporary Total	1,171,780	3,042,627	1,083,188	4,130,114	9,427,709	14,245,346	37,154,303	5,774,493	26,870,500	84,044,642	
	Medical Only	0	0	0	1,034,038	1,034,038	0	0	0	9,623,358	9,623,358	
2014	Fatal	58,433	90,132	31,723	41,011	221,299	569,851	909,048	89,159	67,327	1,635,385	177,242,116
	Permanent Total	567,687	0	411,029	0	978,716	4,328,135	0	1,294,487	0	5,622,622	
	Permanent Partial	2,531,327	4,105,242	2,357,992	4,023,929	13,018,490	31,586,811	51,062,869	12,995,089	22,746,683	118,391,452	
	Temporary Total	1,673,895	3,494,024	1,643,949	4,521,711	11,333,579	20,252,671	41,844,085	9,131,832	28,886,424	100,115,012	
	Medical Only	0	0	0	1,081,119	1,081,119	0	0	0	10,066,183	10,066,183	
2015	Fatal	0	123,643	0	54,847	178,490	0	1,452,732	0	83,754	1,536,486	186,613,665
	Permanent Total	238,315	0	173,094	0	411,409	1,478,429	0	440,329	0	1,918,758	
	Permanent Partial	2,456,557	3,135,734	2,055,060	2,957,163	10,604,514	28,766,547	38,401,821	9,708,349	16,227,207	93,103,924	
	Temporary Total	2,362,825	4,845,728	2,490,705	5,794,385	15,493,643	29,250,320	60,542,346	14,586,045	36,943,980	141,322,691	
	Medical Only	0	0	0	1,271,884	1,271,884	0	0	0	11,731,132	11,731,132	
(14) All Years, All Injury Types		23,506,060	35,051,163	22,002,779	44,332,553	124,892,555	271,361,463	431,386,529	113,955,197	285,886,936	1,102,590,125	839,222,469
(15) Pure Premium							0.323	0.514	0.136	0.341	1.314	

Notes:

- (3), (4) = 0.7 x [ Excess Factor - 1.0 ] x Indemnity Converted Limited Losses. Excess Factor from Section IX-B, Exhibit 5 and Indemnity Converted Limited Losses from Page 1, Columns (8) and (9).
- (5), (6) = [ Excess Factor - 1.0 ] x Medical Converted Limited Losses + 0.3 x [ Excess Factor - 1.0 ] x Indemnity Converted Limited Losses. Excess Factor from Section IX-B, Exhibit 5 and Medical Converted Limited Losses from Page 1, Columns (10) and (11).
- (7) = (3) + (4) + (5) + (6)
- (8), (9), (10), (11): (Converted Limited Losses from Page 1 + Adjusted Excess Losses) x Secondary Conversion Factors from Section IX - B, Exhibit 1, Page 3.
- (12) = (8) + (9) + (10) + (11)
- (13): Unit Statistical Plan data, excluding Large Deductibles.
- (15): Pure Premium calculated as the All Years, All Injury Types Converted Unlimited Losses divided by the All Years, All Injury Types Exposure.

IX 000044 STIP

Calculation of Converted Limited Losses by Indemnity Likely/Not-Likely and Medical Likely/Not-Likely  
 Miscellaneous Industry Group, Industry Code 0  
 All Classes

Policy Year (1)	Injury Type (2)	Limited Losses					Converted Limited Losses				
		Indemnity		Medical		Total (7)	Indemnity		Medical		Total (12)
		Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)			Likely (8)	Not-Likely (9)	Likely (10)	
2011	Fatal	0	402,016	0	1,822	403,838	0	353,565	0	1,408	354,973
	Permanent Total	3,937,912	0	1,445,058	0	5,382,970	3,466,962	0	1,110,623	0	4,577,585
	Permanent Partial	13,085,843	17,675,669	5,578,598	6,255,946	42,596,056	11,862,728	15,906,619	4,097,480	4,878,577	36,745,404
	Temporary Total	2,977,625	9,531,869	1,279,758	6,249,203	20,038,455	2,571,411	8,251,601	995,649	4,918,721	16,737,382
	Medical Only	0	0	0	2,405,186	2,405,186	0	0	0	1,533,301	1,533,301
2012	Fatal	0	498,164	0	1,836	500,000	0	462,126	0	1,390	463,516
	Permanent Total	4,631,640	0	1,465,512	0	6,097,152	4,263,200	0	1,106,710	0	5,369,910
	Permanent Partial	11,615,009	13,019,856	4,453,938	5,365,648	34,454,451	10,997,681	12,330,513	3,246,624	4,117,714	30,692,532
	Temporary Total	5,404,876	8,419,861	2,010,488	6,371,981	22,207,206	4,900,745	7,692,292	1,538,507	4,951,790	19,083,334
	Medical Only	0	0	0	2,223,207	2,223,207	0	0	0	1,487,219	1,487,219
2013	Fatal	0	1,010,186	0	71,227	1,081,413	0	1,013,643	0	60,338	1,073,981
	Permanent Total	3,383,675	0	1,370,929	0	4,754,604	3,448,371	0	1,116,961	0	4,565,332
	Permanent Partial	15,596,479	19,069,425	5,856,264	8,470,501	48,992,669	16,199,339	19,471,667	4,689,213	7,105,006	47,465,225
	Temporary Total	4,651,827	10,534,746	2,091,922	6,875,141	24,153,636	4,630,849	10,422,395	1,745,752	5,813,767	22,612,763
	Medical Only	0	0	0	2,614,361	2,614,361	0	0	0	1,827,908	1,827,908
2014	Fatal	98,800	512,777	148,007	125,247	884,831	105,848	543,474	117,831	99,993	867,146
	Permanent Total	956,158	0	403,884	0	1,360,042	1,023,476	0	321,539	0	1,345,015
	Permanent Partial	9,202,336	13,894,261	4,435,328	6,155,434	33,687,359	10,440,774	15,160,240	3,434,978	4,896,845	33,932,837
	Temporary Total	3,848,968	10,870,962	1,967,639	7,318,223	24,005,792	4,076,598	11,408,526	1,564,869	5,839,698	22,889,691
	Medical Only	0	0	0	2,865,163	2,865,163	0	0	0	2,213,259	2,213,259
2015	Fatal	0	2,292,682	0	571,023	2,863,705	0	3,577,565	0	529,600	4,107,165
	Permanent Total	357,035	0	146,374	0	503,409	600,202	0	136,208	0	736,410
	Permanent Partial	5,619,683	8,443,161	3,141,999	5,439,619	22,644,462	9,923,367	13,261,922	2,960,476	5,086,909	31,232,674
	Temporary Total	5,287,986	12,521,125	3,518,585	9,356,590	30,684,286	9,477,046	19,644,243	3,323,057	8,775,424	41,219,770
	Medical Only	0	0	0	2,958,127	2,958,127	0	0	0	2,466,220	2,466,220
(13) All Years, All Injury Types		90,655,852	128,696,760	39,314,283	81,695,485	340,362,380	97,988,597	139,500,391	31,506,477	66,605,087	335,600,552

Notes:  
 (3), (4), (5), (6): From Unit Statistical Plan data, excluding Large Deductibles.  
 (7)= (3) + (4) + (5) + (6)  
 (8)= (3) x Primary Conversion Factors from Section IX - B, Exhibit 1  
 (9)= (4) x Primary Conversion Factors from Section IX - B, Exhibit 1  
 (10)= (5) x Primary Conversion Factors from Section IX - B, Exhibit 1  
 (11)= (6) x Primary Conversion Factors from Section IX - B, Exhibit 1  
 (12)= (8) + (9) + (10) + (11)

IX 000045 STIP

Calculation of Converted Unlimited Losses by Indemnity Likely/Not-Likely and Medical Likely/Not-Likely  
 Miscellaneous Industry Group, Industry Code 0  
 All Classes

Policy Year (1)	Injury Type (2)	Adjusted Excess Losses					Converted Unlimited Losses					Exposure (13)
		Indemnity		Medical		Total	Indemnity		Medical		Total	
		Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	(7)	Likely (8)	Not-Likely (9)	Likely (10)	Not-Likely (11)	Total (12)	
2011	Fatal	0	68,075	0	29,563	97,638	0	405,911	0	36,701	442,612	25,182,855
	Permanent Total	560,165	0	472,610	0	1,032,775	3,637,754	0	1,431,190	0	5,068,944	
	Permanent Partial	1,848,495	2,464,384	1,684,487	2,150,368	8,147,734	16,734,249	22,421,409	7,061,876	8,584,888	54,802,422	
	Temporary Total	384,548	1,278,132	387,947	1,614,175	3,664,802	3,638,922	11,731,541	1,704,505	8,048,122	25,123,090	
	Medical Only	0	0	0	323,674	323,674	0	0	0	2,200,516	2,200,516	
2012	Fatal	0	74,406	0	32,208	106,614	0	516,517	0	39,813	556,330	25,774,276
	Permanent Total	729,514	0	595,980	0	1,325,494	4,509,980	0	1,539,175	0	6,049,155	
	Permanent Partial	1,789,730	1,946,493	1,502,888	1,792,179	7,031,290	15,606,757	17,424,774	5,800,874	7,218,120	46,050,525	
	Temporary Total	715,636	1,160,674	636,549	1,559,298	4,072,157	6,914,025	10,898,410	2,679,534	8,021,256	28,513,225	
	Medical Only	0	0	0	308,837	308,837	0	0	0	2,128,326	2,128,326	
2013	Fatal	0	178,859	0	93,004	271,863	0	1,148,015	0	181,710	1,329,725	27,533,521
	Permanent Total	569,306	0	522,984	0	1,092,290	3,629,218	0	1,482,456	0	5,111,674	
	Permanent Partial	2,552,647	3,192,840	2,148,369	3,039,407	10,933,263	22,886,391	27,661,538	8,351,165	12,390,002	71,289,096	
	Temporary Total	744,652	1,618,647	709,577	1,968,611	5,041,487	6,617,491	14,823,080	3,024,813	9,587,406	34,052,790	
	Medical Only	0	0	0	346,561	346,561	0	0	0	2,576,745	2,576,745	
2014	Fatal	17,179	84,381	36,783	57,259	195,602	118,437	604,433	183,217	186,344	1,092,431	28,311,462
	Permanent Total	165,573	0	150,592	0	316,165	1,074,083	0	426,791	0	1,500,874	
	Permanent Partial	1,683,543	2,352,672	1,499,080	2,115,323	7,650,618	14,797,465	21,374,127	6,026,272	8,564,398	50,762,262	
	Temporary Total	616,181	1,880,659	585,429	2,128,251	5,210,520	5,777,029	16,359,601	2,649,035	9,816,019	34,601,684	
	Medical Only	0	0	0	407,817	407,817	0	0	0	3,105,975	3,105,975	
2015	Fatal	0	652,777	0	423,495	1,076,272	0	4,072,528	0	1,129,417	5,201,945	30,865,142
	Permanent Total	114,769	0	86,455	0	201,224	645,842	0	201,280	0	847,122	
	Permanent Partial	1,587,016	2,104,442	1,314,274	2,053,969	7,059,701	14,048,173	18,754,312	5,221,019	8,721,599	46,745,103	
	Temporary Total	1,495,342	3,182,145	1,392,502	3,324,223	9,394,212	13,507,516	28,100,338	5,809,276	14,906,014	62,323,144	
	Medical Only	0	0	0	458,258	458,258	0	0	0	3,465,507	3,465,507	
(14) All Years, All Injury Types		15,574,296	22,239,586	13,726,506	24,226,480	75,766,868	134,143,332	196,296,534	53,592,478	110,908,878	494,941,222	137,667,255
(15) Pure Premium							0.974	1.426	0.389	0.806	3.595	

Notes:

- (3), (4) = 0.7 x [ Excess Factor - 1.0 ] x Indemnity Converted Limited Losses. Excess Factor from Section IX-B, Exhibit 5 and Indemnity Converted Limited Losses from Page 1, Columns (8) and (9).
- (5), (6) = [ Excess Factor - 1.0 ] x Medical Converted Limited Losses + 0.3 x [ Excess Factor - 1.0 ] x Indemnity Converted Limited Losses. Excess Factor from Section IX-B, Exhibit 5 and Medical Converted Limited Losses from Page 1, Columns (10) and (11).
- (7) = (3) + (4) + (5) + (6)
- (8), (9), (10), (11): (Converted Limited Losses from Page 1 + Adjusted Excess Losses) x Secondary Conversion Factors from Section IX - B, Exhibit 1, Page 3.
- (12) = (8) + (9) + (10) + (11)
- (13): Unit Statistical Plan data, excluding Large Deductibles.
- (15): Pure Premium calculated as the All Years, All Injury Types Converted Unlimited Losses divided by the All Years, All Injury Types Exposure.

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Calculation of Converted Limited Losses by Indemnity Likely/Not-Likely and Medical Likely/Not-Likely  
 All Industry Groups  
 All Classes

Policy Year (1)	Injury Type (2)	Limited Losses					Converted Limited Losses				
		Indemnity		Medical		Total (7)	Indemnity		Medical		Total (12)
		Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)			Likely (8)	Not-Likely (9)	Likely (10)	
2011	Fatal	399,738	6,049,841	13,739	172,867	6,636,185	352,717	5,316,622	9,733	136,254	5,815,326
	Permanent Total	34,208,707	0	12,111,640	0	46,320,347	30,079,474	0	9,289,279	0	39,368,753
	Permanent Partial	82,919,807	122,640,701	31,893,505	46,689,288	284,143,301	75,011,819	110,674,633	24,134,035	36,606,341	246,426,828
	Temporary Total	31,800,826	76,239,569	16,318,169	54,717,230	179,075,794	27,464,093	66,056,098	12,691,327	43,123,657	149,335,175
	Medical Only	0	0	0	25,574,006	25,574,006	0	0	0	16,345,442	16,345,442
2012	Fatal	1,193,003	5,553,546	202,384	249,947	7,198,880	1,098,226	5,151,054	154,873	194,569	6,598,722
	Permanent Total	39,088,712	0	14,172,057	0	53,260,769	35,978,295	0	10,725,758	0	46,704,053
	Permanent Partial	71,855,457	116,785,049	27,353,987	44,939,793	260,934,286	67,825,311	110,597,332	20,452,301	34,781,760	233,656,704
	Temporary Total	36,177,460	72,326,331	16,547,940	55,754,068	180,805,799	32,803,065	66,075,906	12,663,156	43,379,421	154,921,548
	Medical Only	0	0	0	25,088,940	25,088,940	0	0	0	16,823,966	16,823,966
2013	Fatal	906,133	6,995,711	293,318	393,821	8,588,983	915,772	7,021,835	221,878	332,786	8,492,271
	Permanent Total	24,334,392	0	8,066,524	0	32,400,916	24,610,090	0	6,690,001	0	31,300,091
	Permanent Partial	73,148,855	117,686,228	28,801,643	47,783,221	267,419,947	75,652,043	120,245,349	23,566,389	40,226,854	259,690,635
	Temporary Total	31,721,731	79,622,539	12,791,729	58,898,545	183,034,544	31,580,979	78,784,525	10,672,549	49,860,833	170,898,886
	Medical Only	0	0	0	25,491,182	25,491,182	0	0	0	17,847,216	17,847,216
2014	Fatal	1,337,824	2,797,986	226,478	217,172	4,579,460	1,433,257	2,965,487	180,304	173,383	4,752,431
	Permanent Total	14,478,445	0	6,456,827	0	20,935,272	15,582,112	0	5,134,609	0	20,716,721
	Permanent Partial	72,305,546	115,117,551	32,137,904	52,121,907	271,682,908	80,462,163	125,063,101	25,281,186	41,519,046	272,325,496
	Temporary Total	41,500,326	85,123,835	19,973,894	62,225,148	208,823,203	43,938,822	89,259,787	15,899,971	49,664,206	198,762,786
	Medical Only	0	0	0	24,772,985	24,772,985	0	0	0	19,140,936	19,140,936
2015	Fatal	0	8,652,477	0	1,081,766	9,734,243	0	13,233,743	0	1,003,159	14,236,902
	Permanent Total	2,354,443	0	1,918,068	0	4,272,511	3,957,991	0	1,784,854	0	5,742,845
	Permanent Partial	38,808,042	61,702,833	19,747,451	36,623,941	156,882,267	67,272,951	95,934,049	18,480,153	34,138,745	215,825,898
	Temporary Total	39,377,153	89,875,815	27,927,482	73,642,345	230,822,795	67,700,548	137,099,727	26,169,776	68,636,003	299,606,054
	Medical Only	0	0	0	25,677,894	25,677,894	0	0	0	21,386,970	21,386,970
(13) All Years, All Injury Types		637,916,600	967,170,012	276,954,739	662,116,066	2,544,157,417	683,719,728	1,033,479,248	224,202,132	535,321,547	2,476,722,655

Notes:  
 (3) - (12): Total of Section IX - C, Page 1 of Exhibits 1 through 5.

IX 000047 STIP

Calculation of Converted Unlimited Losses by Indemnity Likely/Not-Likely and Medical Likely/Not-Likely  
 All Industry Groups  
 All Classes

Policy Year (1)	Injury Type (2)	Adjusted Excess Losses				Converted Unlimited Losses						Exposure (13)
		Indemnity		Medical		Indemnity		Medical		Total		
		Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Total (7)	Likely (8)	Not-Likely (9)	Likely (10)	Not-Likely (11)	Total (12)	
2011	Fatal	43,720	716,677	19,890	336,516	1,116,803	381,647	5,808,225	35,104	560,232	6,785,208	973,897,623
	Permanent Total	4,539,990	0	4,004,319	0	8,544,309	31,272,192	0	12,016,972	0	43,289,164	
	Permanent Partial	11,088,368	16,173,008	9,689,803	14,271,573	51,222,752	105,083,401	154,814,784	41,311,158	62,140,363	363,349,706	
	Temporary Total	3,496,969	9,027,048	3,704,281	11,905,291	28,133,589	38,114,497	92,430,824	20,198,371	67,792,248	218,535,940	
	Medical Only	0	0	0	2,799,410	2,799,410	0	0	0	22,686,651	22,686,651	
2012	Fatal	198,179	815,225	135,786	412,081	1,561,271	1,248,042	5,743,705	344,429	718,880	8,055,056	995,010,031
	Permanent Total	5,764,630	0	5,043,928	0	10,808,558	37,706,900	0	14,255,270	0	51,962,170	
	Permanent Partial	9,951,320	15,802,305	8,442,225	13,759,241	47,955,091	94,924,685	154,268,002	35,290,681	59,286,145	343,769,513	
	Temporary Total	4,541,176	9,035,347	4,389,684	12,081,976	30,048,183	45,972,487	92,465,423	21,008,041	68,324,998	227,770,949	
	Medical Only	0	0	0	2,891,766	2,891,766	0	0	0	23,363,142	23,363,142	
2013	Fatal	133,577	1,179,600	103,622	613,590	2,030,389	1,010,203	7,895,477	385,719	1,121,456	10,412,855	1,042,315,511
	Permanent Total	3,986,841	0	3,214,998	0	7,201,839	25,831,962	0	8,953,791	0	34,785,753	
	Permanent Partial	10,632,796	18,041,662	9,220,511	16,084,607	53,979,576	105,308,768	168,776,284	40,044,683	68,776,691	382,906,426	
	Temporary Total	4,350,210	10,791,428	3,872,992	14,209,616	33,224,246	44,232,955	110,272,138	17,919,204	78,930,814	251,355,111	
	Medical Only	0	0	0	3,027,292	3,027,292	0	0	0	24,736,293	24,736,293	
2014	Fatal	214,583	370,056	133,288	195,779	913,706	1,586,367	3,211,109	371,604	437,457	5,606,537	1,100,443,492
	Permanent Total	2,485,953	0	2,370,648	0	4,856,601	16,321,108	0	6,784,503	0	23,105,611	
	Permanent Partial	12,089,052	18,241,169	10,468,854	16,162,660	56,961,735	112,956,741	174,899,740	43,663,750	70,450,259	401,970,490	
	Temporary Total	6,036,490	12,405,338	5,695,985	14,781,938	38,919,751	61,521,921	125,154,470	26,604,878	79,393,649	292,674,918	
	Medical Only	0	0	0	3,302,008	3,302,008	0	0	0	26,594,888	26,594,888	
2015	Fatal	0	2,444,516	0	1,312,622	3,757,138	0	15,093,373	0	2,744,200	17,837,573	1,175,891,562
	Permanent Total	726,852	0	811,997	0	1,538,849	4,231,876	0	2,347,467	0	6,579,343	
	Permanent Partial	10,437,836	14,304,648	8,488,197	13,311,929	46,542,610	94,844,323	134,543,926	32,938,127	57,954,460	320,280,836	
	Temporary Total	10,058,615	18,975,475	9,970,989	21,273,736	60,278,815	95,725,125	192,135,788	44,523,178	110,763,217	443,147,308	
	Medical Only	0	0	0	3,653,793	3,653,793	0	0	0	29,673,304	29,673,304	
(14) All Years, All Injury Types		100,777,157	148,323,502	89,781,997	166,387,424	505,270,080	918,275,200	1,437,513,268	368,996,930	856,449,347	3,581,234,745	5,287,558,219
(15) Pure Premium							0.174	0.272	0.070	0.162	0.677	

Notes:

(3) - (13): Total of Section IX - C, Page 2 of Exhibits 1 through 5.

(15): Pure Premium calculated as the All Years, All Injury Types Converted Unlimited Losses divided by the All Years, All Injury Types Exposure.

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Section IX - Classification Pricing  
Subsection D - Credibility/Countrywide Data  
7/1/2018

Section IX - D  
Exhibit 1  
Page 1

## MA Full Credibility Standard and Partial Credibility

		Indemnity	Medical
(1)	Average Claim Cost (See Page 2)	32,000	15,000
(2)	Claims	850	400
(3)	Full Credibility Standard =(1) x (2)	27,200,000	6,000,000

Partial Credibility Z is given in terms of E, the expected losses and F, the criterion for full credibility by the formula:

$$Z=(E / F)^{0.4}$$

## Credibility of Countrywide Data

		Indemnity	Medical
(4)	Number of Countrywide Claims	1,150	1,000

### Notes:

Partial Credibility is determined from the full credibility standard and the observed number of countrywide claims using the same formula as is done for the Massachusetts data.

(2),(4): From the paper "Class Ratemaking for Workers Compensation: NCCI's New Methodology" by Tom Daley.

# IX 000050 STIP

Selection of Average Massachusetts Claim Costs  
 Policy Year 2015

	Injury Type				
	1	2	9	5	6
	Indemnity				
(1) Losses Developed to Ultimate	25,431,481	9,330,807	193,274,307	247,838,624	
(2) On-Level Factor	1.020	1.025	1.038	1.016	
(3) On-Level Ultimate Losses = (1) x (2)	25,951,648	9,562,351	200,710,800	251,869,941	
	Medical				
(4) Losses Developed to Ultimate	2,143,645	13,176,074	66,363,419	124,614,329	27,227,341
(5) On-Level Factor	1.000	1.000	1.000	1.000	1.000
(6) On-Level Ultimate Losses = (4) x (5)	2,143,645	13,176,074	66,363,419	124,614,329	27,227,341
	Claim Count				
(7) Claim Count Developed to Fifth Report	40	18	2,080	13,289	
<b>Summary:</b>					
(8) Ultimate Losses			Indemnity 488,094,740		
(9) Ultimate Claim Count			15,426		
(10) Average Claim Cost = (8) / (9)			31,641		
(11) Selected Average Claim Cost			32,000		
(12) Ultimate Losses			Medical 233,524,810		
(13) Ultimate Claim Count			15,426		
(14) Average Claim Cost = (12) / (13)			15,138		
(15) Selected Average Claim Cost			15,000		

**Notes:**

- (1), (4) : Unit Statistical Plan Data, developed to Ultimate using development factors from Section X-A, Exhibit 5, Pages 2 and 5.
- (2), (5): Section IV-A, Exhibit 1.
- (7) : Unit Statistical Plan Data, developed to fifth report using development factors from Section IX-B, Exhibit 2, Page 1.
- (8) = Sum of (3)
- (9), (13) = Sum of (7)
- (12) = Sum of (6)

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Section IX - Classification Pricing  
 Subsection D - Credibility/Countrywide Data  
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Section IX - D  
 Exhibit 2

## Countrywide Classification Experience: Pitch Factors

State (1)	State Code (2)	Industry Group (3)	Industry Code (4)	Indemnity (5)	Medical (6)
Alabama	1	Manufacturing	1	2.312	0.443
		Construction	2	2.387	0.367
		Office and Clerical	3	1.562	0.316
		Goods and Services	9	1.942	0.378
		Miscellaneous	0	1.849	0.394
Arizona	2	Manufacturing	1	3.320	0.483
		Construction	2	2.387	0.402
		Office and Clerical	3	1.994	0.313
		Goods and Services	9	2.562	0.447
		Miscellaneous	0	2.046	0.422
Arkansas	3	Manufacturing	1	3.562	0.890
		Construction	2	3.606	0.854
		Office and Clerical	3	1.329	0.510
		Goods and Services	9	3.403	0.897
		Miscellaneous	0	0.968	0.520
Colorado	5	Manufacturing	1	1.438	0.456
		Construction	2	1.323	0.451
		Office and Clerical	3	1.085	0.389
		Goods and Services	9	1.116	0.388
		Miscellaneous	0	1.348	0.511
Connecticut	6	Manufacturing	1	0.650	0.299
		Construction	2	0.724	0.290
		Office and Clerical	3	0.484	0.263
		Goods and Services	9	0.667	0.303
		Miscellaneous	0	0.664	0.325
D.C.	8	Manufacturing	1	0.273	0.124
		Construction	2	1.074	0.656
		Office and Clerical	3	1.301	1.138
		Goods and Services	9	1.067	0.870
		Miscellaneous	0	0.679	0.497
Florida	9	Manufacturing	1	1.657	0.370
		Construction	2	1.601	0.303
		Office and Clerical	3	0.956	0.228
		Goods and Services	9	1.620	0.354
		Miscellaneous	0	1.829	0.419
Georgia	10	Manufacturing	1	1.311	0.695
		Construction	2	0.673	0.327
		Office and Clerical	3	1.034	0.539
		Goods and Services	9	0.932	0.539
		Miscellaneous	0	1.238	0.679
Idaho	11	Manufacturing	1	1.555	0.379
		Construction	2	1.491	0.352
		Office and Clerical	3	0.882	0.176
		Goods and Services	9	1.440	0.335
		Miscellaneous	0	2.016	0.483

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Section IX - Classification Pricing  
 Subsection D - Credibility/Countrywide Data  
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Section IX - D  
 Exhibit 2

## Countrywide Classification Experience: Pitch Factors

State (1)	State Code (2)	Industry Group (3)	Industry Code (4)	Indemnity (5)	Medical (6)
Illinois	12	Manufacturing	1	0.843	0.356
		Construction	2	0.832	0.419
		Office and Clerical	3	0.580	0.349
		Goods and Services	9	0.923	0.408
		Miscellaneous	0	0.812	0.437
Indiana	13	Manufacturing	1	3.827	0.637
		Construction	2	4.311	0.719
		Office and Clerical	3	2.600	0.441
		Goods and Services	9	3.010	0.549
		Miscellaneous	0	3.583	0.703
Iowa	14	Manufacturing	1	0.914	0.301
		Construction	2	1.239	0.406
		Office and Clerical	3	0.714	0.184
		Goods and Services	9	1.080	0.377
		Miscellaneous	0	1.561	0.530
Kansas	15	Manufacturing	1	1.785	0.505
		Construction	2	2.567	0.615
		Office and Clerical	3	1.647	0.531
		Goods and Services	9	2.037	0.561
		Miscellaneous	0	2.572	0.715
Kentucky	16	Manufacturing	1	1.909	0.606
		Construction	2	1.833	0.613
		Office and Clerical	3	1.446	0.583
		Goods and Services	9	1.669	0.634
		Miscellaneous	0	1.585	0.499
Louisiana	17	Manufacturing	1	1.368	0.439
		Construction	2	1.654	0.502
		Office and Clerical	3	0.697	0.275
		Goods and Services	9	1.388	0.448
		Miscellaneous	0	1.305	0.462
Maine	18	Manufacturing	1	1.020	0.440
		Construction	2	1.037	0.437
		Office and Clerical	3	0.667	0.239
		Goods and Services	9	0.884	0.405
		Miscellaneous	0	1.040	0.532
Maryland	19	Manufacturing	1	1.290	0.576
		Construction	2	1.387	0.515
		Office and Clerical	3	1.279	0.667
		Goods and Services	9	1.325	0.639
		Miscellaneous	0	1.196	0.619
Michigan	21	Manufacturing	1	1.870	0.687
		Construction	2	2.071	0.835
		Office and Clerical	3	1.792	0.713
		Goods and Services	9	1.938	0.778
		Miscellaneous	0	2.098	0.933
Minnesota	22	Manufacturing	1	1.526	0.577
		Construction	2	2.058	0.749
		Office and Clerical	3	1.684	0.684
		Goods and Services	9	1.624	0.635
		Miscellaneous	0	1.670	0.637

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Section IX - Classification Pricing  
 Subsection D - Credibility/Countrywide Data  
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Section IX - D  
 Exhibit 2

## Countrywide Classification Experience: Pitch Factors

State (1)	State Code (2)	Industry Group (3)	Industry Code (4)	Indemnity (5)	Medical (6)
Mississippi	23	Manufacturing	1	1.675	0.513
		Construction	2	1.702	0.523
		Office and Clerical	3	0.839	0.306
		Goods and Services	9	1.549	0.526
		Miscellaneous	0	1.464	0.584
Missouri	24	Manufacturing	1	1.233	0.448
		Construction	2	1.454	0.509
		Office and Clerical	3	0.694	0.321
		Goods and Services	9	1.240	0.444
		Miscellaneous	0	1.307	0.471
Montana	25	Manufacturing	1	0.618	0.175
		Construction	2	1.291	0.307
		Office and Clerical	3	0.489	0.134
		Goods and Services	9	1.231	0.303
		Miscellaneous	0	1.617	0.476
Nebraska	26	Manufacturing	1	1.046	0.230
		Construction	2	1.901	0.429
		Office and Clerical	3	0.665	0.220
		Goods and Services	9	1.733	0.430
		Miscellaneous	0	1.896	0.536
Nevada	27	Manufacturing	1	1.281	0.030
		Construction	2	1.369	0.540
		Office and Clerical	3	0.480	0.189
		Goods and Services	9	1.337	0.500
		Miscellaneous	0	1.040	0.465
New Hampshire	28	Manufacturing	1	2.046	0.358
		Construction	2	1.327	0.312
		Office and Clerical	3	1.527	0.326
		Goods and Services	9	1.237	0.270
		Miscellaneous	0	1.915	0.407
New Mexico	30	Manufacturing	1	1.449	0.360
		Construction	2	1.714	0.419
		Office and Clerical	3	0.418	0.147
		Goods and Services	9	1.442	0.411
		Miscellaneous	0	1.435	0.466
North Carolina	32	Manufacturing	1	1.385	0.706
		Construction	2	1.133	0.453
		Office and Clerical	3	0.766	0.464
		Goods and Services	9	1.248	0.603
		Miscellaneous	0	1.128	0.622
Oklahoma	35	Manufacturing	1	0.895	0.435
		Construction	2	1.394	0.571
		Office and Clerical	3	0.325	0.181
		Goods and Services	9	0.944	0.443
		Miscellaneous	0	1.012	0.469
Oregon	36	Manufacturing	1	1.696	0.669
		Construction	2	1.552	0.611
		Office and Clerical	3	0.873	0.384
		Goods and Services	9	1.411	0.526
		Miscellaneous	0	1.686	0.711

# IX 00054 STIP

Section IX - Classification Pricing  
 Subsection D - Credibility/Countrywide Data  
 7/1/2018

Section IX - D  
 Exhibit 2

## Countrywide Classification Experience: Pitch Factors

State (1)	State Code (2)	Industry Group (3)	Industry Code (4)	Indemnity (5)	Medical (6)
Rhode Island	38	Manufacturing	1	0.638	0.513
		Construction	2	0.845	0.698
		Office and Clerical	3	0.569	0.514
		Goods and Services	9	0.549	0.459
		Miscellaneous	0	0.564	0.503
South Carolina	39	Manufacturing	1	0.868	0.547
		Construction	2	0.736	0.349
		Office and Clerical	3	0.395	0.281
		Goods and Services	9	0.837	0.459
		Miscellaneous	0	0.797	0.459
South Dakota	40	Manufacturing	1	2.347	0.409
		Construction	2	2.075	0.392
		Office and Clerical	3	1.396	0.244
		Goods and Services	9	2.330	0.438
		Miscellaneous	0	2.354	0.589
Tennessee	41	Manufacturing	1	2.166	0.494
		Construction	2	1.989	0.424
		Office and Clerical	3	1.240	0.380
		Goods and Services	9	2.223	0.513
		Miscellaneous	0	1.773	0.587
Utah	43	Manufacturing	1	3.929	0.575
		Construction	2	3.171	0.479
		Office and Clerical	3	2.889	0.525
		Goods and Services	9	3.377	0.549
		Miscellaneous	0	2.127	0.591
Vermont	44	Manufacturing	1	0.889	0.372
		Construction	2	1.018	0.416
		Office and Clerical	3	0.517	0.256
		Goods and Services	9	0.738	0.358
		Miscellaneous	0	0.910	0.440
Virginia	45	Manufacturing	1	2.346	0.613
		Construction	2	2.041	0.414
		Office and Clerical	3	2.263	0.604
		Goods and Services	9	2.092	0.471
		Miscellaneous	0	2.056	0.541
West Virginia	47	Manufacturing	1	2.190	0.516
		Construction	2	2.991	0.839
		Office and Clerical	3	1.088	0.478
		Goods and Services	9	2.291	0.733
		Miscellaneous	0	2.705	0.551
Wisconsin	48	Manufacturing	1	1.533	0.353
		Construction	2	1.399	0.348
		Office and Clerical	3	1.212	0.330
		Goods and Services	9	1.288	0.327
		Miscellaneous	0	1.555	0.428
Hawaii	52	Manufacturing	1	0.912	0.468
		Construction	2	1.613	0.787
		Office and Clerical	3	0.571	0.284
		Goods and Services	9	0.837	0.407
		Miscellaneous	0	1.155	0.535



# IX 000055 STIP

Section IX - Classification Pricing  
Subsection D - Credibility/Countrywide Data  
7/1/2018

Section IX - D  
Exhibit 2

## Countrywide Classification Experience: Pitch Factors

State (1)	State Code (2)	Industry Group (3)	Industry Code (4)	Indemnity (5)	Medical (6)
Alaska	54	Manufacturing	1	1.641	0.258
		Construction	2	2.229	0.309
		Office and Clerical	3	0.808	0.118
		Goods and Services	9	1.895	0.264
		Miscellaneous	0	2.198	0.304

### Notes:

Factors to adjust countrywide data to the same payroll distribution and loss level as MA.

Pitch Factor = (MA Unlimited Losses) / [ (State Pure Premium) x (MA Exposure) ]

For a sample countrywide pure premium calculation, see Section IX - L, Exhibit 2, Page 2.

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Section IX - Classification Pricing  
 Subsection D - Credibility/Countrywide Data  
 7/1/2018

Section IX - D  
 Exhibit 3

## Countrywide Classification Experience: Database

State (1)	State Code (2)	Experience Data					
		First Report (3)		Second Report (4)		Third Report (5)	
Alabama	1	5/1/2013	- 4/30/2014	5/1/2012	- 4/30/2013	5/1/2011	- 4/30/2012
Arizona	2	3/1/2013	- 2/28/2014	3/1/2012	- 2/28/2013	3/1/2011	- 2/29/2012
Arkansas	3	2/1/2014	- 1/31/2015	2/1/2013	- 1/31/2014	2/1/2012	- 1/31/2013
Colorado	5	3/1/2013	- 2/28/2014	3/1/2012	- 2/28/2013	3/1/2011	- 2/29/2012
Connecticut	6	8/1/2013	- 7/31/2014	8/1/2012	- 7/31/2013	8/1/2011	- 7/31/2012
D.C.	8	2/1/2013	- 1/31/2014	2/1/2012	- 1/31/2013	2/1/2011	- 1/31/2012
Florida	9	1/1/2013	- 12/31/2013	1/1/2012	- 12/31/2012	1/1/2011	- 12/31/2011
Georgia	10	7/1/2013	- 6/30/2014	7/1/2012	- 6/30/2013	7/1/2011	- 6/30/2012
Idaho	11	7/1/2013	- 6/30/2014	7/1/2012	- 6/30/2013	7/1/2011	- 6/30/2012
Illinois	12	4/1/2013	- 3/31/2014	4/1/2012	- 3/31/2013	4/1/2011	- 3/31/2012
Indiana	13	7/1/2013	- 6/30/2014	7/1/2012	- 6/30/2013	7/1/2011	- 6/30/2012
Iowa	14	3/1/2013	- 2/28/2014	3/1/2012	- 2/28/2013	3/1/2011	- 2/29/2012
Kansas	15	7/1/2013	- 6/30/2014	7/1/2012	- 6/30/2013	7/1/2011	- 6/30/2012
Kentucky	16	5/1/2013	- 4/30/2014	5/1/2012	- 4/30/2013	5/1/2011	- 4/30/2012
Louisiana	17	9/1/2013	- 8/31/2014	9/1/2012	- 8/31/2013	9/1/2011	- 8/31/2012
Maine	18	6/1/2013	- 5/31/2014	6/1/2012	- 5/31/2013	6/1/2011	- 5/31/2012
Maryland	19	4/1/2013	- 3/31/2014	4/1/2012	- 3/31/2013	4/1/2011	- 3/31/2012
Michigan	21	4/1/2014	- 3/31/2015	4/1/2013	- 3/31/2014	4/1/2012	- 3/31/2013
Minnesota	22	1/1/2014	- 12/31/2014	1/1/2013	- 12/31/2013	1/1/2012	- 12/31/2012
Mississippi	23	9/1/2013	- 8/31/2014	9/1/2012	- 8/31/2013	9/1/2011	- 8/31/2012
Missouri	24	7/1/2013	- 6/30/2014	7/1/2012	- 6/30/2013	7/1/2011	- 6/30/2012
Montana	25	1/1/2014	- 12/31/2014	1/1/2013	- 12/31/2013	1/1/2012	- 12/31/2012
Nebraska	26	8/1/2013	- 7/31/2014	8/1/2012	- 7/31/2013	8/1/2011	- 7/31/2012
Nevada	27	1/1/2013	- 12/31/2013	1/1/2012	- 12/31/2012	1/1/2011	- 12/31/2011
New Hampshire	28	4/1/2013	- 3/31/2014	4/1/2012	- 3/31/2013	4/1/2011	- 3/31/2012
New Mexico	30	7/1/2013	- 6/30/2014	7/1/2012	- 6/30/2013	7/1/2011	- 6/30/2012
North Carolina	32	1/1/2013	- 12/31/2013	1/1/2012	- 12/31/2012	1/1/2011	- 12/31/2011
Oklahoma	35	6/1/2013	- 5/31/2014	6/1/2012	- 5/31/2013	6/1/2011	- 5/31/2012
Oregon	36	1/1/2013	- 12/31/2013	1/1/2012	- 12/31/2012	1/1/2011	- 12/31/2011
Rhode Island	38	1/1/2013	- 12/31/2013	1/1/2012	- 12/31/2012	1/1/2011	- 12/31/2011
South Carolina	39	5/1/2013	- 4/30/2014	5/1/2012	- 4/30/2013	5/1/2011	- 4/30/2012
South Dakota	40	1/1/2014	- 12/31/2014	1/1/2013	- 12/31/2013	1/1/2012	- 12/31/2012
Tennessee	41	6/1/2013	- 5/31/2014	6/1/2012	- 5/31/2013	6/1/2011	- 5/31/2012
Utah	43	7/1/2013	- 6/30/2014	7/1/2012	- 6/30/2013	7/1/2011	- 6/30/2012
Vermont	44	7/1/2013	- 6/30/2014	7/1/2012	- 6/30/2013	7/1/2011	- 6/30/2012
Virginia	45	2/1/2013	- 1/31/2014	2/1/2012	- 1/31/2013	2/1/2011	- 1/31/2012
West Virginia	47	7/1/2013	- 6/30/2014	7/1/2012	- 6/30/2013	7/1/2011	- 6/30/2012
Wisconsin	48	1/1/2014	- 12/31/2014	1/1/2013	- 12/31/2013	1/1/2012	- 12/31/2012
Hawaii	52	6/1/2013	- 5/31/2014	6/1/2012	- 5/31/2013	6/1/2011	- 5/31/2012
Alaska	54	4/1/2013	- 3/31/2014	4/1/2012	- 3/31/2013	4/1/2011	- 3/31/2012

Calculation of Pure Premium Underlying Present Rate Factor

Industry Group (1)	Injury Type (2)	Uncapped Rate Level Factor (3)	Industry Group Pure Premium From Previous Revision (4)	Percent of Pure Premium =(4) / [Total of (4)] (5)	Expected Loss and LAE Ratio (6)	Benefit Level Change Factor (7)	Trend Factor (8)	Pure Premium Underlying Present Rate Factor = (3) x (5) x (6) x (7) x (8) (9)
Manufacturing	Indemnity	2.037	1.080	0.626	0.770	1.019	0.948	0.949
	Medical	2.037	0.644	0.374	0.770	1.000	0.942	0.552
	Total		1.724					
Construction	Indemnity	5.475	3.094	0.666	0.770	1.019	0.948	2.709
	Medical	5.475	1.555	0.334	0.770	1.000	0.942	1.329
	Total		4.649					
Office and Clerical	Indemnity	0.168	0.084	0.596	0.770	1.019	0.948	0.074
	Medical	0.168	0.057	0.404	0.770	1.000	0.942	0.049
	Total		0.141					
Goods and Services	Indemnity	1.832	0.951	0.613	0.770	1.019	0.948	0.835
	Medical	1.832	0.600	0.387	0.770	1.000	0.942	0.514
	Total		1.551					
Miscellaneous	Indemnity	5.139	2.823	0.644	0.770	1.019	0.948	2.459
	Medical	5.139	1.563	0.356	0.770	1.000	0.942	1.329
	Total		4.386					

Notes:

- (3): Section IX - H, Exhibit 1 of 07/01/16 stipulation.
- (4): Section IX - G of 07/01/16 stipulation.
- (6): Section VI - J, Exhibit 1 of 07/01/16 stipulation.
- (7): Section IV - A, Exhibit 1.
- (8): Net Indemnity and Medical Trends from Section V - A, Exhibit 1.

IX 000057 STIP

## IX 00058 STIP

Section IX - Classification Pricing  
 Subsection F - Underlying Pure Premiums  
 7/1/2018

Section IX - F  
 Exhibit 1

### Calculation of Pure Premiums Underlying Present Rate Manufacturing Industry Group, Industry Code 1

Class (1)	Adopted Relativities		Pure Premiums Underlying Present Rate		
	Indemnity (2)	Medical (3)	Indemnity (4)	Medical (5)	Total (6) = (4) + (5)
1430	3.036	1.975	2.881	1.090	3.972
1438	1.676	1.541	1.590	0.851	2.441
1463	4.792	4.104	4.548	2.265	6.813
1701	1.736	1.343	1.647	0.741	2.388
1747	1.548	1.307	1.469	0.721	2.191
1748	1.472	1.846	1.396	1.019	2.416
1853	0.933	0.577	0.885	0.318	1.204
1924	1.007	0.949	0.956	0.524	1.480
1925	1.610	7.052	1.528	3.892	5.420
2003	1.750	1.686	1.661	0.931	2.592
2014	1.795	1.697	1.703	0.937	2.640
2021	1.422	1.366	1.350	0.754	2.103
2039	1.645	1.499	1.561	0.827	2.389
2041	1.385	1.283	1.315	0.708	2.023
2070	2.120	1.944	2.012	1.073	3.085
2081	1.741	2.737	1.652	1.511	3.163
2089	1.551	1.443	1.472	0.796	2.269
2095	1.814	1.617	1.721	0.892	2.613
2101	1.551	1.443	1.472	0.796	2.269
2111	1.120	1.043	1.063	0.576	1.638
2114	1.551	1.443	1.472	0.796	2.269
2115	2.021	2.343	1.918	1.293	3.211
2121	0.681	0.786	0.646	0.434	1.080
2130	0.969	0.889	0.920	0.491	1.411
2131	1.185	1.168	1.125	0.645	1.770
2143	0.878	1.011	0.833	0.558	1.391
2150	2.514	2.604	2.386	1.437	3.823
2156	2.823	2.525	2.679	1.394	4.072
2157	2.140	1.834	2.031	1.012	3.043
2172	1.315	0.758	1.248	0.418	1.666
2211	3.586	3.427	3.403	1.892	5.295
2220	1.332	1.515	1.265	0.837	2.101
2260	3.731	3.043	3.541	1.680	5.220
2288	1.683	1.621	1.597	0.895	2.492
2305	1.860	1.684	1.766	0.929	2.695
2362	0.760	0.848	0.721	0.468	1.189
2380	1.191	1.255	1.131	0.693	1.823
2402	1.083	1.093	1.028	0.603	1.631
2413	1.723	1.874	1.635	1.035	2.669
2416	1.334	1.181	1.266	0.652	1.918
2417	2.013	1.445	1.910	0.797	2.708
2501	1.006	1.056	0.955	0.583	1.538
2503	0.552	0.557	0.523	0.308	0.831
2570	2.957	3.425	2.806	1.890	4.697
2576	0.963	0.902	0.914	0.498	1.411
2585	1.630	1.635	1.547	0.903	2.449
2586	0.841	0.812	0.798	0.448	1.246
2623	2.403	2.544	2.280	1.404	3.685
2651	0.859	0.779	0.815	0.430	1.245

## IX 000059 STIP

Section IX - Classification Pricing  
 Subsection F - Underlying Pure Premiums  
 7/1/2018

Section IX - F  
 Exhibit 1

### Calculation of Pure Premiums Underlying Present Rate Manufacturing Industry Group, Industry Code 1

Class (1)	Adopted Relativities		Pure Premiums Underlying Present Rate		
	Indemnity (2)	Medical (3)	Indemnity (4)	Medical (5)	Total (6) = (4) + (5)
2660	0.791	1.018	0.751	0.562	1.312
2683	0.838	0.827	0.795	0.457	1.252
2688	1.202	1.214	1.141	0.670	1.811
2710	3.191	3.959	3.028	2.186	5.214
2731	1.690	1.723	1.604	0.951	2.555
2747	2.775	2.809	2.634	1.551	4.184
2790	0.871	0.849	0.827	0.469	1.295
2802	2.230	2.236	2.116	1.234	3.351
2835	0.957	0.948	0.908	0.523	1.431
2836	1.040	0.993	0.987	0.548	1.535
2841	2.067	1.546	1.961	0.853	2.814
2883	1.583	1.518	1.502	0.838	2.340
2923	0.767	0.791	0.728	0.437	1.164
2942	0.850	0.949	0.807	0.524	1.331
3018	1.861	1.484	1.767	0.819	2.586
3022	1.785	1.688	1.694	0.932	2.626
3027	2.060	2.874	1.955	1.587	3.541
3028	1.370	1.375	1.300	0.759	2.059
3030	3.040	3.058	2.885	1.688	4.573
3040	2.955	2.548	2.805	1.406	4.211
3041	2.300	2.548	2.183	1.407	3.590
3042	3.470	2.440	3.293	1.347	4.640
3066	1.378	1.531	1.308	0.845	2.153
3076	1.112	1.243	1.056	0.686	1.742
3081	2.391	2.472	2.269	1.364	3.634
3082	2.391	2.472	2.269	1.364	3.634
3085	2.329	2.036	2.210	1.124	3.334
3110	3.859	4.623	3.662	2.552	6.214
3111	1.023	1.175	0.971	0.648	1.619
3113	0.658	0.693	0.624	0.383	1.007
3114	1.134	1.292	1.076	0.713	1.789
3118	0.902	0.666	0.856	0.368	1.224
3119	0.377	0.469	0.358	0.259	0.617
3120	0.864	0.540	0.820	0.298	1.118
3122	0.795	0.967	0.755	0.534	1.288
3127	0.475	0.640	0.451	0.353	0.804
3131	0.709	0.805	0.672	0.444	1.117
3132	1.608	1.858	1.526	1.026	2.552
3145	0.775	0.814	0.736	0.449	1.185
3146	0.886	0.894	0.841	0.493	1.335
3169	1.372	1.514	1.302	0.836	2.138
3179	0.612	0.507	0.581	0.280	0.861
3180	1.319	1.360	1.252	0.751	2.003
3188	0.817	0.781	0.775	0.431	1.206
3200	1.147	1.184	1.089	0.653	1.742
3220	1.946	1.325	1.847	0.731	2.578
3255	1.310	1.193	1.243	0.659	1.902
3257	1.382	1.172	1.312	0.647	1.959
3270	1.006	1.075	0.955	0.594	1.548

## IX 000060 STIP

Section IX - Classification Pricing  
 Subsection F - Underlying Pure Premiums  
 7/1/2018

Section IX - F  
 Exhibit 1

### Calculation of Pure Premiums Underlying Present Rate Manufacturing Industry Group, Industry Code 1

Class (1)	Adopted Relativities		Pure Premiums Underlying Present Rate		
	Indemnity (2)	Medical (3)	Indemnity (4)	Medical (5)	Total (6) = (4) + (5)
3300	1.898	2.105	1.801	1.162	2.963
3315	1.828	1.788	1.735	0.987	2.722
3336	2.311	1.614	2.194	0.891	3.085
3372	1.102	1.375	1.046	0.759	1.805
3373	1.877	1.640	1.781	0.905	2.686
3381	1.299	1.270	1.233	0.701	1.933
3383	0.740	0.673	0.702	0.371	1.073
3385	0.399	0.360	0.379	0.199	0.578
3400	1.372	1.514	1.302	0.836	2.138
3507	1.443	1.321	1.369	0.729	2.099
3515	1.250	1.400	1.186	0.773	1.959
3558	0.379	0.647	0.359	0.357	0.716
3571	0.471	0.437	0.447	0.241	0.688
3574	0.858	0.788	0.814	0.435	1.249
3612	0.929	1.000	0.882	0.552	1.434
3620	2.186	3.576	2.075	1.974	4.049
3629	0.858	0.788	0.814	0.435	1.249
3632	0.858	0.788	0.814	0.435	1.249
3634	0.842	0.767	0.799	0.424	1.222
3635	1.305	1.593	1.238	0.879	2.117
3638	0.858	0.788	0.814	0.435	1.249
3642	0.589	0.459	0.559	0.254	0.812
3643	0.851	0.719	0.808	0.397	1.205
3647	0.943	0.913	0.895	0.504	1.399
3648	0.631	0.738	0.599	0.407	1.007
3681	0.405	0.423	0.384	0.234	0.618
3685	0.331	0.307	0.314	0.169	0.483
3807	1.372	1.514	1.302	0.836	2.138
3808	1.514	1.406	1.437	0.776	2.213
3826	2.355	2.752	2.235	1.519	3.755
3830	0.858	0.788	0.814	0.435	1.249
3841	0.626	0.725	0.594	0.400	0.995
4021	1.858	2.107	1.764	1.163	2.927
4024	1.537	1.367	1.459	0.755	2.213
4034	3.132	3.522	2.972	1.944	4.916
4036	1.267	0.909	1.203	0.501	1.704
4038	1.685	1.484	1.599	0.819	2.418
4053	0.875	0.943	0.830	0.521	1.351
4062	0.902	0.951	0.856	0.525	1.381
4112	0.336	0.300	0.319	0.166	0.484
4113	0.875	0.943	0.830	0.521	1.351
4114	1.123	0.951	1.066	0.525	1.591
4130	1.690	1.659	1.604	0.916	2.520
4133	0.897	0.800	0.851	0.442	1.293
4150	0.345	0.308	0.327	0.170	0.498
4239	1.267	1.261	1.202	0.696	1.898
4243	1.874	1.670	1.778	0.922	2.700
4244	1.239	1.312	1.176	0.724	1.900
4250	1.038	1.251	0.985	0.691	1.676

## IX 000061 STIP

Section IX - Classification Pricing  
 Subsection F - Underlying Pure Premiums  
 7/1/2018

Section IX - F  
 Exhibit 1

### Calculation of Pure Premiums Underlying Present Rate Manufacturing Industry Group, Industry Code 1

Class (1)	Adopted Relativities		Pure Premiums Underlying Present Rate		
	Indemnity (2)	Medical (3)	Indemnity (4)	Medical (5)	Total (6) = (4) + (5)
4251	1.258	0.946	1.194	0.522	1.716
4273	1.034	1.042	0.981	0.575	1.556
4279	1.007	1.058	0.956	0.584	1.539
4283	1.015	0.921	0.963	0.509	1.472
4299	0.937	0.950	0.889	0.524	1.413
4304	2.158	2.997	2.048	1.654	3.702
4307	0.844	0.898	0.801	0.496	1.297
4308	1.647	0.399	1.563	0.220	1.784
4351	0.436	0.373	0.413	0.206	0.619
4352	1.006	0.672	0.954	0.371	1.326
4360	0.421	0.396	0.399	0.218	0.618
4410	1.476	1.212	1.401	0.669	2.070
4432	0.518	0.528	0.492	0.292	0.783
4439	1.734	1.803	1.646	0.995	2.641
4452	1.759	1.589	1.669	0.877	2.546
4459	1.351	1.426	1.282	0.787	2.070
4470	0.990	0.860	0.940	0.475	1.415
4484	1.076	1.022	1.021	0.564	1.585
4493	1.251	1.299	1.187	0.717	1.904
4557	0.997	0.941	0.946	0.519	1.465
4558	0.665	0.705	0.632	0.389	1.021
4583	1.985	1.485	1.884	0.820	2.704
4611	0.368	0.321	0.349	0.177	0.526
4635	2.316	2.533	2.198	1.398	3.597
4653	1.059	0.938	1.005	0.518	1.523
4665	3.224	3.130	3.060	1.728	4.787
4692	0.350	0.245	0.332	0.135	0.468
4693	0.472	0.454	0.448	0.250	0.698
4720	0.898	0.999	0.852	0.552	1.404
4740	0.601	0.541	0.571	0.299	0.869
4741	1.193	0.834	1.132	0.461	1.593
4771	4.904	1.285	4.654	0.710	5.363
4777	1.985	1.485	1.884	0.820	2.704
4825	0.335	0.355	0.317	0.196	0.513
4828	0.520	0.430	0.493	0.237	0.731
4829	0.520	0.430	0.493	0.237	0.731
4902	0.850	0.949	0.807	0.524	1.331
4923	0.421	0.396	0.399	0.218	0.618
6504	1.551	1.443	1.472	0.796	2.269
9501	1.142	1.287	1.083	0.710	1.794
9505	1.142	1.287	1.083	0.710	1.794
9521	1.818	1.550	1.725	0.856	2.581
9522	0.954	0.846	0.905	0.467	1.372

**Notes:**

(2), (3): Section IX - I, Exhibit 1 of 07/01/2016 stipulation.

(4) = (2) x Pure Premium Underlying Present Rate Factors from Section IX - E, Exhibit 1

(5) = (3) x Pure Premium Underlying Present Rate Factors from Section IX - E, Exhibit 1

# IX 000062 STIP

Section IX - Classification Pricing  
Subsection F - Underlying Pure Premiums  
7/1/2018

Section IX - F  
Exhibit 1

## Calculation of Pure Premiums Underlying Present Rate Manufacturing Industry Group, Industry Code 1

Class (1)	Adopted Relativities		Pure Premiums Underlying Present Rate		
	Indemnity (2)	Medical (3)	Indemnity (4)	Medical (5)	Total (6) = (4) + (5)

(Indemnity = 0.949, Medical = 0.552).



## IX 000063 STIP

Section IX - Classification Pricing  
 Subsection F - Underlying Pure Premiums  
 7/1/2018

Section IX - F  
 Exhibit 2

### Calculation of Pure Premiums Underlying Present Rate Construction Industry Group, Industry Code 2

Class (1)	Adopted Relativities		Pure Premiums Underlying Present Rate		
	Indemnity (2)	Medical (3)	Indemnity (4)	Medical (5)	Total (6) = (4) + (5)
0050	1.283	1.024	3.476	1.361	4.838
3365	1.323	1.198	3.585	1.593	5.177
3724	0.914	0.917	2.475	1.218	3.693
3726	1.694	1.127	4.589	1.497	6.086
5020	0.983	0.716	2.663	0.951	3.614
5022	1.831	1.675	4.961	2.226	7.187
5037	4.518	3.443	12.239	4.575	16.814
5040	6.672	4.948	18.074	6.576	24.650
5057	4.894	4.560	13.258	6.060	19.317
5059	2.168	2.081	5.874	2.766	8.640
5102	1.209	0.953	3.275	1.267	4.542
5146	1.332	1.420	3.608	1.887	5.495
5160	0.627	0.463	1.699	0.616	2.315
5183	0.658	0.582	1.784	0.773	2.557
5188	1.010	0.850	2.736	1.130	3.867
5190	0.470	0.497	1.272	0.660	1.933
5213	2.919	2.669	7.907	3.547	11.455
5215	1.043	1.022	2.825	1.359	4.184
5221	1.250	1.224	3.387	1.627	5.014
5222	2.116	1.927	5.732	2.561	8.294
5223	0.784	0.798	2.123	1.061	3.183
5348	1.022	0.749	2.769	0.996	3.765
5402	1.363	1.656	3.692	2.201	5.893
5403	2.129	1.795	5.768	2.386	8.153
5437	0.999	1.040	2.706	1.382	4.088
5443	0.724	0.746	1.961	0.991	2.952
5445	1.388	1.022	3.759	1.358	5.118
5462	1.530	1.178	4.144	1.566	5.709
5472	1.818	1.466	4.925	1.948	6.873
5473	1.828	1.985	4.951	2.638	7.589
5474	1.009	1.095	2.732	1.456	4.188
5478	1.184	0.914	3.208	1.214	4.423
5479	1.507	1.881	4.084	2.500	6.584
5480	0.906	0.743	2.454	0.988	3.442
5506	1.260	1.251	3.412	1.663	5.075
5507	1.327	1.553	3.594	2.064	5.658
5508	1.283	1.024	3.476	1.361	4.838
5509	0.666	0.713	1.803	0.947	2.751
5538	0.781	0.767	2.115	1.019	3.135
5545	6.412	7.659	17.371	10.178	27.549
5547	2.265	2.893	6.135	3.845	9.980
5606	0.334	0.362	0.904	0.481	1.385
5610	1.507	1.163	4.083	1.546	5.629
5645	1.384	1.694	3.749	2.252	6.001
5701	3.913	6.138	10.600	8.158	18.758
5703	2.843	2.213	7.702	2.941	10.643
5705	2.529	2.364	6.850	3.141	9.991
6003	2.085	1.588	5.649	2.110	7.759
6005	1.283	1.024	3.476	1.361	4.838

## IX 000064 STIP

Section IX - Classification Pricing  
Subsection F - Underlying Pure Premiums  
7/1/2018

Section IX - F  
Exhibit 2

### Calculation of Pure Premiums Underlying Present Rate Construction Industry Group, Industry Code 2

Class (1)	Adopted Relativities		Pure Premiums Underlying Present Rate		
	Indemnity (2)	Medical (3)	Indemnity (4)	Medical (5)	Total (6) = (4) + (5)
6204	1.368	1.101	3.707	1.463	5.170
6217	0.815	0.863	2.208	1.147	3.355
6229	0.841	0.829	2.278	1.101	3.379
6233	0.876	0.574	2.373	0.763	3.136
6251	1.410	0.676	3.820	0.898	4.718
6252	1.904	1.876	5.157	2.493	7.650
6306	1.933	1.710	5.237	2.273	7.510
6319	0.774	0.917	2.095	1.219	3.314
6325	0.870	0.893	2.358	1.187	3.545
6400	1.096	1.108	2.968	1.473	4.441
7538	1.173	0.957	3.176	1.272	4.448
7601	0.946	1.068	2.562	1.420	3.982
7855	1.016	0.818	2.752	1.087	3.839
8227	0.884	1.091	2.394	1.450	3.844
9533	3.143	2.610	8.514	3.469	11.983
9534	1.338	1.525	3.624	2.026	5.650
9549	0.925	0.866	2.507	1.151	3.658
9552	1.375	1.239	3.725	1.647	5.372

Notes:

(2), (3): Section IX - I, Exhibit 1 of 07/01/2016 stipulation.

(4) = (2) x Pure Premium Underlying Present Rate Factors from Section IX - E, Exhibit 1

(5) = (3) x Pure Premium Underlying Present Rate Factors from Section IX - E, Exhibit 1  
(Indemnity = 2.709, Medical = 1.329).

# IX 000065 STIP

Section IX - Classification Pricing  
Subsection F - Underlying Pure Premiums  
7/1/2018

Section IX - F  
Exhibit 3

## Calculation of Pure Premiums Underlying Present Rate Office and Clerical Industry Group, Industry Code 3

Class (1)	Adopted Relativities		Pure Premiums Underlying Present Rate		
	Indemnity (2)	Medical (3)	Indemnity (4)	Medical (5)	Total (6) = (4) + (5)
4361	4.370	4.752	0.323	0.233	0.556
7610	3.118	2.182	0.231	0.107	0.338
8601	1.591	1.658	0.118	0.081	0.199
8721	2.028	4.562	0.150	0.224	0.374
8742	0.960	0.973	0.071	0.048	0.119
8748	3.951	3.752	0.292	0.184	0.476
8800	7.843	7.137	0.580	0.350	0.930
8803	0.221	0.241	0.016	0.012	0.028
8810	0.423	0.451	0.031	0.022	0.053
8820	0.562	0.507	0.042	0.025	0.066
8832	2.102	1.735	0.156	0.085	0.241
8833	8.329	7.032	0.616	0.345	0.961
8868	4.872	5.386	0.361	0.264	0.624
8901	0.423	0.451	0.031	0.022	0.053
9156	8.591	10.657	0.636	0.522	1.158

Notes:

(2), (3): Section IX - I, Exhibit 1 of 07/01/2016 stipulation.

(4) = (2) x Pure Premium Underlying Present Rate Factors from Section IX - E, Exhibit 1

(5) = (3) x Pure Premium Underlying Present Rate Factors from Section IX - E, Exhibit 1  
(Indemnity = 0.074, Medical = 0.049).

## IX 000066 STIP

Section IX - Classification Pricing  
 Subsection F - Underlying Pure Premiums  
 7/1/2018

Section IX - F  
 Exhibit 4

### Calculation of Pure Premiums Underlying Present Rate Goods and Services Industry Group, Industry Code 9

Class (1)	Adopted Relativities		Pure Premiums Underlying Present Rate		
	Indemnity (2)	Medical (3)	Indemnity (4)	Medical (5)	Total (6) = (4) + (5)
0005	1.429	1.336	1.193	0.687	1.880
0008	1.294	1.512	1.080	0.777	1.858
0016	2.437	2.521	2.034	1.296	3.330
0034	2.232	2.826	1.864	1.453	3.317
0035	1.195	1.485	0.998	0.763	1.761
0036	2.232	2.826	1.864	1.453	3.317
0042	2.293	2.407	1.914	1.237	3.152
0046	1.012	1.154	0.845	0.593	1.438
0079	1.851	2.848	1.546	1.464	3.010
0083	2.051	2.564	1.712	1.318	3.030
0113	2.232	2.826	1.864	1.453	3.317
0170	2.232	2.826	1.864	1.453	3.317
0908	108.723	80.679	90.783	41.469	132.252
0909	136.190	252.407	113.718	129.737	243.456
0912	136.190	252.407	113.718	129.737	243.456
0913	108.723	80.679	90.783	41.469	132.252
0917	1.784	2.252	1.490	1.158	2.647
0918	0.383	0.246	0.320	0.127	0.447
2587	2.243	2.721	1.873	1.399	3.272
3821	2.355	2.205	1.967	1.133	3.100
4362	0.352	0.334	0.294	0.172	0.466
4511	0.158	0.161	0.132	0.083	0.215
4512	0.062	0.076	0.052	0.039	0.091
5191	0.525	0.520	0.438	0.267	0.706
5192	1.758	1.614	1.468	0.830	2.298
8001	0.954	1.224	0.797	0.629	1.426
8002	0.815	0.969	0.680	0.498	1.178
8006	0.786	0.866	0.656	0.445	1.101
8008	0.468	0.447	0.391	0.230	0.620
8010	0.796	0.836	0.665	0.430	1.094
8013	0.225	0.252	0.188	0.130	0.317
8017	0.583	0.651	0.487	0.335	0.822
8018	1.805	1.587	1.507	0.816	2.323
8021	1.698	1.677	1.418	0.862	2.280
8031	1.283	1.077	1.072	0.554	1.625
8032	0.912	0.835	0.762	0.429	1.191
8033	1.019	1.230	0.851	0.632	1.483
8034	1.942	1.632	1.622	0.839	2.461
8039	0.613	0.772	0.512	0.397	0.909
8044	1.985	2.702	1.657	1.389	3.046
8046	1.090	1.262	0.911	0.649	1.559
8048	1.666	1.350	1.391	0.694	2.085
8058	1.240	1.636	1.036	0.841	1.877
8103	1.608	1.421	1.342	0.731	2.073
8105	4.312	3.459	3.600	1.778	5.378
8106	3.520	3.685	2.939	1.894	4.833

## IX 000067 STIP

Section IX - Classification Pricing  
 Subsection F - Underlying Pure Premiums  
 7/1/2018

Section IX - F  
 Exhibit 4

### Calculation of Pure Premiums Underlying Present Rate Goods and Services Industry Group, Industry Code 9

Class (1)	Adopted Relativities		Pure Premiums Underlying Present Rate		
	Indemnity (2)	Medical (3)	Indemnity (4)	Medical (5)	Total (6) = (4) + (5)
8107	1.491	1.495	1.245	0.768	2.013
8111	1.542	1.458	1.288	0.749	2.037
8203	3.537	3.813	2.954	1.960	4.913
8204	2.145	1.963	1.791	1.009	2.800
8215	2.330	2.573	1.946	1.323	3.268
8232	3.701	3.866	3.091	1.987	5.078
8233	3.439	3.607	2.872	1.854	4.726
8235	2.471	2.466	2.063	1.268	3.331
8263	2.347	2.769	1.960	1.423	3.383
8264	3.449	3.021	2.880	1.553	4.433
8265	3.439	3.607	2.872	1.854	4.726
8279	2.833	3.672	2.365	1.887	4.253
8291	2.407	2.313	2.010	1.189	3.199
8292	1.628	1.369	1.359	0.704	2.063
8293	5.300	5.539	4.426	2.847	7.273
8350	3.336	3.125	2.786	1.606	4.392
8380	1.785	1.713	1.491	0.881	2.371
8381	0.985	1.303	0.822	0.670	1.492
8385	1.569	1.440	1.310	0.740	2.051
8392	0.914	0.878	0.763	0.451	1.214
8393	1.340	1.107	1.119	0.569	1.688
8500	3.439	3.607	2.872	1.854	4.726
8710	3.528	2.978	2.946	1.530	4.477
8719	3.528	2.978	2.946	1.530	4.477
8720	0.544	0.462	0.455	0.237	0.692
8745	3.291	4.066	2.748	2.090	4.838
8747	0.567	0.503	0.474	0.259	0.732
8829	1.245	1.081	1.040	0.556	1.596
8831	0.426	0.755	0.356	0.388	0.744
8835	1.261	1.000	1.053	0.514	1.567
9014	1.746	1.487	1.458	0.765	2.222
9015	1.944	1.607	1.623	0.826	2.449
9016	0.982	1.725	0.820	0.887	1.707
9033	2.103	1.783	1.756	0.916	2.672
9040	1.749	1.719	1.461	0.884	2.344
9052	1.030	1.022	0.860	0.525	1.386
9058	0.845	0.873	0.706	0.449	1.154
9060	0.496	0.635	0.414	0.326	0.741
9061	0.509	0.571	0.425	0.294	0.719
9063	0.401	0.533	0.335	0.274	0.609
9079	0.567	0.713	0.473	0.366	0.840
9089	0.566	0.685	0.473	0.352	0.824
9093	0.563	0.912	0.470	0.469	0.938
9101	1.527	1.862	1.275	0.957	2.232
9220	1.857	1.736	1.551	0.892	2.443
9410	1.350	1.929	1.127	0.992	2.118

## IX 000068 STIP

Section IX - Classification Pricing  
Subsection F - Underlying Pure Premiums  
7/1/2018

Section IX - F  
Exhibit 4

### Calculation of Pure Premiums Underlying Present Rate Goods and Services Industry Group, Industry Code 9

Class (1)	Adopted Relativities		Pure Premiums Underlying Present Rate		
	Indemnity (2)	Medical (3)	Indemnity (4)	Medical (5)	Total (6) = (4) + (5)
9519	2.184	2.157	1.824	1.109	2.932
9586	0.221	0.190	0.184	0.097	0.282
9620	0.404	0.434	0.337	0.223	0.560

Notes:

(2), (3): Section IX - I, Exhibit 1 of 07/01/2016 stipulation.

(4) = (2) x Pure Premium Underlying Present Rate Factors from Section IX - E, Exhibit 1

(5) = (3) x Pure Premium Underlying Present Rate Factors from Section IX - E, Exhibit 1  
(Indemnity = 0.835, Medical = 0.514).

## IX 000069 STIP

Section IX - Classification Pricing  
 Subsection F - Underlying Pure Premiums  
 7/1/2018

Section IX - F  
 Exhibit 5

### Calculation of Pure Premiums Underlying Present Rate Miscellaneous Industry Group, Industry Code 0

Class (1)	Adopted Relativities		Pure Premiums Underlying Present Rate		
	Indemnity (2)	Medical (3)	Indemnity (4)	Medical (5)	Total (6) = (4) + (5)
0106	2.137	3.560	5.255	4.731	9.986
1624	0.905	1.004	2.224	1.335	3.559
1655	0.792	0.852	1.947	1.132	3.079
1710	0.905	1.004	2.224	1.335	3.559
2702	3.177	3.107	7.813	4.129	11.942
4000	0.905	0.809	2.225	1.076	3.301
6834	0.487	0.533	1.197	0.708	1.905
6836	0.782	0.946	1.922	1.257	3.179
7219	2.085	1.793	5.127	2.382	7.509
7230	2.084	1.992	5.124	2.647	7.770
7231	2.104	1.830	5.174	2.432	7.606
7360	1.105	1.184	2.716	1.574	4.290
7370	0.751	0.870	1.848	1.157	3.004
7380	1.256	1.189	3.089	1.580	4.670
7382	0.701	0.849	1.723	1.129	2.852
7403	0.934	1.302	2.297	1.731	4.028
7405	0.299	0.316	0.735	0.420	1.155
7420	2.083	0.880	5.123	1.170	6.292
7421	0.378	0.248	0.930	0.330	1.261
7422	0.378	0.248	0.930	0.330	1.261
7425	0.669	0.306	1.645	0.407	2.052
7431	0.378	0.248	0.930	0.330	1.261
7502	0.443	0.435	1.090	0.578	1.668
7515	0.334	0.633	0.822	0.841	1.663
7520	0.652	0.618	1.604	0.821	2.425
7539	0.274	0.234	0.674	0.311	0.985
7580	0.627	0.779	1.542	1.036	2.577
7590	0.766	0.708	1.885	0.942	2.826
7600	0.869	0.689	2.137	0.915	3.053
7704	0.854	1.070	2.101	1.422	3.523
7720	0.344	0.353	0.847	0.469	1.316
9019	0.583	0.357	1.433	0.474	1.906
9102	0.496	0.617	1.220	0.819	2.039
9154	0.375	0.492	0.921	0.654	1.576
9178	1.565	4.750	3.849	6.312	10.162
9179	5.518	5.440	13.568	7.230	20.798
9180	0.648	1.164	1.593	1.547	3.140
9182	0.526	1.005	1.293	1.336	2.629
9186	0.648	1.164	1.593	1.547	3.140
9402	0.996	0.930	2.450	1.236	3.687
9403	2.074	1.831	5.099	2.434	7.533

**Notes:**

(2), (3): Section IX - I, Exhibit 1 of 07/01/2016 stipulation.

(4) = (2) x Pure Premium Underlying Present Rate Factors from Section IX - E, Exhibit 1

(5) = (3) x Pure Premium Underlying Present Rate Factors from Section IX - E, Exhibit 1

(Indemnity = 2.459, Medical = 1.329).

# IX 00070 STIP

Section IX - Classification Pricing  
 Subsection G - Class Relativities  
 7/1/2018

Section IX - G

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0016	FARM: ORCHARDS & DRIVERS		0016	Section IX - G, Exhibit 2
0034	FARM: POULTRY OR EGG PRODUCERS & DRIVERS		0034	Section IX - G, Exhibit 2
0035	FARM: FLORIST & DRIVERS		0035	Section IX - G, Exhibit 3
0036	FARM: DAIRY & DRIVERS		0034	Section IX - G, Exhibit 2
0042	LANDSCAPE GARDENING & DRIVERS		0042	Section IX - G, Exhibit 3
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0079	FARM: BERRY OR VINEYARD & DRIVERS		0079	Section IX - G, Exhibit 5
0083	FARM: CATTLE OR LIVESTOCK RAISING NOC & DRIVERS		0083	Section IX - G, Exhibit 5
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8032	STORE: CLOTHING, WEARING APPAREL OR DRY GOODS - WHOLESALE	8032	Section IX - G, Exhibit 146
8033	STORE: MEAT, GROCERY & PROVISION COMBINED RETAIL-NOC	8033	Section IX - G, Exhibit 147
8034	STORE: GROCERY STORES - WHOLESALE	8034	Section IX - G, Exhibit 147
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8046	STORE: AUTOMOBILE ACCESSORIES-RETAIL-NOC & DR	8046	Section IX - G, Exhibit 149
8048	STORE: FRUIT OR VEGETABLE -WHOLESALE	8048	Section IX - G, Exhibit 149
8058	BUILDING MATERIAL DEALER-NEW MATERIALS ONLY-STORE EMP	8058	Section IX - G, Exhibit 150
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8107	MACHINERY DEALER- NOC- STORE OR YARD & DRIVERS	8107	Section IX - G, Exhibit 152
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8263	JUNK DEALERS & DRIVERS	8263	Section IX - G, Exhibit 156
8264	BOTTLE DEALER-USED & DRIVERS	8264	Section IX - G, Exhibit 157
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8820	ATTORNEY-ALL EMP & CLERICAL, MESSENGERS, DR	8820	Section IX - G, Exhibit 168
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9016	AMUSEMENT PARK OR EXHIBITION OPERATION & DR	9016	Section IX - G, Exhibit 172
9019	BRIDGE OR VEHICULAR TUNNEL OPERATION & DRIVERS	9019	Section IX - G, Exhibit 173
9033	HOUSING AUTHORITY & CLERICAL, SALES, DRIVERS	9033	Section IX - G, Exhibit 173
9040	HOSPITAL: ALL OTHER EMPLOYEES	9040	Section IX - G, Exhibit 174
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9060	CLUB-COUNTRY, GOLF, FISHING OR YACHT & CLERICAL	9060	Section IX - G, Exhibit 175
9061	CLUB NOC & CLERICAL	9061	Section IX - G, Exhibit 176
9063	YMCA, YWCA, YMHA OR YWHA, INSTITUTION-ALL EMPLOYEES & CLERICAL	9063	Section IX - G, Exhibit 176
9079	RESTAURANT NOC	9079	Section IX - G, Exhibit 177
9089	BILLIARD HALL	9089	Section IX - G, Exhibit 177
9093	BOWLING LANE	9093	Section IX - G, Exhibit 178
9101	COLLEGE: ALL OTHER EMPLOYEES	9101	Section IX - G, Exhibit 178
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9180	AMUSEMENT DEVICE OPERATION NOC-NOT TRAV & DR	9180	Section IX - G, Exhibit 181
9182	ATHLETIC TEAM OR PARK: OPERATIONS & DRIVERS	9182	Section IX - G, Exhibit 182
9186	CARNIVAL, CIRCUS OR AMUSEMENT DEVICE OP-TRAV-ALL EMP & DR	9180	Section IX - G, Exhibit 181
9220	CEMETERY OPERATION & DRIVERS	9220	Section IX - G, Exhibit 182
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Section IX - Classification Pricing  
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9521	HOUSE FURNISHINGS INSTALLATION-NOC	9521	Section IX - G, Exhibit 185
9522	UPHOLSTERING	9522	Section IX - G, Exhibit 186
9533	SCAFFOLDING: SCAFFOLD INST, RPR OR REMOVAL- BUILT UP FROM GROUN	9533	Section IX - G, Exhibit 186
9534	MOBILE CRANE & HOIST SERV CONTR-NOC-ALL OP -INCL YRD EMP &DR	9534	Section IX - G, Exhibit 187
9549	ADVERTISING CO & DRIVERS	9549	Section IX - G, Exhibit 187
9552	SIGN MFG-ERECTION, REPAIR OR MAINT & SHOP, DR	9552	Section IX - G, Exhibit 188
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Section IX - Classification Pricing  
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 Exhibit 1

## Calculation of Class Relativities

Class(es):		Effective: 7/1/2018							Goods and Services		
0005 FARM: NURSERY EMP & DRIVERS											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period (1)	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2011	114,881	0	34	0	27,403	0	35,520	62,923	0.239	0.309	0.548
2012	108,045	1	24	71,959	5,335	12,642	10,830	100,765	0.715	0.217	0.933
2013	112,524	0	23	0	5,903	0	24,441	30,344	0.052	0.217	0.270
2014	111,959	1	18	15,998	9,172	23,201	17,647	66,019	0.225	0.365	0.590
2015	117,938	0	17	0	123,247	0	95,367	218,615	1.045	0.809	1.854
<b>MA Total:</b>	<b>565,347</b>	<b>2</b>	<b>116</b>	<b>87,958</b>	<b>171,060</b>	<b>35,843</b>	<b>183,805</b>	<b>478,666</b>	<b>0.458</b>	<b>0.389</b>	<b>0.847</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.547	0.815	.
(14) Massachusetts Credibility:	0.230	0.330	.
(15) Countrywide Pure Premium:	1.460	0.814	2.274
(16) Countrywide Indicated Relativity:	1.748	1.700	.
(17) Countrywide Credibility:	0.390	0.340	.
(18) Countrywide Lost-Time Claims:	1695.0	.	.
(19) Pure Premium Underlying Present Rate:	1.193	0.687	1.880
(20) Relativity to Underlying Present Rate:	1.439	1.347	.
(21) Credibility to Underlying Relativity:	0.380	0.330	.
(22) Industry Group Converted Pure Premium:	0.837	0.476	1.314
(23) Formula Relativity:	1.354	1.292	.
(24) Balanced Formula Relativity:	1.345	1.291	1.326

Class(es):		Effective: 7/1/2018							Goods and Services		
0008 FARM: GARDENING-MARKET OR TRUCK & DRIVERS											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period (1)	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2011	274,639	2	54	23,175	68,252	5,801	180,688	277,917	0.333	0.679	1.012
2012	262,453	0	39	0	26,155	0	68,687	94,843	0.100	0.262	0.361
2013	295,175	0	38	0	136,594	0	309,827	446,420	0.463	1.050	1.512
2014	323,952	0	47	0	152,756	0	242,240	394,996	0.472	0.748	1.219
2015	360,495	1	48	8,227	461,120	5,429	171,479	646,255	1.302	0.491	1.793
<b>MA Total:</b>	<b>1,516,714</b>	<b>3</b>	<b>226</b>	<b>31,402</b>	<b>844,877</b>	<b>11,231</b>	<b>972,921</b>	<b>1,860,431</b>	<b>0.578</b>	<b>0.649</b>	<b>1.227</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.690	1.362	.
(14) Massachusetts Credibility:	0.330	0.520	.
(15) Countrywide Pure Premium:	1.634	0.947	2.581
(16) Countrywide Indicated Relativity:	1.956	1.979	.
(17) Countrywide Credibility:	0.340	0.240	.
(18) Countrywide Lost-Time Claims:	4761.0	.	.
(19) Pure Premium Underlying Present Rate:	1.080	0.777	1.858
(20) Relativity to Underlying Present Rate:	1.303	1.525	.
(21) Credibility to Underlying Relativity:	0.330	0.240	.
(22) Industry Group Converted Pure Premium:	0.837	0.476	1.314
(23) Formula Relativity:	1.323	1.549	.
(24) Balanced Formula Relativity:	1.314	1.549	1.399

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Section IX - Classification Pricing  
Subsection G - Class Relativities  
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Section IX - G  
Exhibit 2

## Calculation of Class Relativities

Class(es):		Effective: 7/1/2018							Goods and Services		
0016 FARM: ORCHARDS & DRIVERS											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period (1)	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2011	64,358	0	7	0	0	0	4,935	4,935	0.000	0.077	0.077
2012	70,870	0	7	0	67,791	0	36,849	104,640	0.957	0.520	1.477
2013	78,206	0	11	0	191,818	0	66,589	258,407	2.453	0.851	3.304
2014	76,680	0	7	0	1,091	0	6,783	7,875	0.014	0.088	0.103
2015	77,633	0	12	0	25,585	0	37,937	63,522	0.330	0.489	0.818
<b>MA Total:</b>	<b>367,746</b>	<b>0</b>	<b>44</b>	<b>0</b>	<b>286,286</b>	<b>0</b>	<b>153,094</b>	<b>439,380</b>	<b>0.778</b>	<b>0.416</b>	<b>1.195</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.930	0.874	.
(14) Massachusetts Credibility:	0.240	0.360	.
(15) Countrywide Pure Premium:	2,709	1,640	4,350
(16) Countrywide Indicated Relativity:	3,244	3,427	.
(17) Countrywide Credibility:	0.380	0.320	.
(18) Countrywide Lost-Time Claims:	1443.0	.	.
(19) Pure Premium Underlying Present Rate:	2,034	1,296	3,330
(20) Relativity to Underlying Present Rate:	2,454	2,543	.
(21) Credibility to Underlying Relativity:	0.380	0.320	.
(22) Industry Group Converted Pure Premium:	0.837	0.476	1,314
(23) Formula Relativity:	2.388	2.225	.
(24) Balanced Formula Relativity:	2.372	2.224	2,319

Class(es):		Effective: 7/1/2018							Goods and Services		
0034 FARM: POULTRY OR EGG PRODUCERS & DRIVERS											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period (1)	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2011	99,357	0	28	0	195,139	0	249,917	445,056	1,964	2,515	4,479
2012	96,161	2	30	335,604	53,078	49,656	102,277	540,615	4,042	1,580	5,622
2013	91,677	0	23	0	51,408	0	89,419	140,827	0,561	0,975	1,536
2014	96,359	0	20	0	8,860	0	35,091	43,952	0,092	0,364	0,456
2015	104,310	1	22	32,319	91,378	34,017	130,955	288,669	1,186	1,582	2,767
<b>MA Total:</b>	<b>487,865</b>	<b>3</b>	<b>123</b>	<b>367,923</b>	<b>399,863</b>	<b>83,673</b>	<b>607,660</b>	<b>1,459,119</b>	<b>1,574</b>	<b>1,417</b>	<b>2,991</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	1.879	2.974	.
(14) Massachusetts Credibility:	0.260	0.430	.
(15) Countrywide Pure Premium:	1,703	0,958	2,660
(16) Countrywide Indicated Relativity:	2,039	2,001	.
(17) Countrywide Credibility:	0.370	0.290	.
(18) Countrywide Lost-Time Claims:	3438.0	.	.
(19) Pure Premium Underlying Present Rate:	1,864	1,453	3,317
(20) Relativity to Underlying Present Rate:	2,248	2,850	.
(21) Credibility to Underlying Relativity:	0.370	0.280	.
(22) Industry Group Converted Pure Premium:	0.837	0.476	1,314
(23) Formula Relativity:	2.075	2.657	.
(24) Balanced Formula Relativity:	2.061	2.656	2,277



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 Subsection G - Class Relativities  
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Section IX - G  
 Exhibit 3

## Calculation of Class Relativities

Class(es):		Effective: 7/1/2018							Goods and Services		
0035 FARM: FLORIST & DRIVERS											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period (1)	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2011	335,988	1	53	2,726	118,139	2,269	173,760	296,895	0.360	0.524	0.884
2012	333,768	0	53	0	479,071	0	226,146	705,218	1.435	0.678	2.113
2013	344,794	2	71	129,680	556,303	87,929	289,027	1,062,940	1.990	1.093	3.083
2014	381,340	0	41	0	317,954	0	170,442	488,397	0.834	0.447	1.281
2015	377,169	1	61	8,979	267,162	7,986	170,828	454,956	0.732	0.474	1.206
<b>MA Total:</b>	<b>1,773,058</b>	<b>4</b>	<b>279</b>	<b>141,386</b>	<b>1,738,631</b>	<b>98,184</b>	<b>1,030,204</b>	<b>3,008,405</b>	<b>1.060</b>	<b>0.636</b>	<b>1.697</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	1.266	1.336	.
(14) Massachusetts Credibility:	0.340	0.550	.
(15) Countrywide Pure Premium:	0.913	0.636	1.549
(16) Countrywide Indicated Relativity:	1.093	1.329	.
(17) Countrywide Credibility:	0.330	0.230	.
(18) Countrywide Lost-Time Claims:	1396.0	.	.
(19) Pure Premium Underlying Present Rate:	0.998	0.763	1.761
(20) Relativity to Underlying Present Rate:	1.203	1.498	.
(21) Credibility to Underlying Relativity:	0.330	0.220	.
(22) Industry Group Converted Pure Premium:	0.837	0.476	1.314
(23) Formula Relativity:	1.188	1.370	.
(24) Balanced Formula Relativity:	1.180	1.369	1.249

Class(es):		Effective: 7/1/2018							Goods and Services		
0042 LANDSCAPE GARDENING & DRIVERS											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period (1)	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2011	4,026,390	27	824	2,560,839	4,781,372	1,746,069	3,374,399	12,462,679	1.824	1.272	3.095
2012	4,236,558	38	764	3,608,259	5,098,445	1,754,430	3,595,995	14,057,129	2.055	1.263	3.318
2013	4,628,357	30	761	3,495,559	5,493,133	1,841,352	3,654,536	14,484,579	1.942	1.187	3.130
2014	5,040,199	32	753	3,252,342	6,645,998	1,587,530	4,409,837	15,895,706	1.964	1.190	3.154
2015	5,606,442	25	697	3,073,007	6,277,220	1,298,745	4,368,157	15,017,129	1.668	1.011	2.679
<b>MA Total:</b>	<b>23,537,946</b>	<b>152</b>	<b>3,799</b>	<b>15,990,005</b>	<b>28,296,169</b>	<b>8,228,125</b>	<b>19,402,925</b>	<b>71,917,223</b>	<b>1.881</b>	<b>1.174</b>	<b>3.055</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	2.247	2.464	.
(14) Massachusetts Credibility:	1.000	1.000	.
(15) Countrywide Pure Premium:	2.394	1.361	3.755
(16) Countrywide Indicated Relativity:	2.867	2.843	.
(17) Countrywide Credibility:	0.000	0.000	.
(18) Countrywide Lost-Time Claims:	7538.0	.	.
(19) Pure Premium Underlying Present Rate:	1.914	1.237	3.152
(20) Relativity to Underlying Present Rate:	2.309	2.427	.
(21) Credibility to Underlying Relativity:	0.000	0.000	.
(22) Industry Group Converted Pure Premium:	0.837	0.476	1.314
(23) Formula Relativity:	2.247	2.464	.
(24) Balanced Formula Relativity:	2.232	2.463	2.316

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## Calculation of Class Relativities

Class(es):		Effective: 7/1/2018							Goods and Services			
0046 FERTILIZER OR PESTICIDE APPLICATION-COMM OR DOMESTIC, DRIVERS												
Converted Unlimited Losses												
Amount												
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums				
Policy Period (1)	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)	
2011	95,292	1	20	3,549	36,403	6,902	79,544	126,398	0.419	0.907	1.326	
2012	105,290	0	10	0	134,833	0	39,237	174,070	1.281	0.373	1.653	
2013	115,931	1	15	155,010	66,845	28,052	52,345	302,252	1.914	0.693	2.607	
2014	133,322	0	21	0	26,040	0	26,412	52,452	0.195	0.198	0.393	
2015	128,416	0	15	0	211,903	0	101,176	313,078	1.650	0.788	2.438	
<b>MA Total:</b>	<b>578,251</b>	<b>2</b>	<b>81</b>	<b>158,559</b>	<b>476,024</b>	<b>34,954</b>	<b>298,713</b>	<b>968,250</b>	<b>1.097</b>	<b>0.577</b>	<b>1.674</b>	

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	1.311	1.211	.
(14) Massachusetts Credibility:	0.200	0.320	.
(15) Countrywide Pure Premium:	0.000	0.000	0.000
(16) Countrywide Indicated Relativity:	1.012	1.155	.
(17) Countrywide Credibility:	0.000	0.000	.
(18) Countrywide Lost-Time Claims:	0.000	.	.
(19) Pure Premium Underlying Present Rate:	0.845	0.593	1.438
(20) Relativity to Underlying Present Rate:	1.020	1.164	.
(21) Credibility to Underlying Relativity:	0.800	0.680	.
(22) Industry Group Converted Pure Premium:	0.837	0.476	1.314
(23) Formula Relativity:	1.078	1.179	.
(24) Balanced Formula Relativity:	1.071	1.178	1.110

Class(es):		Effective: 7/1/2018							Construction			
0050 FARM MACHINERY OPERATION-BY CONTRACTOR & DRIVERS												
Converted Unlimited Losses												
Amount												
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums				
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)	
2011	14,553	0	0	0	0	0	0	0	0.000	0.000	0.000	
2012	14,229	0	3	0	26,752	0	11,575	38,327	1.880	0.814	2.694	
2013	15,705	0	1	0	0	0	143	143	0.000	0.009	0.009	
2014	22,996	0	1	0	0	0	1,539	1,539	0.000	0.067	0.067	
2015	19,504	0	0	0	0	0	0	0	0.000	0.000	0.000	
<b>MA Total:</b>	<b>86,987</b>	<b>0</b>	<b>5</b>	<b>0</b>	<b>26,752</b>	<b>0</b>	<b>13,257</b>	<b>40,009</b>	<b>0.308</b>	<b>0.152</b>	<b>0.460</b>	

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.117	0.129	.
(14) Massachusetts Credibility:	0.170	0.210	.
(15) Countrywide Pure Premium:	2.713	1.301	4.014
(16) Countrywide Indicated Relativity:	1.059	1.149	.
(17) Countrywide Credibility:	0.420	0.400	.
(18) Countrywide Lost-Time Claims:	899.00	.	.
(19) Pure Premium Underlying Present Rate:	3.476	1.361	4.838
(20) Relativity to Underlying Present Rate:	1.267	1.015	.
(21) Credibility to Underlying Relativity:	0.410	0.390	.
(22) Industry Group Converted Pure Premium:	2.624	1.182	3.806
(23) Formula Relativity:	0.984	0.883	.
(24) Balanced Formula Relativity:	0.990	0.884	0.957

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## Calculation of Class Relativities

Class(es):		Effective: 7/1/2018							Goods and Services		
0079 FARM: BERRY OR VINEYARD & DRIVERS											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period (1)	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2011	153,993	2	37	365,908	28,174	208,275	112,065	714,422	2,559	2,080	4,639
2012	165,436	1	35	178,435	193,350	142,810	165,957	680,552	2,247	1,866	4,114
2013	162,646	4	30	253,910	31,447	277,176	63,731	626,264	1,754	2,096	3,850
2014	151,607	0	18	0	55,707	0	73,574	129,281	0,367	0,485	0,853
2015	159,411	0	24	0	82,607	0	109,089	191,697	0,518	0,684	1,203
<b>MA Total:</b>	<b>793,092</b>	<b>7</b>	<b>144</b>	<b>798,254</b>	<b>391,284</b>	<b>628,261</b>	<b>524,416</b>	<b>2,342,215</b>	<b>1,500</b>	<b>1,453</b>	<b>2,953</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	1.791	3.051	.
(14) Massachusetts Credibility:	0.290	0.520	.
(15) Countrywide Pure Premium:	1.178	0.802	1.979
(16) Countrywide Indicated Relativity:	1.410	1.675	.
(17) Countrywide Credibility:	0.360	0.240	.
(18) Countrywide Lost-Time Claims:	223.00	.	.
(19) Pure Premium Underlying Present Rate:	1.546	1.464	3.010
(20) Relativity to Underlying Present Rate:	1.864	2.872	.
(21) Credibility to Underlying Relativity:	0.350	0.240	.
(22) Industry Group Converted Pure Premium:	0.837	0.476	1.314
(23) Formula Relativity:	1.680	2.678	.
(24) Balanced Formula Relativity:	1.668	2.677	2.034

Class(es):		Effective: 7/1/2018							Goods and Services		
0083 FARM: CATTLE OR LIVESTOCK RAISING NOC & DRIVERS											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period (1)	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2011	44,401	0	7	0	10,846	0	16,650	27,496	0,244	0,375	0,619
2012	66,054	0	7	0	870	0	2,967	3,837	0,013	0,045	0,058
2013	46,963	0	4	0	1,818	0	80,891	82,709	0,039	1,722	1,761
2014	55,904	0	8	0	0	0	6,415	6,415	0,000	0,115	0,115
2015	61,471	0	10	0	64,097	0	7,725	71,822	1,043	0,126	1,168
<b>MA Total:</b>	<b>274,794</b>	<b>0</b>	<b>36</b>	<b>0</b>	<b>77,632</b>	<b>0</b>	<b>114,648</b>	<b>192,279</b>	<b>0,283</b>	<b>0,417</b>	<b>0,700</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.337	0.876	.
(14) Massachusetts Credibility:	0.200	0.330	.
(15) Countrywide Pure Premium:	2.389	1.391	3.780
(16) Countrywide Indicated Relativity:	2.860	2.907	.
(17) Countrywide Credibility:	0.400	0.340	.
(18) Countrywide Lost-Time Claims:	2940.0	.	.
(19) Pure Premium Underlying Present Rate:	1.712	1.318	3.030
(20) Relativity to Underlying Present Rate:	2.065	2.586	.
(21) Credibility to Underlying Relativity:	0.400	0.330	.
(22) Industry Group Converted Pure Premium:	0.837	0.476	1.314
(23) Formula Relativity:	2.038	2.131	.
(24) Balanced Formula Relativity:	2.024	2.130	2.062

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## Calculation of Class Relativities

Class(es):									Effective: 7/1/2018			Miscellaneous		
0106 TREE PRUNING, SPRAYING, REPAIRING & DRIVERS														
Converted Unlimited Losses														
Amount														
Claim Count				Indemnity		Medical		MA Indicated Pure Premiums						
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)			
2011	371,069	2	112	234,880	966,740	514,480	646,079	2,362,179	3,238	3,128	6,366			
2012	378,753	6	85	1,093,095	947,561	510,438	696,434	3,247,527	5,388	3,186	8,574			
2013	397,328	6	95	627,926	1,035,474	502,373	900,743	3,066,515	4,186	3,531	7,717			
2014	410,106	5	90	186,229	1,466,352	498,275	952,988	3,103,843	4,030	3,539	7,568			
2015	445,364	6	86	1,129,752	1,976,807	666,460	1,097,161	4,870,179	6,975	3,960	10,935			
<b>MA Total:</b>	<b>2,002,620</b>	<b>25</b>	<b>468</b>	<b>3,271,881</b>	<b>6,392,933</b>	<b>2,692,025</b>	<b>4,293,403</b>	<b>16,650,243</b>	<b>4,826</b>	<b>3,488</b>	<b>8,314</b>			

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	2.011	2.919	.
(14) Massachusetts Credibility:	0.680	1.000	.
(15) Countrywide Pure Premium:	4.605	2.785	7.390
(16) Countrywide Indicated Relativity:	2.134	2.618	.
(17) Countrywide Credibility:	0.160	0.000	.
(18) Countrywide Lost-Time Claims:	3202.0	.	.
(19) Pure Premium Underlying Present Rate:	5.255	4.731	9.986
(20) Relativity to Underlying Present Rate:	2.156	3.584	.
(21) Credibility to Underlying Relativity:	0.160	0.000	.
(22) Industry Group Converted Pure Premium:	2.400	1.195	3.595
(23) Formula Relativity:	2.054	2.919	.
(24) Balanced Formula Relativity:	2.045	2.939	2.342

Class(es):									Effective: 7/1/2018			Goods and Services		
0908 DOMESTIC WORKERS-INSIDE-OCCASIONAL-NOC														
Converted Unlimited Losses														
Amount														
Claim Count				Indemnity		Medical		MA Indicated Pure Premiums						
Policy Period (1)	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)			
2011	2,842	0	15	0	4,284	0	23,530	27,814	1,507	8,281	9,788			
2012	2,915	2	18	7,432	372,067	8,149	92,455	480,102	130,21	34,517	164,72			
2013	2,989	0	15	0	88,286	0	64,994	153,279	29,537	21,744	51,281			
2014	3,340	0	21	0	324,482	0	180,314	504,796	97,165	53,994	151,16			
2015	3,433	1	19	136	117,597	521	129,994	248,248	34,299	38,022	72,321			
<b>MA Total:</b>	<b>15,517</b>	<b>3</b>	<b>88</b>	<b>7,568</b>	<b>906,716</b>	<b>8,670</b>	<b>491,286</b>	<b>1,414,239</b>	<b>58,920</b>	<b>32,219</b>	<b>91,139</b>			

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	70.362	67.624	.
(14) Massachusetts Credibility:	0.320	0.430	.
(15) Countrywide Pure Premium:	145.78	62.659	208.43
(16) Countrywide Indicated Relativity:	123.02	91.380	.
(17) Countrywide Credibility:	0.340	0.290	.
(18) Countrywide Lost-Time Claims:	512.00	.	.
(19) Pure Premium Underlying Present Rate:	102.74	46.933	149.68
(20) Relativity to Underlying Present Rate:	123.91	92.087	.
(21) Credibility to Underlying Relativity:	0.340	0.280	.
(22) Industry Group Converted Pure Premium:	0.837	0.476	1.314
(23) Formula Relativity:	106.47	81.363	.
(24) Balanced Formula Relativity:	105.77	81.332	96.905

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## Calculation of Class Relativities

Class(es):		Effective: 7/1/2018							Goods and Services			
0909 DOMESTIC WORKERS-OUTSIDE-OCCASIONAL-INCL OCCASNL PRIV CHAUFF												
		Converted Unlimited Losses										
		Amount										
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums				
Policy Period (1)	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)	
2011	341	0	8	0	1,293	0	5,028	6,321	3,796	14,757	18,553	
2012	349	0	5	0	0	0	3,402	3,402	0,000	9,741	9,741	
2013	337	0	6	0	102,141	0	47,372	149,513	303,36	140,69	444,05	
2014	338	0	5	0	81,313	0	115,387	196,699	240,68	341,53	582,21	
2015	336	0	4	0	0	0	3,254	3,254	0,000	9,674	9,674	
<b>MA Total:</b>	<b>1,701</b>	<b>0</b>	<b>28</b>	<b>0</b>	<b>184,747</b>	<b>0</b>	<b>174,442</b>	<b>359,190</b>	<b>108.62</b>	<b>102.56</b>	<b>211.18</b>	

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	129.71	215.26	.
(14) Massachusetts Credibility:	0.150	0.290	.
(15) Countrywide Pure Premium:	109.36	61.728	171.09
(16) Countrywide Indicated Relativity:	164.77	305.67	.
(17) Countrywide Credibility:	0.100	0.110	.
(18) Countrywide Lost-Time Claims:	4.000	.	.
(19) Pure Premium Underlying Present Rate:	137.61	157.00	294.61
(20) Relativity to Underlying Present Rate:	165.95	308.04	.
(21) Credibility to Underlying Relativity:	0.750	0.600	.
(22) Industry Group Converted Pure Premium:	0.837	0.476	1.314
(23) Formula Relativity:	160.40	280.88	.
(24) Balanced Formula Relativity:	159.34	280.77	203.37

Class(es):		Effective: 7/1/2018							Goods and Services			
0917 DOMESTIC SERVICE CONTRACTOR-INSIDE												
		Converted Unlimited Losses										
		Amount										
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums				
Policy Period (1)	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)	
2011	290,906	6	45	262,466	180,035	199,210	106,826	748,537	1,521	1,052	2,573	
2012	257,647	2	39	40,749	123,767	76,415	307,512	548,443	0,639	1,490	2,129	
2013	302,403	4	37	75,382	141,264	6,005	91,063	313,714	0,716	0,321	1,037	
2014	372,894	2	47	1,094	212,731	2,138	87,872	303,836	0,573	0,241	0,815	
2015	415,154	2	51	100,606	163,974	47,866	199,502	511,948	0,637	0,596	1,233	
<b>MA Total:</b>	<b>1,639,004</b>	<b>16</b>	<b>219</b>	<b>480,297</b>	<b>821,772</b>	<b>331,634</b>	<b>792,775</b>	<b>2,426,477</b>	<b>0.794</b>	<b>0.686</b>	<b>1.480</b>	

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.949	1.440	.
(14) Massachusetts Credibility:	0.380	0.630	.
(15) Countrywide Pure Premium:	2.306	1.332	3.638
(16) Countrywide Indicated Relativity:	2.761	2.784	.
(17) Countrywide Credibility:	0.310	0.190	.
(18) Countrywide Lost-Time Claims:	893.00	.	.
(19) Pure Premium Underlying Present Rate:	1.490	1.158	2.647
(20) Relativity to Underlying Present Rate:	1.797	2.271	.
(21) Credibility to Underlying Relativity:	0.310	0.180	.
(22) Industry Group Converted Pure Premium:	0.837	0.476	1.314
(23) Formula Relativity:	1.773	1.845	.
(24) Balanced Formula Relativity:	1.762	1.844	1.792

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## Calculation of Class Relativities

Class(es):		Effective: 7/1/2018							Goods and Services		
0918 DOMESTIC WORKERS-INSIDE-PHYSICAL ASSISTANCE											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period (1)	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2011	4,665,689	8	76	371,669	798,725	193,189	249,921	1,613,504	0.251	0.095	0.346
2012	5,291,661	6	81	330,822	570,098	56,614	263,979	1,221,512	0.170	0.061	0.231
2013	5,801,546	7	70	390,533	1,012,881	355,792	361,624	2,120,830	0.242	0.124	0.366
2014	6,713,320	11	61	393,168	613,354	143,256	196,544	1,346,322	0.150	0.051	0.201
2015	7,313,009	9	77	1,096,813	841,086	274,220	370,013	2,582,132	0.265	0.088	0.353
<b>MA Total:</b>	<b>29,785,225</b>	<b>41</b>	<b>365</b>	<b>2,583,004</b>	<b>3,836,144</b>	<b>1,023,070</b>	<b>1,442,081</b>	<b>8,884,299</b>	<b>0.216</b>	<b>0.083</b>	<b>0.298</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.257	0.174	.
(14) Massachusetts Credibility:	0.660	0.830	.
(15) Countrywide Pure Premium:	0.767	0.320	1.087
(16) Countrywide Indicated Relativity:	0.919	0.669	.
(17) Countrywide Credibility:	0.170	0.090	.
(18) Countrywide Lost-Time Claims:	75.000	.	.
(19) Pure Premium Underlying Present Rate:	0.320	0.127	0.447
(20) Relativity to Underlying Present Rate:	0.386	0.248	.
(21) Credibility to Underlying Relativity:	0.170	0.080	.
(22) Industry Group Converted Pure Premium:	0.837	0.476	1.314
(23) Formula Relativity:	0.392	0.224	.
(24) Balanced Formula Relativity:	0.389	0.224	0.329

Class(es):		Effective: 7/1/2018							Manufacturing		
1430 SMELTING, SINTERING OR REFINING-LEAD & DRIVERS											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2011	0	0	0	0	0	0	0	0	0.000	0.000	0.000
2012	0	0	0	0	0	0	0	0	0.000	0.000	0.000
2013	0	0	0	0	0	0	0	0	0.000	0.000	0.000
2014	0	0	0	0	0	0	0	0	0.000	0.000	0.000
2015	92	0	0	0	0	0	0	0	0.000	0.000	0.000
<b>MA Total:</b>	<b>92</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0.000</b>	<b>0.000</b>	<b>0.000</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.000	0.000	.
(14) Massachusetts Credibility:	0.010	0.010	.
(15) Countrywide Pure Premium:	2.171	1.175	3.346
(16) Countrywide Indicated Relativity:	2.421	2.549	.
(17) Countrywide Credibility:	0.360	0.390	.
(18) Countrywide Lost-Time Claims:	92.000	.	.
(19) Pure Premium Underlying Present Rate:	2.881	1.090	3.972
(20) Relativity to Underlying Present Rate:	3.054	1.989	.
(21) Credibility to Underlying Relativity:	0.630	0.600	.
(22) Industry Group Converted Pure Premium:	0.978	0.514	1.493
(23) Formula Relativity:	2.796	2.188	.
(24) Balanced Formula Relativity:	2.772	2.177	2.567

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## Calculation of Class Relativities

Class(es):		Effective: 7/1/2018							Manufacturing		
1438 SMELTING, SINTERING OR REFINING-METALS-NOT IRON OR LEAD-NOC & D											
Converted Unlimited Losses											
Amount											
		Claim Count		Indemnity		Medical			MA Indicated Pure Premiums		
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2011	68.128	0	10	0	14.148	0	32.438	46.586	0.208	0.476	0.684
2012	152.586	0	17	0	85.915	0	74.020	159.935	0.563	0.485	1.048
2013	141.367	0	17	0	88.420	0	67.487	155.907	0.625	0.477	1.103
2014	141.023	1	19	109.266	61.414	7.842	102.515	281.037	1.210	0.783	1.993
2015	135.407	0	19	0	90.160	0	91.506	181.667	0.666	0.676	1.342
<b>MA Total:</b>	<b>638.511</b>	<b>1</b>	<b>82</b>	<b>109.266</b>	<b>340.058</b>	<b>7.842</b>	<b>367.966</b>	<b>825.131</b>	<b>0.704</b>	<b>0.589</b>	<b>1.292</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.719	1.144	.
(14) Massachusetts Credibility:	0.270	0.380	.
(15) Countrywide Pure Premium:	2.174	1.043	3.218
(16) Countrywide Indicated Relativity:	2.425	2.264	.
(17) Countrywide Credibility:	0.370	0.310	.
(18) Countrywide Lost-Time Claims:	746.00	.	.
(19) Pure Premium Underlying Present Rate:	1.590	0.851	2.441
(20) Relativity to Underlying Present Rate:	1.686	1.552	.
(21) Credibility to Underlying Relativity:	0.360	0.310	.
(22) Industry Group Converted Pure Premium:	0.978	0.514	1.493
(23) Formula Relativity:	1.698	1.618	.
(24) Balanced Formula Relativity:	1.684	1.610	1.658

Class(es):		Effective: 7/1/2018							Manufacturing		
1463 ASPHALT WORKS & DRIVERS											
Converted Unlimited Losses											
Amount											
		Claim Count		Indemnity		Medical			MA Indicated Pure Premiums		
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2011	85.153	3	12	625.051	60.100	242.746	90.956	1,018.853	8.046	3.919	11.965
2012	115.927	2	27	101.168	114.964	45.549	56.974	318.655	1.864	0.884	2.749
2013	131.628	1	17	44.923	257.226	5.259	265.557	572.966	2.295	2.057	4.353
2014	137.992	4	25	780.732	253.924	628.039	161.796	1,824.491	7.498	5.724	13.222
2015	81.398	1	12	74.909	185.960	41.750	322.656	625.275	3.205	4.477	7.682
<b>MA Total:</b>	<b>552.099</b>	<b>11</b>	<b>93</b>	<b>1,626.784</b>	<b>872.176</b>	<b>963.342</b>	<b>897.938</b>	<b>4,360.240</b>	<b>4.526</b>	<b>3.371</b>	<b>7.898</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	4.626	6.555	.
(14) Massachusetts Credibility:	0.390	0.530	.
(15) Countrywide Pure Premium:	4.217	1.936	6.153
(16) Countrywide Indicated Relativity:	4.703	4.202	.
(17) Countrywide Credibility:	0.310	0.240	.
(18) Countrywide Lost-Time Claims:	596.00	.	.
(19) Pure Premium Underlying Present Rate:	4.548	2.265	6.813
(20) Relativity to Underlying Present Rate:	4.821	4.133	.
(21) Credibility to Underlying Relativity:	0.300	0.230	.
(22) Industry Group Converted Pure Premium:	0.978	0.514	1.493
(23) Formula Relativity:	4.708	5.433	.
(24) Balanced Formula Relativity:	4.668	5.406	4.922

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## Calculation of Class Relativities

Class(es):		Effective: 7/1/2018							Miscellaneous		
1624 QUARRY NOC & DRIVERS											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2011	377.962	2	44	330.345	718.424	67.078	326.436	1.442.283	2.775	1.041	3.816
2012	457.936	1	48	136.947	257.182	26.983	237.757	658.869	0.861	0.578	1.439
2013	460.264	5	49	891.199	384.218	459.704	423.825	2.158.946	2.771	1.920	4.691
2014	492.709	2	62	86.079	815.099	59.632	565.573	1.526.383	1.829	1.269	3.098
2015	492.103	1	74	32.166	455.185	5.438	276.753	769.542	0.990	0.573	1.564
<b>MA Total:</b>	<b>2,280,975</b>	<b>11</b>	<b>277</b>	<b>1,476,735</b>	<b>2,630,108</b>	<b>618,836</b>	<b>1,830,344</b>	<b>6,556,023</b>	<b>1.800</b>	<b>1.074</b>	<b>2.874</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.750	0.899	.
(14) Massachusetts Credibility:	0.510	0.760	.
(15) Countrywide Pure Premium:	1.781	0.843	2.624
(16) Countrywide Indicated Relativity:	0.825	0.793	.
(17) Countrywide Credibility:	0.250	0.120	.
(18) Countrywide Lost-Time Claims:	1190.0	.	.
(19) Pure Premium Underlying Present Rate:	2.224	1.335	3.559
(20) Relativity to Underlying Present Rate:	0.913	1.011	.
(21) Credibility to Underlying Relativity:	0.240	0.120	.
(22) Industry Group Converted Pure Premium:	2.400	1.195	3.595
(23) Formula Relativity:	0.808	0.899	.
(24) Balanced Formula Relativity:	0.805	0.906	0.838

Class(es):		Effective: 7/1/2018							Miscellaneous		
1655 LIME MFG-QUARRY-SURFACE & DRIVERS											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2011	3.182	0	0	0	0	0	0	0	0.000	0.000	0.000
2012	2.731	0	0	0	0	0	0	0	0.000	0.000	0.000
2013	3.333	0	0	0	0	0	0	0	0.000	0.000	0.000
2014	3.780	0	0	0	0	0	0	0	0.000	0.000	0.000
2015	6.197	0	0	0	0	0	0	0	0.000	0.000	0.000
<b>MA Total:</b>	<b>19,222</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0.000</b>	<b>0.000</b>	<b>0.000</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.000	0.000	.
(14) Massachusetts Credibility:	0.070	0.110	.
(15) Countrywide Pure Premium:	1.094	0.490	1.584
(16) Countrywide Indicated Relativity:	0.507	0.461	.
(17) Countrywide Credibility:	0.220	0.230	.
(18) Countrywide Lost-Time Claims:	26.000	.	.
(19) Pure Premium Underlying Present Rate:	1.947	1.132	3.079
(20) Relativity to Underlying Present Rate:	0.799	0.858	.
(21) Credibility to Underlying Relativity:	0.710	0.660	.
(22) Industry Group Converted Pure Premium:	2.400	1.195	3.595
(23) Formula Relativity:	0.679	0.672	.
(24) Balanced Formula Relativity:	0.676	0.677	0.676



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## Calculation of Class Relativities

Class(es): 1701 CEMENT MFG		Effective: 7/1/2018							Manufacturing		
Converted Unlimited Losses											
Amount											
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2011	8,470	0	0	0	0	0	0	0	0.000	0.000	0.000
2012	8,530	0	0	0	0	0	0	0	0.000	0.000	0.000
2013	10,053	0	0	0	0	0	0	0	0.000	0.000	0.000
2014	8,079	0	0	0	0	0	0	0	0.000	0.000	0.000
2015	6,989	0	0	0	0	0	0	0	0.000	0.000	0.000
<b>MA Total:</b>	<b>42,122</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0.000</b>	<b>0.000</b>	<b>0.000</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.000	0.000	.
(14) Massachusetts Credibility:	0.090	0.120	.
(15) Countrywide Pure Premium:	1.373	0.652	2.025
(16) Countrywide Indicated Relativity:	1.531	1.415	.
(17) Countrywide Credibility:	0.460	0.440	.
(18) Countrywide Lost-Time Claims:	419.00	.	.
(19) Pure Premium Underlying Present Rate:	1.647	0.741	2.388
(20) Relativity to Underlying Present Rate:	1.746	1.353	.
(21) Credibility to Underlying Relativity:	0.450	0.440	.
(22) Industry Group Converted Pure Premium:	0.978	0.514	1.493
(23) Formula Relativity:	1.490	1.218	.
(24) Balanced Formula Relativity:	1.477	1.211	1.386

Class(es): 1747 EMERY WORKS & DRIVERS		Effective: 7/1/2018							Manufacturing		
Converted Unlimited Losses											
Amount											
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2011	47,154	1	13	68,697	20,847	11,525	9,609	110,678	1,899	0,448	2,347
2012	45,855	1	10	244,610	153,634	66,474	29,037	493,755	8,685	2,083	10,768
2013	18,821	0	4	0	14,579	0	12,611	27,190	0,775	0,670	1,445
2014	46,843	2	6	166,123	31,625	155,570	19,913	373,232	4,222	3,746	7,968
2015	47,083	0	9	0	25,990	0	18,780	44,770	0,552	0,399	0,951
<b>MA Total:</b>	<b>205,756</b>	<b>4</b>	<b>42</b>	<b>479,430</b>	<b>246,675</b>	<b>233,570</b>	<b>89,950</b>	<b>1,049,625</b>	<b>3,529</b>	<b>1,572</b>	<b>5,101</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	3.607	3.057	.
(14) Massachusetts Credibility:	0.170	0.230	.
(15) Countrywide Pure Premium:	0.891	0.321	1.212
(16) Countrywide Indicated Relativity:	0.993	0.698	.
(17) Countrywide Credibility:	0.320	0.340	.
(18) Countrywide Lost-Time Claims:	65.000	.	.
(19) Pure Premium Underlying Present Rate:	1.469	0.721	2.191
(20) Relativity to Underlying Present Rate:	1.558	1.316	.
(21) Credibility to Underlying Relativity:	0.510	0.430	.
(22) Industry Group Converted Pure Premium:	0.978	0.514	1.493
(23) Formula Relativity:	1.725	1.506	.
(24) Balanced Formula Relativity:	1.710	1.499	1.638

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## Calculation of Class Relativities

Class(es):		Effective: 7/1/2018							Manufacturing		
1748 ABRASIVE WHEEL MFG & DRIVERS											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2011	53,366	0	14	0	19,489	0	13,207	32,696	0.365	0.247	0.613
2012	44,500	0	14	0	1,520	0	8,264	9,784	0.034	0.186	0.220
2013	39,087	0	14	0	40,093	0	70,946	111,039	1.026	1.815	2.841
2014	40,371	0	14	0	5,055	0	19,703	24,758	0.125	0.488	0.613
2015	38,198	0	8	0	8,234	0	30,883	39,116	0.216	0.808	1.024
<b>MA Total:</b>	<b>215,522</b>	<b>0</b>	<b>64</b>	<b>0</b>	<b>74,390</b>	<b>0</b>	<b>143,003</b>	<b>217,393</b>	<b>0.345</b>	<b>0.664</b>	<b>1.009</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.353	1.290	.
(14) Massachusetts Credibility:	0.170	0.270	.
(15) Countrywide Pure Premium:	1.580	1.052	2.632
(16) Countrywide Indicated Relativity:	1.762	2.282	.
(17) Countrywide Credibility:	0.320	0.340	.
(18) Countrywide Lost-Time Claims:	68.000	.	.
(19) Pure Premium Underlying Present Rate:	1.396	1.019	2.416
(20) Relativity to Underlying Present Rate:	1.480	1.859	.
(21) Credibility to Underlying Relativity:	0.510	0.390	.
(22) Industry Group Converted Pure Premium:	0.978	0.514	1.493
(23) Formula Relativity:	1.379	1.849	.
(24) Balanced Formula Relativity:	1.367	1.840	1.530

Class(es):		Effective: 7/1/2018							Manufacturing		
1853 MICA GOODS MFG & MICA PREPARING											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2011	1,796	0	0	0	0	0	0	0	0.000	0.000	0.000
2012	1,555	0	0	0	0	0	0	0	0.000	0.000	0.000
2013	1,525	0	0	0	0	0	0	0	0.000	0.000	0.000
2014	1,611	0	0	0	0	0	0	0	0.000	0.000	0.000
2015	1,161	0	0	0	0	0	0	0	0.000	0.000	0.000
<b>MA Total:</b>	<b>7,647</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0.000</b>	<b>0.000</b>	<b>0.000</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.000	0.000	.
(14) Massachusetts Credibility:	0.040	0.040	.
(15) Countrywide Pure Premium:	0.702	0.122	0.824
(16) Countrywide Indicated Relativity:	0.783	0.265	.
(17) Countrywide Credibility:	0.100	0.110	.
(18) Countrywide Lost-Time Claims:	4.000	.	.
(19) Pure Premium Underlying Present Rate:	0.885	0.318	1.204
(20) Relativity to Underlying Present Rate:	0.938	0.581	.
(21) Credibility to Underlying Relativity:	0.860	0.850	.
(22) Industry Group Converted Pure Premium:	0.978	0.514	1.493
(23) Formula Relativity:	0.885	0.523	.
(24) Balanced Formula Relativity:	0.878	0.520	0.754

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## Calculation of Class Relativities

Class(es):		Effective: 7/1/2018							Manufacturing		
1924 WIRE DRAWING OR CABLE MFG-NOT IRON OR STEEL											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2011	135.160	0	24	0	110.426	0	46.593	157.019	0.817	0.345	1.162
2012	166.303	1	40	35.426	190.995	6.147	167.073	399.641	1.361	1.042	2.403
2013	164.303	1	16	108.393	283.000	11.547	101.556	504.496	2.382	0.688	3.071
2014	142.738	0	20	0	154.990	0	59.340	214.330	1.086	0.416	1.502
2015	152.446	0	23	0	30.794	0	41.882	72.676	0.202	0.275	0.477
<b>MA Total:</b>	<b>760.950</b>	<b>2</b>	<b>123</b>	<b>143,819</b>	<b>770,204</b>	<b>17,694</b>	<b>416,445</b>	<b>1,348,162</b>	<b>1.201</b>	<b>0.571</b>	<b>1.772</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	1.228	1.109	.
(14) Massachusetts Credibility:	0.230	0.340	.
(15) Countrywide Pure Premium:	1.107	0.553	1.659
(16) Countrywide Indicated Relativity:	1.234	1.200	.
(17) Countrywide Credibility:	0.390	0.330	.
(18) Countrywide Lost-Time Claims:	544.00	.	.
(19) Pure Premium Underlying Present Rate:	0.956	0.524	1.480
(20) Relativity to Underlying Present Rate:	1.013	0.955	.
(21) Credibility to Underlying Relativity:	0.380	0.330	.
(22) Industry Group Converted Pure Premium:	0.978	0.514	1.493
(23) Formula Relativity:	1.149	1.088	.
(24) Balanced Formula Relativity:	1.139	1.083	1.120

Class(es):		Effective: 7/1/2018							Manufacturing		
1925 DIE CASTING MFG											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2011	4.035	0	0	0	0	0	0	0	0.000	0.000	0.000
2012	3.274	0	0	0	0	0	0	0	0.000	0.000	0.000
2013	5.017	0	2	0	78.729	0	560.356	639.085	15.692	111.69	127.38
2014	3.090	0	0	0	0	0	0	0	0.000	0.000	0.000
2015	240	0	0	0	0	0	0	0	0.000	0.000	0.000
<b>MA Total:</b>	<b>15.656</b>	<b>0</b>	<b>2</b>	<b>0</b>	<b>78,729</b>	<b>0</b>	<b>560,356</b>	<b>639,085</b>	<b>5.029</b>	<b>35,792</b>	<b>40,820</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	5.139	69.594	.
(14) Massachusetts Credibility:	0.060	0.160	.
(15) Countrywide Pure Premium:	1.553	0.977	2.530
(16) Countrywide Indicated Relativity:	1.732	2.120	.
(17) Countrywide Credibility:	0.470	0.420	.
(18) Countrywide Lost-Time Claims:	793.00	.	.
(19) Pure Premium Underlying Present Rate:	1.528	3.892	5.420
(20) Relativity to Underlying Present Rate:	1.619	7.102	.
(21) Credibility to Underlying Relativity:	0.470	0.420	.
(22) Industry Group Converted Pure Premium:	0.978	0.514	1.493
(23) Formula Relativity:	1.883	15.008	.
(24) Balanced Formula Relativity:	1.867	14.933	6.369

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## Calculation of Class Relativities

Class(es):		Effective: 7/1/2018							Manufacturing		
2003 BAKERY & DRIVERS, ROUTE SUPERVISORS											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2011	1,818,000	6	401	430,005	1,574,114	407,617	901,772	3,313,508	1,102	0,720	1,823
2012	1,946,756	17	425	1,416,663	2,567,855	586,551	1,198,633	5,769,702	2,047	0,917	2,964
2013	1,918,912	18	310	1,400,323	1,832,128	451,739	873,068	4,557,258	1,685	0,690	2,375
2014	2,018,456	15	299	1,678,332	3,556,321	512,719	2,065,949	7,813,321	2,593	1,278	3,871
2015	2,132,497	6	322	1,315,880	3,275,963	403,662	2,056,656	7,052,161	2,153	1,154	3,307
<b>MA Total:</b>	<b>9,834,621</b>	<b>62</b>	<b>1,757</b>	<b>6,241,203</b>	<b>12,806,382</b>	<b>2,362,287</b>	<b>7,096,079</b>	<b>28,505,951</b>	<b>1,937</b>	<b>0,962</b>	<b>2,899</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	1.979	1.870	.
(14) Massachusetts Credibility:	0.820	1.000	.
(15) Countrywide Pure Premium:	1.910	0.819	2.729
(16) Countrywide Indicated Relativity:	2.130	1.778	.
(17) Countrywide Credibility:	0.090	0.000	.
(18) Countrywide Lost-Time Claims:	7273.0	.	.
(19) Pure Premium Underlying Present Rate:	1.661	0.931	2.592
(20) Relativity to Underlying Present Rate:	1.761	1.698	.
(21) Credibility to Underlying Relativity:	0.090	0.000	.
(22) Industry Group Converted Pure Premium:	0.978	0.514	1.493
(23) Formula Relativity:	1.973	1.870	.
(24) Balanced Formula Relativity:	1.956	1.861	1.923

Class(es):		Effective: 7/1/2018							Manufacturing		
2014 GRAIN MILLING											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2011	25,666	0	1	0	0	0	890	890	0.000	0.035	0.035
2012	24,857	0	0	0	0	0	0	0	0.000	0.000	0.000
2013	21,420	0	0	0	0	0	0	0	0.000	0.000	0.000
2014	1,984	0	1	0	0	0	113	113	0.000	0.057	0.057
2015	1,861	0	0	0	0	0	0	0	0.000	0.000	0.000
<b>MA Total:</b>	<b>75,788</b>	<b>0</b>	<b>2</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>1,003</b>	<b>1,003</b>	<b>0.000</b>	<b>0.013</b>	<b>0.013</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.000	0.026	.
(14) Massachusetts Credibility:	0.120	0.170	.
(15) Countrywide Pure Premium:	2.112	0.986	3.098
(16) Countrywide Indicated Relativity:	2.356	2.140	.
(17) Countrywide Credibility:	0.440	0.420	.
(18) Countrywide Lost-Time Claims:	1176.0	.	.
(19) Pure Premium Underlying Present Rate:	1.703	0.937	2.640
(20) Relativity to Underlying Present Rate:	1.805	1.709	.
(21) Credibility to Underlying Relativity:	0.440	0.410	.
(22) Industry Group Converted Pure Premium:	0.978	0.514	1.493
(23) Formula Relativity:	1.831	1.604	.
(24) Balanced Formula Relativity:	1.815	1.596	1.739

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## Calculation of Class Relativities

Class(es):		Effective: 7/1/2018							Manufacturing		
2021 SUGAR REFINING-ALL OPERATIONS & DRIVERS											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2011	1,438	0	1	0	0	0	1,052	1,052	0.000	0.731	0.731
2012	1,289	0	0	0	0	0	0	0	0.000	0.000	0.000
2013	1,788	0	0	0	0	0	0	0	0.000	0.000	0.000
2014	1,490	0	1	0	0	0	508	508	0.000	0.341	0.341
2015	2,197	0	0	0	0	0	0	0	0.000	0.000	0.000
<b>MA Total:</b>	<b>8,201</b>	<b>0</b>	<b>2</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>1,560</b>	<b>1,560</b>	<b>0.000</b>	<b>0.190</b>	<b>0.190</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.000	0.370	.
(14) Massachusetts Credibility:	0.040	0.060	.
(15) Countrywide Pure Premium:	1.035	0.551	1.586
(16) Countrywide Indicated Relativity:	1.154	1.195	.
(17) Countrywide Credibility:	0.480	0.470	.
(18) Countrywide Lost-Time Claims:	256.00	.	.
(19) Pure Premium Underlying Present Rate:	1.350	0.754	2.103
(20) Relativity to Underlying Present Rate:	1.431	1.376	.
(21) Credibility to Underlying Relativity:	0.480	0.470	.
(22) Industry Group Converted Pure Premium:	0.978	0.514	1.493
(23) Formula Relativity:	1.241	1.231	.
(24) Balanced Formula Relativity:	1.230	1.224	1.228

Class(es):		Effective: 7/1/2018							Manufacturing		
2039 ICE CREAM MFG & DRIVERS											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2011	22,929	0	4	0	0	0	433	433	0.000	0.019	0.019
2012	128,989	1	15	284,287	229,608	264,710	84,906	863,512	3,984	2,710	6,694
2013	144,801	1	18	470,069	25,406	183,039	28,648	707,162	3,422	1,462	4,884
2014	160,530	3	35	371,817	125,809	190,588	153,705	841,918	3,100	2,145	5,245
2015	173,109	1	36	6,321	250,710	20,668	147,099	424,797	1,485	0,969	2,454
<b>MA Total:</b>	<b>630,358</b>	<b>6</b>	<b>108</b>	<b>1,132,494</b>	<b>631,533</b>	<b>659,006</b>	<b>414,790</b>	<b>2,837,822</b>	<b>2,798</b>	<b>1,703</b>	<b>4,502</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	2.860	3.312	.
(14) Massachusetts Credibility:	0.270	0.380	.
(15) Countrywide Pure Premium:	1.118	0.536	1.654
(16) Countrywide Indicated Relativity:	1.247	1.163	.
(17) Countrywide Credibility:	0.370	0.310	.
(18) Countrywide Lost-Time Claims:	438.00	.	.
(19) Pure Premium Underlying Present Rate:	1.561	0.827	2.389
(20) Relativity to Underlying Present Rate:	1.655	1.510	.
(21) Credibility to Underlying Relativity:	0.360	0.310	.
(22) Industry Group Converted Pure Premium:	0.978	0.514	1.493
(23) Formula Relativity:	1.829	2.087	.
(24) Balanced Formula Relativity:	1.814	2.077	1.904

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## Calculation of Class Relativities

Class(es):		Effective: 7/1/2018							Manufacturing		
2041 CONFECTION MFG											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2011	189,619	1	23	140,150	119,005	15,958	62,712	337,825	1,367	0,415	1,782
2012	204,538	1	25	11,186	532,171	1,910	278,797	824,064	2,657	1,372	4,029
2013	225,929	1	16	23,846	277,380	3,140	91,811	396,176	1,333	0,420	1,754
2014	216,574	4	15	283,955	425,708	25,502	249,968	985,133	3,277	1,272	4,549
2015	235,757	0	16	0	67,039	0	60,642	127,681	0,284	0,257	0,542
<b>MA Total:</b>	<b>1,072,417</b>	<b>7</b>	<b>95</b>	<b>459,137</b>	<b>1,421,303</b>	<b>46,510</b>	<b>743,931</b>	<b>2,670,881</b>	<b>1,753</b>	<b>0,737</b>	<b>2,491</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	1.792	1.433	.
(14) Massachusetts Credibility:	0.310	0.440	.
(15) Countrywide Pure Premium:	1.231	0.569	1.800
(16) Countrywide Indicated Relativity:	1.373	1.235	.
(17) Countrywide Credibility:	0.350	0.280	.
(18) Countrywide Lost-Time Claims:	1070.0	.	.
(19) Pure Premium Underlying Present Rate:	1.315	0.708	2.023
(20) Relativity to Underlying Present Rate:	1.393	1.292	.
(21) Credibility to Underlying Relativity:	0.340	0.280	.
(22) Industry Group Converted Pure Premium:	0.978	0.514	1.493
(23) Formula Relativity:	1.510	1.338	.
(24) Balanced Formula Relativity:	1.497	1.332	1.440

Class(es):		Effective: 7/1/2018							Manufacturing		
2070 CREAMERY OR DAIRY & ROUTE SUPERVISORS, DRIVERS											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2011	269,575	2	40	43,432	651,540	420,086	207,055	1,322,113	2,578	2,326	4,904
2012	288,812	1	25	266,345	273,190	39,458	120,748	699,741	1,868	0,555	2,423
2013	293,456	3	36	579,862	494,707	140,463	174,724	1,389,756	3,662	1,074	4,736
2014	298,686	3	30	263,453	352,854	107,035	169,938	893,279	2,063	0,927	2,991
2015	297,506	1	21	178,130	49,723	51,760	107,214	386,827	0,766	0,534	1,300
<b>MA Total:</b>	<b>1,448,036</b>	<b>10</b>	<b>152</b>	<b>1,331,221</b>	<b>1,822,014</b>	<b>758,801</b>	<b>779,679</b>	<b>4,691,715</b>	<b>2,178</b>	<b>1,062</b>	<b>3,240</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	2.226	2.066	.
(14) Massachusetts Credibility:	0.410	0.580	.
(15) Countrywide Pure Premium:	1.811	0.800	2.611
(16) Countrywide Indicated Relativity:	2.020	1.737	.
(17) Countrywide Credibility:	0.300	0.210	.
(18) Countrywide Lost-Time Claims:	3358.0	.	.
(19) Pure Premium Underlying Present Rate:	2.012	1.073	3.085
(20) Relativity to Underlying Present Rate:	2.133	1.958	.
(21) Credibility to Underlying Relativity:	0.290	0.210	.
(22) Industry Group Converted Pure Premium:	0.978	0.514	1.493
(23) Formula Relativity:	2.137	1.974	.
(24) Balanced Formula Relativity:	2.118	1.964	2.065

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## Calculation of Class Relativities

Class(es): 2081 BUTCHERING		Effective: 7/1/2018							Manufacturing		
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2011	18,553	0	25	0	15,375	0	36,992	52,367	0.829	1.994	2.823
2012	16,408	0	9	0	38,698	0	26,009	64,706	2.358	1.585	3.944
2013	16,802	0	20	0	1,608	0	10,850	12,458	0.096	0.646	0.741
2014	18,882	0	10	0	50	0	5,984	6,034	0.003	0.317	0.320
2015	21,751	0	7	0	5,535	0	6,435	11,970	0.254	0.296	0.550
<b>MA Total:</b>	<b>92,395</b>	<b>0</b>	<b>71</b>	<b>0</b>	<b>61,265</b>	<b>0</b>	<b>86,269</b>	<b>147,535</b>	<b>0.663</b>	<b>0.934</b>	<b>1.597</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.678	1.816	.
(14) Massachusetts Credibility:	0.130	0.220	.
(15) Countrywide Pure Premium:	1.267	0.779	2.046
(16) Countrywide Indicated Relativity:	1.413	1.691	.
(17) Countrywide Credibility:	0.440	0.390	.
(18) Countrywide Lost-Time Claims:	869.00	.	.
(19) Pure Premium Underlying Present Rate:	1.652	1.511	3.163
(20) Relativity to Underlying Present Rate:	1.752	2.757	.
(21) Credibility to Underlying Relativity:	0.430	0.390	.
(22) Industry Group Converted Pure Premium:	0.978	0.514	1.493
(23) Formula Relativity:	1.463	2.134	.
(24) Balanced Formula Relativity:	1.450	2.124	1.682

Class(es): 2089 PACKING HOUSE- ALL OPERATIONS		Effective: 7/1/2018							Manufacturing		
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2011	1,027,494	9	214	441,675	1,502,050	80,618	717,983	2,742,326	1.892	0.777	2.669
2012	1,115,663	14	208	1,199,610	1,044,661	333,243	445,242	3,022,755	2.012	0.698	2.709
2013	1,286,083	10	203	848,255	1,650,888	329,875	547,763	3,376,780	1.943	0.682	2.626
2014	1,419,407	7	212	780,118	814,831	288,059	487,285	2,370,293	1.124	0.546	1.670
2015	1,658,481	11	226	1,119,197	2,413,608	220,478	1,177,989	4,931,272	2.130	0.843	2.973
<b>MA Total:</b>	<b>6,507,127</b>	<b>51</b>	<b>1,063</b>	<b>4,388,855</b>	<b>7,426,037</b>	<b>1,252,272</b>	<b>3,376,262</b>	<b>16,443,427</b>	<b>1.816</b>	<b>0.711</b>	<b>2.527</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	1.856	1.383	.
(14) Massachusetts Credibility:	0.660	0.940	.
(15) Countrywide Pure Premium:	1.202	0.629	1.831
(16) Countrywide Indicated Relativity:	1.341	1.364	.
(17) Countrywide Credibility:	0.170	0.030	.
(18) Countrywide Lost-Time Claims:	10922	.	.
(19) Pure Premium Underlying Present Rate:	1.472	0.796	2.269
(20) Relativity to Underlying Present Rate:	1.561	1.453	.
(21) Credibility to Underlying Relativity:	0.170	0.030	.
(22) Industry Group Converted Pure Premium:	0.978	0.514	1.493
(23) Formula Relativity:	1.718	1.385	.
(24) Balanced Formula Relativity:	1.703	1.378	1.591

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## Calculation of Class Relativities

Class(es):		Effective: 7/1/2018							Manufacturing		
2095 MEAT PRODUCTS MFG-NOC											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2011	385.043	7	77	466.033	392.885	103.206	189.599	1,151.722	2.231	0.760	2.991
2012	392.719	2	85	236.622	591.593	35.071	316.045	1,179.331	2.109	0.894	3.003
2013	401.525	1	67	257.333	660.811	27.155	268.765	1,214.065	2.287	0.737	3.024
2014	398.697	0	60	0	315.504	0	140.575	456.078	0.791	0.353	1.144
2015	406.845	4	60	762.413	628.761	174.327	312.411	1,877.911	3.419	1.196	4.616
<b>MA Total:</b>	<b>1,984.829</b>	<b>14</b>	<b>349</b>	<b>1,722.400</b>	<b>2,589.553</b>	<b>339.759</b>	<b>1,227.395</b>	<b>5,879.108</b>	<b>2.172</b>	<b>0.790</b>	<b>2.962</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	2.220	1.535	.
(14) Massachusetts Credibility:	0.440	0.610	.
(15) Countrywide Pure Premium:	1.387	0.744	2.131
(16) Countrywide Indicated Relativity:	1.547	1.615	.
(17) Countrywide Credibility:	0.280	0.200	.
(18) Countrywide Lost-Time Claims:	2998.0	.	.
(19) Pure Premium Underlying Present Rate:	1.721	0.892	2.613
(20) Relativity to Underlying Present Rate:	1.824	1.628	.
(21) Credibility to Underlying Relativity:	0.280	0.190	.
(22) Industry Group Converted Pure Premium:	0.978	0.514	1.493
(23) Formula Relativity:	1.921	1.569	.
(24) Balanced Formula Relativity:	1.904	1.561	1.786

Class(es):		Effective: 7/1/2018							Manufacturing		
2111 CANNERY NOC											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2011	4.478	0	2	0	0	0	1.164	1.164	0.000	0.260	0.260
2012	14.988	0	4	0	6.643	0	3.243	9.886	0.443	0.216	0.660
2013	6.454	0	0	0	0	0	0	0	0.000	0.000	0.000
2014	7.438	0	1	0	2.036	0	1.621	3.657	0.274	0.218	0.492
2015	9.343	0	1	0	0	0	311	311	0.000	0.033	0.033
<b>MA Total:</b>	<b>42.701</b>	<b>0</b>	<b>8</b>	<b>0</b>	<b>8.679</b>	<b>0</b>	<b>6.339</b>	<b>15.018</b>	<b>0.203</b>	<b>0.148</b>	<b>0.352</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.208	0.289	.
(14) Massachusetts Credibility:	0.080	0.110	.
(15) Countrywide Pure Premium:	1.105	0.576	1.681
(16) Countrywide Indicated Relativity:	1.232	1.251	.
(17) Countrywide Credibility:	0.460	0.450	.
(18) Countrywide Lost-Time Claims:	1126.0	.	.
(19) Pure Premium Underlying Present Rate:	1.063	0.576	1.638
(20) Relativity to Underlying Present Rate:	1.126	1.051	.
(21) Credibility to Underlying Relativity:	0.460	0.440	.
(22) Industry Group Converted Pure Premium:	0.978	0.514	1.493
(23) Formula Relativity:	1.101	1.057	.
(24) Balanced Formula Relativity:	1.092	1.052	1.078



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## Calculation of Class Relativities

Class(es):		Effective: 7/1/2018							Manufacturing		
2115 SEAFOOD PRODUCTS MFG-NOC											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2011	224,850	1	55	13,341	918,756	17,871	259,543	1,209,510	4,145	1,234	5,379
2012	208,009	1	52	66,260	588,431	7,737	205,493	867,922	3,147	1,025	4,173
2013	128,207	0	25	0	349,473	0	128,363	477,836	2,726	1,001	3,727
2014	178,880	2	27	879,719	369,413	110,864	146,289	1,506,284	6,983	1,438	8,421
2015	173,410	2	37	236,538	146,661	103,221	122,613	609,033	2,210	1,302	3,512
<b>MA Total:</b>	<b>913,355</b>	<b>6</b>	<b>196</b>	<b>1,195,858</b>	<b>2,372,734</b>	<b>239,694</b>	<b>862,301</b>	<b>4,670,586</b>	<b>3,907</b>	<b>1,207</b>	<b>5,114</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	3.993	2.346	.
(14) Massachusetts Credibility:	0.330	0.520	.
(15) Countrywide Pure Premium:	0.000	0.000	0.000
(16) Countrywide Indicated Relativity:	2.007	2.327	.
(17) Countrywide Credibility:	0.000	0.000	.
(18) Countrywide Lost-Time Claims:	0.000	.	.
(19) Pure Premium Underlying Present Rate:	1.918	1.293	3.211
(20) Relativity to Underlying Present Rate:	2.033	2.359	.
(21) Credibility to Underlying Relativity:	0.670	0.480	.
(22) Industry Group Converted Pure Premium:	0.978	0.514	1.493
(23) Formula Relativity:	2.680	2.352	.
(24) Balanced Formula Relativity:	2.657	2.341	2.548

Class(es):		Effective: 7/1/2018							Manufacturing		
2121 BREWERY & DRIVERS											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2011	73,032	0	4	0	788	0	3,210	3,998	0.011	0.044	0.055
2012	81,670	0	7	0	3,531	0	29,494	33,025	0.043	0.361	0.404
2013	93,124	0	16	0	5,712	0	25,296	31,007	0.061	0.272	0.333
2014	114,534	0	15	0	3,821	0	10,558	14,379	0.033	0.092	0.126
2015	159,589	0	21	0	123,925	0	41,306	165,232	0.777	0.259	1.035
<b>MA Total:</b>	<b>521,948</b>	<b>0</b>	<b>63</b>	<b>0</b>	<b>137,777</b>	<b>0</b>	<b>109,863</b>	<b>247,641</b>	<b>0.264</b>	<b>0.210</b>	<b>0.474</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.270	0.409	.
(14) Massachusetts Credibility:	0.170	0.270	.
(15) Countrywide Pure Premium:	0.635	0.347	0.982
(16) Countrywide Indicated Relativity:	0.708	0.752	.
(17) Countrywide Credibility:	0.420	0.370	.
(18) Countrywide Lost-Time Claims:	690.00	.	.
(19) Pure Premium Underlying Present Rate:	0.646	0.434	1.080
(20) Relativity to Underlying Present Rate:	0.685	0.792	.
(21) Credibility to Underlying Relativity:	0.410	0.360	.
(22) Industry Group Converted Pure Premium:	0.978	0.514	1.493
(23) Formula Relativity:	0.624	0.674	.
(24) Balanced Formula Relativity:	0.619	0.671	0.637

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 Exhibit 20

## Calculation of Class Relativities

Class(es):		Effective: 7/1/2018							Manufacturing		
2130 SPIRITUOUS LIQUOR DISTILLERY											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2011	1.749	0	0	0	0	0	0	0	0.000	0.000	0.000
2012	1.748	0	0	0	0	0	0	0	0.000	0.000	0.000
2013	1.148	0	0	0	0	0	0	0	0.000	0.000	0.000
2014	5.036	0	0	0	0	0	0	0	0.000	0.000	0.000
2015	15.996	0	1	0	0	0	1,309	1,309	0.000	0.082	0.082
<b>MA Total:</b>	<b>25.676</b>	<b>0</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>1,309</b>	<b>1,309</b>	<b>0.000</b>	<b>0.051</b>	<b>0.051</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.000	0.099	.
(14) Massachusetts Credibility:	0.060	0.080	.
(15) Countrywide Pure Premium:	0.967	0.398	1.366
(16) Countrywide Indicated Relativity:	1.079	0.864	.
(17) Countrywide Credibility:	0.470	0.460	.
(18) Countrywide Lost-Time Claims:	259.00	.	.
(19) Pure Premium Underlying Present Rate:	0.920	0.491	1.411
(20) Relativity to Underlying Present Rate:	0.975	0.896	.
(21) Credibility to Underlying Relativity:	0.470	0.460	.
(22) Industry Group Converted Pure Premium:	0.978	0.514	1.493
(23) Formula Relativity:	0.965	0.818	.
(24) Balanced Formula Relativity:	0.957	0.813	0.908

Class(es):		Effective: 7/1/2018							Manufacturing		
2131 SPIRITUOUS LIQUOR BOTTLING											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2011	43.388	0	8	0	15,216	0	52,041	67,257	0.351	1.199	1,550
2012	49.249	0	10	0	4,936	0	6,929	11,865	0.100	0.141	0.241
2013	51.848	0	14	0	178,204	0	115,615	293,818	3.437	2.230	5,667
2014	64.419	0	18	0	284,021	0	158,829	442,850	4.409	2.466	6,875
2015	56.368	0	18	0	30,862	0	22,018	52,879	0.548	0.391	0.938
<b>MA Total:</b>	<b>265.272</b>	<b>0</b>	<b>68</b>	<b>0</b>	<b>513,239</b>	<b>0</b>	<b>355,432</b>	<b>868,670</b>	<b>1.935</b>	<b>1.340</b>	<b>3.275</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	1.977	2.605	.
(14) Massachusetts Credibility:	0.160	0.240	.
(15) Countrywide Pure Premium:	1.082	0.402	1.484
(16) Countrywide Indicated Relativity:	1.207	0.872	.
(17) Countrywide Credibility:	0.420	0.380	.
(18) Countrywide Lost-Time Claims:	183.00	.	.
(19) Pure Premium Underlying Present Rate:	1.125	0.645	1.770
(20) Relativity to Underlying Present Rate:	1.192	1.176	.
(21) Credibility to Underlying Relativity:	0.420	0.380	.
(22) Industry Group Converted Pure Premium:	0.978	0.514	1.493
(23) Formula Relativity:	1.324	1.404	.
(24) Balanced Formula Relativity:	1.313	1.396	1.341

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 Exhibit 21

## Calculation of Class Relativities

Class(es): 2143 FRUIT JUICE MFG		Effective: 7/1/2018							Manufacturing		
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2011	63.202	0	3	0	0	0	1.034	1.034	0.000	0.016	0.016
2012	62.547	0	6	0	0	0	3.751	3.751	0.000	0.060	0.060
2013	43.418	0	15	0	13.048	0	16.331	29.379	0.301	0.376	0.677
2014	46.627	0	8	0	223	0	7.821	8.045	0.005	0.168	0.173
2015	57.932	1	18	107.206	109.104	35.306	78.574	330.190	3.734	1.966	5.700
<b>MA Total:</b>	<b>273.726</b>	<b>1</b>	<b>50</b>	<b>107.206</b>	<b>122.375</b>	<b>35.306</b>	<b>107.511</b>	<b>372.398</b>	<b>0.839</b>	<b>0.522</b>	<b>1.360</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.857	1.015	.
(14) Massachusetts Credibility:	0.150	0.230	.
(15) Countrywide Pure Premium:	0.994	0.472	1.466
(16) Countrywide Indicated Relativity:	1.109	1.024	.
(17) Countrywide Credibility:	0.430	0.390	.
(18) Countrywide Lost-Time Claims:	248.00	.	.
(19) Pure Premium Underlying Present Rate:	0.833	0.558	1.391
(20) Relativity to Underlying Present Rate:	0.883	1.018	.
(21) Credibility to Underlying Relativity:	0.420	0.380	.
(22) Industry Group Converted Pure Premium:	0.978	0.514	1.493
(23) Formula Relativity:	0.976	1.019	.
(24) Balanced Formula Relativity:	0.968	1.014	0.984

Class(es): 2150 ICE MFG		Effective: 7/1/2018							Manufacturing		
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2011	9.732	0	1	0	0	0	393	393	0.000	0.040	0.040
2012	8.181	0	0	0	0	0	0	0	0.000	0.000	0.000
2013	7.624	0	2	0	3.444	0	11.392	14.836	0.452	1.494	1.946
2014	6.795	0	2	0	3.005	0	2.377	5.382	0.442	0.350	0.792
2015	7.338	0	1	0	10.259	0	1.909	12.168	1.398	0.260	1.658
<b>MA Total:</b>	<b>39.670</b>	<b>0</b>	<b>6</b>	<b>0</b>	<b>16.707</b>	<b>0</b>	<b>16.071</b>	<b>32.779</b>	<b>0.421</b>	<b>0.405</b>	<b>0.826</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.430	0.788	.
(14) Massachusetts Credibility:	0.100	0.160	.
(15) Countrywide Pure Premium:	0.000	0.000	0.000
(16) Countrywide Indicated Relativity:	2.496	2.586	.
(17) Countrywide Credibility:	0.000	0.000	.
(18) Countrywide Lost-Time Claims:	0.000	.	.
(19) Pure Premium Underlying Present Rate:	2.386	1.437	3.823
(20) Relativity to Underlying Present Rate:	2.529	2.622	.
(21) Credibility to Underlying Relativity:	0.900	0.840	.
(22) Industry Group Converted Pure Premium:	0.978	0.514	1.493
(23) Formula Relativity:	2.319	2.329	.
(24) Balanced Formula Relativity:	2.299	2.317	2.305

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## Calculation of Class Relativities

Class(es): 2156 BOTTLING-NOT CARBONATED LIQUIDS OR SPIRIT LIQRS & RTE SUP,DR									Effective: 7/1/2018 Manufacturing		
Converted Unlimited Losses											
Amount											
Claim Count				Indemnity		Medical			MA Indicated Pure Premiums		
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2011	89,699	0	19	0	5,916	0	19,262	25,178	0.066	0.215	0.281
2012	89,562	0	9	0	2,171	0	7,324	9,495	0.024	0.082	0.106
2013	64,810	1	13	80,687	250,326	9,956	162,953	503,922	5.107	2.668	7.775
2014	77,369	0	14	0	32,409	0	57,838	90,247	0.419	0.748	1.166
2015	89,808	1	11	86,359	191,630	69,495	96,794	444,277	3.095	1.852	4.947
<b>MA Total:</b>	<b>411,248</b>	<b>2</b>	<b>66</b>	<b>167,046</b>	<b>482,451</b>	<b>79,451</b>	<b>344,171</b>	<b>1,073,118</b>	<b>1.579</b>	<b>1.030</b>	<b>2.609</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	1.614	2.003	.
(14) Massachusetts Credibility:	0.280	0.390	.
(15) Countrywide Pure Premium:	0.000	0.000	0.000
(16) Countrywide Indicated Relativity:	2.802	2.508	.
(17) Countrywide Credibility:	0.000	0.000	.
(18) Countrywide Lost-Time Claims:	0.000	.	.
(19) Pure Premium Underlying Present Rate:	2.679	1.394	4.072
(20) Relativity to Underlying Present Rate:	2.839	2.543	.
(21) Credibility to Underlying Relativity:	0.720	0.610	.
(22) Industry Group Converted Pure Premium:	0.978	0.514	1.493
(23) Formula Relativity:	2.496	2.332	.
(24) Balanced Formula Relativity:	2.475	2.321	2.422

Class(es): 2157 BOTTLING NOC & ROUTE SUPERVISORS, DRIVERS									Effective: 7/1/2018 Manufacturing		
Converted Unlimited Losses											
Amount											
Claim Count				Indemnity		Medical			MA Indicated Pure Premiums		
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2011	287,750	1	111	143,446	226,483	19,221	217,272	606,421	1.286	0.822	2.107
2012	294,584	1	104	13,827	640,929	2,806	275,663	933,225	2.223	0.945	3.168
2013	294,943	2	103	313,504	428,040	54,121	156,264	951,928	2.514	0.713	3.228
2014	322,436	1	83	99,161	283,554	14,192	201,627	598,533	1.187	0.669	1.856
2015	344,869	1	89	66,795	282,792	20,292	345,633	715,511	1.014	1.061	2.075
<b>MA Total:</b>	<b>1,544,582</b>	<b>6</b>	<b>490</b>	<b>636,732</b>	<b>1,861,797</b>	<b>110,632</b>	<b>1,196,458</b>	<b>3,805,619</b>	<b>1.618</b>	<b>0.846</b>	<b>2.464</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	1.653	1.645	.
(14) Massachusetts Credibility:	0.420	0.580	.
(15) Countrywide Pure Premium:	2.360	0.895	3.255
(16) Countrywide Indicated Relativity:	2.633	1.941	.
(17) Countrywide Credibility:	0.290	0.210	.
(18) Countrywide Lost-Time Claims:	6435.0	.	.
(19) Pure Premium Underlying Present Rate:	2.031	1.012	3.043
(20) Relativity to Underlying Present Rate:	2.153	1.847	.
(21) Credibility to Underlying Relativity:	0.290	0.210	.
(22) Industry Group Converted Pure Premium:	0.978	0.514	1.493
(23) Formula Relativity:	2.082	1.750	.
(24) Balanced Formula Relativity:	2.064	1.741	1.953

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## Calculation of Class Relativities

Class(es): 2172 CIGARETTE MFG		Effective: 7/1/2018							Manufacturing		
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2011	172	0	0	0	0	0	0	0	0.000	0.000	0.000
2012	52	0	0	0	0	0	0	0	0.000	0.000	0.000
2013	0	0	0	0	0	0	0	0	0.000	0.000	0.000
2014	0	0	0	0	0	0	0	0	0.000	0.000	0.000
2015	1,669	0	0	0	0	0	0	0	0.000	0.000	0.000
<b>MA Total:</b>	<b>1,894</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0.000</b>	<b>0.000</b>	<b>0.000</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.000	0.000	.
(14) Massachusetts Credibility:	0.020	0.030	.
(15) Countrywide Pure Premium:	0.907	0.342	1.249
(16) Countrywide Indicated Relativity:	1.011	0.742	.
(17) Countrywide Credibility:	0.490	0.490	.
(18) Countrywide Lost-Time Claims:	317.00	.	.
(19) Pure Premium Underlying Present Rate:	1.248	0.418	1.666
(20) Relativity to Underlying Present Rate:	1.323	0.763	.
(21) Credibility to Underlying Relativity:	0.490	0.480	.
(22) Industry Group Converted Pure Premium:	0.978	0.514	1.493
(23) Formula Relativity:	1.144	0.730	.
(24) Balanced Formula Relativity:	1.134	0.726	0.993

Class(es): 2211 COTTON BATTING,WADDING OR WASTE MFG		Effective: 7/1/2018							Manufacturing		
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2011	1,416	0	2	0	0	0	1,136	1,136	0.000	0.803	0.803
2012	1,123	0	3	0	2,045	0	3,393	5,438	1.821	3.021	4.842
2013	551	0	0	0	0	0	0	0	0.000	0.000	0.000
2014	468	0	0	0	0	0	0	0	0.000	0.000	0.000
2015	263	0	0	0	0	0	0	0	0.000	0.000	0.000
<b>MA Total:</b>	<b>3,820</b>	<b>0</b>	<b>5</b>	<b>0</b>	<b>2,045</b>	<b>0</b>	<b>4,529</b>	<b>6,574</b>	<b>0.535</b>	<b>1.186</b>	<b>1.721</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.547	2.305	.
(14) Massachusetts Credibility:	0.050	0.070	.
(15) Countrywide Pure Premium:	2.795	1.718	4.512
(16) Countrywide Indicated Relativity:	3.117	3.727	.
(17) Countrywide Credibility:	0.310	0.330	.
(18) Countrywide Lost-Time Claims:	61.000	.	.
(19) Pure Premium Underlying Present Rate:	3.403	1.892	5.295
(20) Relativity to Underlying Present Rate:	3.607	3.451	.
(21) Credibility to Underlying Relativity:	0.640	0.600	.
(22) Industry Group Converted Pure Premium:	0.978	0.514	1.493
(23) Formula Relativity:	3.302	3.462	.
(24) Balanced Formula Relativity:	3.274	3.445	3.333

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Section IX - G  
 Exhibit 24

## Calculation of Class Relativities

Class(es):		Effective: 7/1/2018							Manufacturing		
2220 YARN OR THREAD MFG-COTTON											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2011	87,449	0	27	0	177,076	0	129,880	306,956	2,025	1,485	3,510
2012	87,512	0	35	0	173,475	0	78,771	252,246	1,982	0,900	2,882
2013	85,462	1	29	132,197	155,965	12,741	57,165	358,069	3,372	0,818	4,190
2014	94,001	0	25	0	71,610	0	56,162	127,772	0,762	0,597	1,359
2015	96,917	1	17	53,316	782	8,779	15,514	78,390	0,558	0,251	0,809
<b>MA Total:</b>	<b>451,341</b>	<b>2</b>	<b>133</b>	<b>185,513</b>	<b>578,908</b>	<b>21,520</b>	<b>337,491</b>	<b>1,123,433</b>	<b>1,694</b>	<b>0,795</b>	<b>2,489</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	1.731	1.547	.
(14) Massachusetts Credibility:	0.210	0.330	.
(15) Countrywide Pure Premium:	0.786	0.476	1.262
(16) Countrywide Indicated Relativity:	0.876	1.034	.
(17) Countrywide Credibility:	0.400	0.340	.
(18) Countrywide Lost-Time Claims:	795.00	.	.
(19) Pure Premium Underlying Present Rate:	1.265	0.837	2.101
(20) Relativity to Underlying Present Rate:	1.340	1.526	.
(21) Credibility to Underlying Relativity:	0.390	0.330	.
(22) Industry Group Converted Pure Premium:	0.978	0.514	1.493
(23) Formula Relativity:	1.237	1.365	.
(24) Balanced Formula Relativity:	1.226	1.359	1.272

Class(es):		Effective: 7/1/2018							Manufacturing		
2260 WOOL COMBING OR SCOURING											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2011	544	0	0	0	0	0	0	0	0.000	0.000	0.000
2012	550	0	0	0	0	0	0	0	0.000	0.000	0.000
2013	405	0	0	0	0	0	0	0	0.000	0.000	0.000
2014	488	0	0	0	0	0	0	0	0.000	0.000	0.000
2015	522	0	0	0	0	0	0	0	0.000	0.000	0.000
<b>MA Total:</b>	<b>2,508</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0.000</b>	<b>0.000</b>	<b>0.000</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.000	0.000	.
(14) Massachusetts Credibility:	0.040	0.050	.
(15) Countrywide Pure Premium:	1.232	0.662	1.894
(16) Countrywide Indicated Relativity:	1.374	1.437	.
(17) Countrywide Credibility:	0.140	0.140	.
(18) Countrywide Lost-Time Claims:	8.000	.	.
(19) Pure Premium Underlying Present Rate:	3.541	1.680	5.220
(20) Relativity to Underlying Present Rate:	3.753	3.065	.
(21) Credibility to Underlying Relativity:	0.820	0.810	.
(22) Industry Group Converted Pure Premium:	0.978	0.514	1.493
(23) Formula Relativity:	3.270	2.684	.
(24) Balanced Formula Relativity:	3.242	2.670	3.045

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## Calculation of Class Relativities

Class(es): 2288 FELTING MFG		Effective: 7/1/2018							Manufacturing		
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2011	107,534	0	18	0	129,707	0	100,465	230,172	1,206	0,934	2,140
2012	120,026	0	20	0	32,209	0	34,630	66,840	0,268	0,289	0,557
2013	128,095	0	26	0	124,282	0	52,648	176,930	0,970	0,411	1,381
2014	110,090	1	17	129,158	250,441	9,716	37,795	427,109	3,448	0,432	3,880
2015	117,630	0	25	0	258,246	0	73,193	331,440	2,195	0,622	2,818
<b>MA Total:</b>	<b>583,375</b>	<b>1</b>	<b>106</b>	<b>129,158</b>	<b>794,885</b>	<b>9,716</b>	<b>298,732</b>	<b>1,232,491</b>	<b>1,584</b>	<b>0,529</b>	<b>2,113</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	1.619	1.028	.
(14) Massachusetts Credibility:	0.260	0.380	.
(15) Countrywide Pure Premium:	1.427	0.862	2.289
(16) Countrywide Indicated Relativity:	1.591	1.871	.
(17) Countrywide Credibility:	0.370	0.310	.
(18) Countrywide Lost-Time Claims:	193.00	.	.
(19) Pure Premium Underlying Present Rate:	1.597	0.895	2.492
(20) Relativity to Underlying Present Rate:	1.693	1.633	.
(21) Credibility to Underlying Relativity:	0.370	0.310	.
(22) Industry Group Converted Pure Premium:	0.978	0.514	1.493
(23) Formula Relativity:	1.636	1.477	.
(24) Balanced Formula Relativity:	1.622	1.469	1.569

Class(es): 2305 TEXTILE FIBER MFG-SYNTHETIC		Effective: 7/1/2018							Manufacturing		
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2011	41,146	0	5	0	26,495	0	13,210	39,705	0,644	0,321	0,965
2012	33,800	1	5	166,728	330,201	115,421	84,716	697,065	14,702	5,921	20,623
2013	13,319	3	2	140,122	28,073	29,557	2,642	200,393	12,629	2,418	15,046
2014	2,148	0	2	0	0	0	1,766	1,766	0,000	0,822	0,822
2015	3,525	0	2	0	3,259	0	1,435	4,694	0,925	0,407	1,332
<b>MA Total:</b>	<b>93,938</b>	<b>4</b>	<b>16</b>	<b>306,849</b>	<b>388,027</b>	<b>144,978</b>	<b>103,768</b>	<b>943,622</b>	<b>7,397</b>	<b>2,648</b>	<b>10,045</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	7.560	5.149	.
(14) Massachusetts Credibility:	0.130	0.180	.
(15) Countrywide Pure Premium:	1.025	0.501	1.526
(16) Countrywide Indicated Relativity:	1.144	1.087	.
(17) Countrywide Credibility:	0.440	0.410	.
(18) Countrywide Lost-Time Claims:	729.00	.	.
(19) Pure Premium Underlying Present Rate:	1.766	0.929	2.695
(20) Relativity to Underlying Present Rate:	1.872	1.696	.
(21) Credibility to Underlying Relativity:	0.430	0.410	.
(22) Industry Group Converted Pure Premium:	0.978	0.514	1.493
(23) Formula Relativity:	2.291	2.068	.
(24) Balanced Formula Relativity:	2.271	2.057	2.197

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## Calculation of Class Relativities

Class(es): 2362 KNIT GOODS MFG NOC		Effective: 7/1/2018							Manufacturing		
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2011	13.701	0	8	0	7.212	0	14.131	21.343	0.526	1.031	1.558
2012	12.958	0	1	0	0	0	342	342	0.000	0.026	0.026
2013	14.472	0	1	0	0	0	306	306	0.000	0.021	0.021
2014	13.641	0	1	0	0	0	3.046	3.046	0.000	0.223	0.223
2015	9.753	0	2	0	8.446	0	25.844	34.289	0.866	2.650	3.516
<b>MA Total:</b>	<b>64.526</b>	<b>0</b>	<b>13</b>	<b>0</b>	<b>15.658</b>	<b>0</b>	<b>43.670</b>	<b>59.327</b>	<b>0.243</b>	<b>0.677</b>	<b>0.919</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.248	1.316	.
(14) Massachusetts Credibility:	0.080	0.120	.
(15) Countrywide Pure Premium:	0.759	0.468	1.227
(16) Countrywide Indicated Relativity:	0.847	1.014	.
(17) Countrywide Credibility:	0.460	0.440	.
(18) Countrywide Lost-Time Claims:	163.00	.	.
(19) Pure Premium Underlying Present Rate:	0.721	0.468	1.189
(20) Relativity to Underlying Present Rate:	0.764	0.854	.
(21) Credibility to Underlying Relativity:	0.460	0.440	.
(22) Industry Group Converted Pure Premium:	0.978	0.514	1.493
(23) Formula Relativity:	0.761	0.980	.
(24) Balanced Formula Relativity:	0.754	0.975	0.830

Class(es): 2380 WEBBING MFG		Effective: 7/1/2018							Manufacturing		
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2011	72.496	1	13	59.534	1.110	12.423	11.114	84.181	0.837	0.325	1.161
2012	67.197	0	7	0	7.297	0	9.540	16.837	0.109	0.142	0.251
2013	67.407	1	10	179.187	154.311	71.346	55.430	460.275	4.948	1.881	6.828
2014	70.637	0	5	0	7.312	0	9.579	16.892	0.104	0.136	0.239
2015	63.280	0	15	0	22.395	0	32.657	55.052	0.354	0.516	0.870
<b>MA Total:</b>	<b>341.018</b>	<b>2</b>	<b>50</b>	<b>238.721</b>	<b>192.426</b>	<b>83.769</b>	<b>118.321</b>	<b>633.236</b>	<b>1.264</b>	<b>0.593</b>	<b>1.857</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	1.292	1.152	.
(14) Massachusetts Credibility:	0.180	0.270	.
(15) Countrywide Pure Premium:	1.152	0.644	1.796
(16) Countrywide Indicated Relativity:	1.285	1.398	.
(17) Countrywide Credibility:	0.410	0.370	.
(18) Countrywide Lost-Time Claims:	242.00	.	.
(19) Pure Premium Underlying Present Rate:	1.131	0.693	1.823
(20) Relativity to Underlying Present Rate:	1.198	1.264	.
(21) Credibility to Underlying Relativity:	0.410	0.360	.
(22) Industry Group Converted Pure Premium:	0.978	0.514	1.493
(23) Formula Relativity:	1.251	1.283	.
(24) Balanced Formula Relativity:	1.240	1.277	1.253



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## Calculation of Class Relativities

Class(es): 2402 CARPET OR RUG MFG NOC		Effective: 7/1/2018							Manufacturing		
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2011	5,165	0	1	0	0	0	368	368	0.000	0.071	0.071
2012	8,903	0	3	0	146	0	1,883	2,029	0.016	0.212	0.228
2013	9,491	0	2	0	0	0	261	261	0.000	0.027	0.027
2014	6,545	0	0	0	0	0	0	0	0.000	0.000	0.000
2015	8,562	0	0	0	0	0	0	0	0.000	0.000	0.000
<b>MA Total:</b>	<b>38,666</b>	<b>0</b>	<b>6</b>	<b>0</b>	<b>146</b>	<b>0</b>	<b>2,512</b>	<b>2,659</b>	<b>0.004</b>	<b>0.065</b>	<b>0.069</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.004	0.126	.
(14) Massachusetts Credibility:	0.070	0.110	.
(15) Countrywide Pure Premium:	1.286	0.746	2.033
(16) Countrywide Indicated Relativity:	1.435	1.619	.
(17) Countrywide Credibility:	0.470	0.450	.
(18) Countrywide Lost-Time Claims:	359.00	.	.
(19) Pure Premium Underlying Present Rate:	1.028	0.603	1.631
(20) Relativity to Underlying Present Rate:	1.089	1.101	.
(21) Credibility to Underlying Relativity:	0.460	0.440	.
(22) Industry Group Converted Pure Premium:	0.978	0.514	1.493
(23) Formula Relativity:	1.176	1.227	.
(24) Balanced Formula Relativity:	1.166	1.221	1.185

Class(es): 2413 TEXTILE - BLEACHING, DYEING, MERCERZNG, FINISH		Effective: 7/1/2018							Manufacturing		
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2011	278,457	0	58	0	367,002	0	170,777	537,780	1.318	0.613	1.931
2012	228,889	1	56	180,710	391,119	25,454	168,769	766,051	2.498	0.849	3.347
2013	278,287	0	39	0	424,235	0	143,355	567,589	1.524	0.515	2.040
2014	328,027	2	42	198,350	461,469	42,961	211,099	913,880	2.011	0.775	2.786
2015	297,056	1	51	11,444	899,393	5,369	778,707	1,694,913	3.066	2.639	5.706
<b>MA Total:</b>	<b>1,410,716</b>	<b>4</b>	<b>246</b>	<b>390,504</b>	<b>2,543,218</b>	<b>73,785</b>	<b>1,472,707</b>	<b>4,480,213</b>	<b>2.080</b>	<b>1.096</b>	<b>3.176</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	2.125	2.132	.
(14) Massachusetts Credibility:	0.370	0.570	.
(15) Countrywide Pure Premium:	1.028	0.631	1.659
(16) Countrywide Indicated Relativity:	1.147	1.369	.
(17) Countrywide Credibility:	0.320	0.220	.
(18) Countrywide Lost-Time Claims:	260.00	.	.
(19) Pure Premium Underlying Present Rate:	1.635	1.035	2.669
(20) Relativity to Underlying Present Rate:	1.733	1.888	.
(21) Credibility to Underlying Relativity:	0.310	0.210	.
(22) Industry Group Converted Pure Premium:	0.978	0.514	1.493
(23) Formula Relativity:	1.691	1.913	.
(24) Balanced Formula Relativity:	1.676	1.903	1.754

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## Calculation of Class Relativities

Class(es):		Effective: 7/1/2018							Manufacturing		
2416 YARN OR THREAD DYEING OR FINISHING											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2011	18,839	0	3	0	0	0	1,768	1,768	0.000	0.094	0.094
2012	14,636	0	3	0	18,037	0	4,904	22,941	1.232	0.335	1.567
2013	16,577	1	4	97,472	108,900	24,726	32,222	263,320	12.449	3.435	15.885
2014	16,410	0	2	0	0	0	2,656	2,656	0.000	0.162	0.162
2015	14,775	1	3	1,266	697	6,900	17,536	26,399	0.133	1.654	1.787
<b>MA Total:</b>	<b>81,236</b>	<b>2</b>	<b>15</b>	<b>98,738</b>	<b>127,633</b>	<b>31,626</b>	<b>59,086</b>	<b>317,083</b>	<b>2.787</b>	<b>1.117</b>	<b>3.903</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	2.848	2.171	.
(14) Massachusetts Credibility:	0.110	0.150	.
(15) Countrywide Pure Premium:	1.021	0.387	1.408
(16) Countrywide Indicated Relativity:	1.138	0.839	.
(17) Countrywide Credibility:	0.260	0.280	.
(18) Countrywide Lost-Time Claims:	41.000	.	.
(19) Pure Premium Underlying Present Rate:	1.266	0.652	1.918
(20) Relativity to Underlying Present Rate:	1.342	1.189	.
(21) Credibility to Underlying Relativity:	0.630	0.570	.
(22) Industry Group Converted Pure Premium:	0.978	0.514	1.493
(23) Formula Relativity:	1.455	1.239	.
(24) Balanced Formula Relativity:	1.442	1.232	1.370

Class(es):		Effective: 7/1/2018							Manufacturing		
2417 CLOTH PRINTING											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2011	63,184	2	12	245,842	10,737	132,208	18,372	407,160	4.061	2.383	6.444
2012	52,651	0	9	0	95,278	0	19,681	114,958	1.810	0.374	2.183
2013	54,585	0	0	0	0	0	0	0	0.000	0.000	0.000
2014	54,295	0	2	0	94,482	0	16,313	110,795	1.740	0.300	2.041
2015	59,268	0	1	0	478	0	983	1,461	0.008	0.017	0.025
<b>MA Total:</b>	<b>283,984</b>	<b>2</b>	<b>24</b>	<b>245,842</b>	<b>200,975</b>	<b>132,208</b>	<b>55,348</b>	<b>634,373</b>	<b>1.573</b>	<b>0.660</b>	<b>2.234</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	1.608	1.284	.
(14) Massachusetts Credibility:	0.210	0.270	.
(15) Countrywide Pure Premium:	0.563	0.288	0.851
(16) Countrywide Indicated Relativity:	0.627	0.625	.
(17) Countrywide Credibility:	0.250	0.260	.
(18) Countrywide Lost-Time Claims:	36.000	.	.
(19) Pure Premium Underlying Present Rate:	1.910	0.797	2.708
(20) Relativity to Underlying Present Rate:	2.025	1.455	.
(21) Credibility to Underlying Relativity:	0.540	0.470	.
(22) Industry Group Converted Pure Premium:	0.978	0.514	1.493
(23) Formula Relativity:	1.588	1.193	.
(24) Balanced Formula Relativity:	1.574	1.187	1.441

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## Calculation of Class Relativities

Class(es): 2501 CLOTHING MFG		Effective: 7/1/2018							Manufacturing		
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2011	928.747	5	131	430.058	448.624	159.775	196.385	1,234.843	0.946	0.383	1.330
2012	919.934	3	122	47.203	701.100	26.943	510.864	1,286.111	0.813	0.585	1.398
2013	887.702	5	106	397.434	237.179	102.982	224.958	962.553	0.715	0.369	1.084
2014	861.626	3	81	329.699	1,224.002	97.312	284.600	1,935.613	1.803	0.443	2.246
2015	911.377	3	107	250.236	453.731	55.978	331.216	1,091.162	0.772	0.425	1.197
<b>MA Total:</b>	<b>4,509.386</b>	<b>19</b>	<b>547</b>	<b>1,454.631</b>	<b>3,064.637</b>	<b>442.991</b>	<b>1,548.023</b>	<b>6,510.281</b>	<b>1.002</b>	<b>0.442</b>	<b>1.444</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	1.024	0.859	.
(14) Massachusetts Credibility:	0.480	0.720	.
(15) Countrywide Pure Premium:	0.954	0.591	1.546
(16) Countrywide Indicated Relativity:	1.064	1.283	.
(17) Countrywide Credibility:	0.260	0.140	.
(18) Countrywide Lost-Time Claims:	2670.0	.	.
(19) Pure Premium Underlying Present Rate:	0.955	0.583	1.538
(20) Relativity to Underlying Present Rate:	1.012	1.064	.
(21) Credibility to Underlying Relativity:	0.260	0.140	.
(22) Industry Group Converted Pure Premium:	0.978	0.514	1.493
(23) Formula Relativity:	1.032	0.947	.
(24) Balanced Formula Relativity:	1.023	0.942	0.995

Class(es): 2503 DRESSMAKING OR TAILORING-CUSTOM EXCLUSIVELY		Effective: 7/1/2018							Manufacturing		
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2011	50.963	0	5	0	18.476	0	10.200	28.677	0.363	0.200	0.563
2012	50.099	0	2	0	4.516	0	19.154	23.670	0.090	0.382	0.472
2013	51.737	1	3	147.098	12.882	14.448	3.061	177.489	3.092	0.338	3.431
2014	62.087	0	2	0	4.887	0	1.632	6.520	0.079	0.026	0.105
2015	54.635	0	2	0	43.332	0	30.216	73.549	0.793	0.553	1.346
<b>MA Total:</b>	<b>269.520</b>	<b>1</b>	<b>14</b>	<b>147.098</b>	<b>84.093</b>	<b>14.448</b>	<b>64.265</b>	<b>309.904</b>	<b>0.858</b>	<b>0.292</b>	<b>1.150</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.877	0.568	.
(14) Massachusetts Credibility:	0.120	0.180	.
(15) Countrywide Pure Premium:	1.107	0.349	1.455
(16) Countrywide Indicated Relativity:	1.234	0.757	.
(17) Countrywide Credibility:	0.250	0.270	.
(18) Countrywide Lost-Time Claims:	37.000	.	.
(19) Pure Premium Underlying Present Rate:	0.523	0.308	0.831
(20) Relativity to Underlying Present Rate:	0.555	0.561	.
(21) Credibility to Underlying Relativity:	0.630	0.550	.
(22) Industry Group Converted Pure Premium:	0.978	0.514	1.493
(23) Formula Relativity:	0.763	0.615	.
(24) Balanced Formula Relativity:	0.757	0.612	0.707

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## Calculation of Class Relativities

Class(es):		Effective: 7/1/2018							Manufacturing		
2570 MATTRESS OR BOX SPRING MFG											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2011	110.957	3	19	339.987	352.141	107.227	88.874	888.229	6.238	1.767	8.005
2012	115.813	4	31	688.024	424.103	167.269	103.861	1,383.258	9.603	2.341	11.944
2013	29.228	0	8	0	55.995	0	10.431	66.426	1.916	0.357	2.273
2014	33.050	0	4	0	0	0	3.408	3.408	0.000	0.103	0.103
2015	38.338	0	6	0	1.254	0	2.584	3.838	0.033	0.067	0.100
<b>MA Total:</b>	<b>327.386</b>	<b>7</b>	<b>68</b>	<b>1,028,012</b>	<b>833,492</b>	<b>274,496</b>	<b>209,158</b>	<b>2,345,158</b>	<b>5.686</b>	<b>1.477</b>	<b>7.163</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	5.811	2.873	.
(14) Massachusetts Credibility:	0.260	0.400	.
(15) Countrywide Pure Premium:	1.798	0.803	2.600
(16) Countrywide Indicated Relativity:	2.005	1.742	.
(17) Countrywide Credibility:	0.370	0.300	.
(18) Countrywide Lost-Time Claims:	522.00	.	.
(19) Pure Premium Underlying Present Rate:	2.806	1.890	4.697
(20) Relativity to Underlying Present Rate:	2.975	3.449	.
(21) Credibility to Underlying Relativity:	0.370	0.300	.
(22) Industry Group Converted Pure Premium:	0.978	0.514	1.493
(23) Formula Relativity:	3.353	2.706	.
(24) Balanced Formula Relativity:	3.324	2.693	3.107

Class(es):		Effective: 7/1/2018							Manufacturing		
2576 CANVAS GOODS MFG NOC-SHOP											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2011	84.526	0	11	0	16.753	0	29.240	45.993	0.198	0.346	0.544
2012	91.237	0	8	0	41	0	3.207	3.249	0.000	0.035	0.036
2013	101.331	0	11	0	58.488	0	51.114	109.602	0.577	0.504	1.082
2014	111.278	1	11	2.795	51.201	3.364	60.192	117.552	0.485	0.571	1.056
2015	117.479	0	11	0	89.390	0	148.428	237.818	0.761	1.263	2.024
<b>MA Total:</b>	<b>505.850</b>	<b>1</b>	<b>52</b>	<b>2,795</b>	<b>215,873</b>	<b>3,364</b>	<b>292,181</b>	<b>514,213</b>	<b>0.432</b>	<b>0.584</b>	<b>1.017</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.442	1.136	.
(14) Massachusetts Credibility:	0.200	0.280	.
(15) Countrywide Pure Premium:	0.914	0.389	1.303
(16) Countrywide Indicated Relativity:	1.019	0.843	.
(17) Countrywide Credibility:	0.160	0.160	.
(18) Countrywide Lost-Time Claims:	11.000	.	.
(19) Pure Premium Underlying Present Rate:	0.914	0.498	1.411
(20) Relativity to Underlying Present Rate:	0.969	0.908	.
(21) Credibility to Underlying Relativity:	0.640	0.560	.
(22) Industry Group Converted Pure Premium:	0.978	0.514	1.493
(23) Formula Relativity:	0.871	0.962	.
(24) Balanced Formula Relativity:	0.864	0.957	0.896

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## Calculation of Class Relativities

Class(es):		Effective: 7/1/2018							Manufacturing			
2585 LAUNDRY NOC & ROUTE SUPERVISORS, DRIVERS												
		Converted Unlimited Losses										
		Amount										
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums				
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)	
2011	604,030	4	117	660,925	457,822	470,658	222,846	1,812,251	1,852	1,148	3,000	
2012	590,947	5	83	262,725	776,390	85,463	518,737	1,643,316	1,758	1,022	2,781	
2013	674,164	6	75	313,662	291,272	198,307	205,232	1,008,473	0,897	0,599	1,496	
2014	743,820	4	109	219,575	486,554	62,123	334,537	1,102,788	0,949	0,533	1,483	
2015	779,228	6	108	541,893	386,212	307,199	272,135	1,507,440	1,191	0,743	1,935	
<b>MA Total:</b>	<b>3,392,188</b>	<b>25</b>	<b>492</b>	<b>1,998,781</b>	<b>2,398,249</b>	<b>1,123,750</b>	<b>1,553,487</b>	<b>7,074,268</b>	<b>1,296</b>	<b>0,789</b>	<b>2,085</b>	

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	1.325	1.535	.
(14) Massachusetts Credibility:	0.520	0.760	.
(15) Countrywide Pure Premium:	1.709	0.793	2.502
(16) Countrywide Indicated Relativity:	1.906	1.720	.
(17) Countrywide Credibility:	0.240	0.120	.
(18) Countrywide Lost-Time Claims:	3724.0	.	.
(19) Pure Premium Underlying Present Rate:	1.547	0.903	2.449
(20) Relativity to Underlying Present Rate:	1.640	1.647	.
(21) Credibility to Underlying Relativity:	0.240	0.120	.
(22) Industry Group Converted Pure Premium:	0.978	0.514	1.493
(23) Formula Relativity:	1.540	1.570	.
(24) Balanced Formula Relativity:	1.527	1.562	1.539

Class(es):		Effective: 7/1/2018							Manufacturing			
2586 CLEANING OR DYEING & ROUTE SUPERVISORS, DRIVERS												
		Converted Unlimited Losses										
		Amount										
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums				
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)	
2011	505,594	1	44	45,313	388,966	2,543	186,429	623,252	0,859	0,374	1,233	
2012	514,043	4	32	329,051	147,040	158,675	150,818	785,584	0,926	0,602	1,528	
2013	510,922	1	41	47,414	88,343	4,308	82,115	222,180	0,266	0,169	0,435	
2014	492,235	0	54	0	306,125	0	307,821	613,946	0,622	0,625	1,247	
2015	532,723	2	46	24,346	262,236	20,501	129,975	437,058	0,538	0,282	0,820	
<b>MA Total:</b>	<b>2,555,518</b>	<b>8</b>	<b>217</b>	<b>446,125</b>	<b>1,192,711</b>	<b>186,027</b>	<b>857,158</b>	<b>2,682,020</b>	<b>0,641</b>	<b>0,408</b>	<b>1,050</b>	

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.655	0.794	.
(14) Massachusetts Credibility:	0.350	0.520	.
(15) Countrywide Pure Premium:	1.107	0.557	1.664
(16) Countrywide Indicated Relativity:	1.235	1.208	.
(17) Countrywide Credibility:	0.330	0.240	.
(18) Countrywide Lost-Time Claims:	249.00	.	.
(19) Pure Premium Underlying Present Rate:	0.798	0.448	1.246
(20) Relativity to Underlying Present Rate:	0.846	0.818	.
(21) Credibility to Underlying Relativity:	0.320	0.240	.
(22) Industry Group Converted Pure Premium:	0.978	0.514	1.493
(23) Formula Relativity:	0.907	0.899	.
(24) Balanced Formula Relativity:	0.900	0.894	0.898

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## Calculation of Class Relativities

Class(es):		Effective: 7/1/2018							Goods and Services		
2587 TOWEL OR TOILET SUPPLY CO & RTE SUPERVISORS, DR											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period (1)	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2011	33,600	1	4	1,717	487,562	6,819	89,603	585,701	14,562	2,870	17,431
2012	22,983	0	2	0	0	0	3,239	3,239	0,000	0,141	0,141
2013	23,502	0	0	0	0	0	0	0	0,000	0,000	0,000
2014	28,700	1	2	27,115	1,261	30,801	1,159	60,337	0,989	1,114	2,102
2015	27,234	0	1	0	0	0	295	295	0,000	0,011	0,011
<b>MA Total:</b>	<b>136,020</b>	<b>2</b>	<b>9</b>	<b>28,832</b>	<b>488,823</b>	<b>37,620</b>	<b>94,297</b>	<b>649,572</b>	<b>3,806</b>	<b>0,970</b>	<b>4,776</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	4.545	2.036	.
(14) Massachusetts Credibility:	0.150	0.250	.
(15) Countrywide Pure Premium:	1.244	0.472	1.716
(16) Countrywide Indicated Relativity:	1.489	0.987	.
(17) Countrywide Credibility:	0.410	0.380	.
(18) Countrywide Lost-Time Claims:	123.00	.	.
(19) Pure Premium Underlying Present Rate:	1.873	1.399	3.272
(20) Relativity to Underlying Present Rate:	2.259	2.745	.
(21) Credibility to Underlying Relativity:	0.440	0.370	.
(22) Industry Group Converted Pure Premium:	0.837	0.476	1.314
(23) Formula Relativity:	2.286	1.899	.
(24) Balanced Formula Relativity:	2.271	1.899	2.136

Class(es):		Effective: 7/1/2018							Manufacturing		
2623 TANNING											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2011	132	0	0	0	0	0	0	0	0.000	0.000	0.000
2012	2,086	0	0	0	0	0	0	0	0.000	0.000	0.000
2013	1,896	0	0	0	0	0	0	0	0.000	0.000	0.000
2014	2,628	0	0	0	0	0	0	0	0.000	0.000	0.000
2015	2,528	0	0	0	0	0	0	0	0.000	0.000	0.000
<b>MA Total:</b>	<b>9,270</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0.000</b>	<b>0.000</b>	<b>0.000</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.000	0.000	.
(14) Massachusetts Credibility:	0.060	0.090	.
(15) Countrywide Pure Premium:	3.040	1.314	4.353
(16) Countrywide Indicated Relativity:	3.390	2.851	.
(17) Countrywide Credibility:	0.390	0.410	.
(18) Countrywide Lost-Time Claims:	107.00	.	.
(19) Pure Premium Underlying Present Rate:	2.280	1.404	3.685
(20) Relativity to Underlying Present Rate:	2.417	2.563	.
(21) Credibility to Underlying Relativity:	0.550	0.500	.
(22) Industry Group Converted Pure Premium:	0.978	0.514	1.493
(23) Formula Relativity:	2.652	2.450	.
(24) Balanced Formula Relativity:	2.629	2.438	2.563

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## Calculation of Class Relativities

Class(es): 2651 SHOE STOCK MFG		Effective: 7/1/2018							Manufacturing		
Converted Unlimited Losses											
Amount											
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2011	59.515	1	7	200.000	18.397	9.465	45.972	273.835	3.670	0.931	4.601
2012	63.079	0	13	0	1.398	0	14.511	15.909	0.022	0.230	0.252
2013	61.831	0	7	0	0	0	2.612	2.612	0.000	0.042	0.042
2014	61.617	0	4	0	1.821	0	11.325	13.145	0.030	0.184	0.213
2015	58.024	1	3	24.195	0	27.229	412	51.835	0.417	0.476	0.893
<b>MA Total:</b>	<b>304.065</b>	<b>2</b>	<b>34</b>	<b>224.195</b>	<b>21.616</b>	<b>36.694</b>	<b>74.832</b>	<b>357.337</b>	<b>0.808</b>	<b>0.367</b>	<b>1.175</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.826	0.713	.
(14) Massachusetts Credibility:	0.150	0.220	.
(15) Countrywide Pure Premium:	0.633	0.302	0.935
(16) Countrywide Indicated Relativity:	0.706	0.656	.
(17) Countrywide Credibility:	0.380	0.390	.
(18) Countrywide Lost-Time Claims:	104.00	.	.
(19) Pure Premium Underlying Present Rate:	0.815	0.430	1.245
(20) Relativity to Underlying Present Rate:	0.864	0.785	.
(21) Credibility to Underlying Relativity:	0.470	0.390	.
(22) Industry Group Converted Pure Premium:	0.978	0.514	1.493
(23) Formula Relativity:	0.798	0.719	.
(24) Balanced Formula Relativity:	0.791	0.715	0.765

Class(es): 2660 BOOT OR SHOE MFG NOC		Effective: 7/1/2018							Manufacturing		
Converted Unlimited Losses											
Amount											
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2011	43.694	0	9	0	17.765	0	47.377	65.142	0.407	1.084	1.491
2012	48.173	0	6	0	12.234	0	4.772	17.005	0.254	0.099	0.353
2013	44.048	0	1	0	2.004	0	8.422	10.426	0.045	0.191	0.237
2014	46.156	1	2	4.980	0	2.118	334	7.431	0.108	0.053	0.161
2015	44.779	0	4	0	198.834	0	84.515	283.348	4.440	1.887	6.328
<b>MA Total:</b>	<b>226.851</b>	<b>1</b>	<b>22</b>	<b>4.980</b>	<b>230.836</b>	<b>2.118</b>	<b>145.419</b>	<b>383.352</b>	<b>1.040</b>	<b>0.650</b>	<b>1.690</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	1.062	1.265	.
(14) Massachusetts Credibility:	0.130	0.210	.
(15) Countrywide Pure Premium:	0.923	0.486	1.409
(16) Countrywide Indicated Relativity:	1.029	1.054	.
(17) Countrywide Credibility:	0.440	0.400	.
(18) Countrywide Lost-Time Claims:	254.00	.	.
(19) Pure Premium Underlying Present Rate:	0.751	0.562	1.312
(20) Relativity to Underlying Present Rate:	0.796	1.025	.
(21) Credibility to Underlying Relativity:	0.430	0.390	.
(22) Industry Group Converted Pure Premium:	0.978	0.514	1.493
(23) Formula Relativity:	0.933	1.087	.
(24) Balanced Formula Relativity:	0.925	1.081	0.979

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## Calculation of Class Relativities

Class(es): 2683 LUGGAGE MFG		Effective: 7/1/2018							Manufacturing		
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2011	1,395	0	0	0	0	0	0	0	0.000	0.000	0.000
2012	2,504	0	0	0	0	0	0	0	0.000	0.000	0.000
2013	3,225	0	0	0	0	0	0	0	0.000	0.000	0.000
2014	1,056	0	0	0	0	0	0	0	0.000	0.000	0.000
2015	2,504	0	0	0	0	0	0	0	0.000	0.000	0.000
<b>MA Total:</b>	<b>10,683</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0.000</b>	<b>0.000</b>	<b>0.000</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.000	0.000	.
(14) Massachusetts Credibility:	0.040	0.060	.
(15) Countrywide Pure Premium:	0.936	0.894	1.830
(16) Countrywide Indicated Relativity:	1.044	1.941	.
(17) Countrywide Credibility:	0.260	0.280	.
(18) Countrywide Lost-Time Claims:	40.000	.	.
(19) Pure Premium Underlying Present Rate:	0.795	0.457	1.252
(20) Relativity to Underlying Present Rate:	0.843	0.833	.
(21) Credibility to Underlying Relativity:	0.700	0.660	.
(22) Industry Group Converted Pure Premium:	0.978	0.514	1.493
(23) Formula Relativity:	0.861	1.093	.
(24) Balanced Formula Relativity:	0.854	1.088	0.934

Class(es): 2688 LEATHER GOODS MFG NOC		Effective: 7/1/2018							Manufacturing		
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2011	71,166	0	16	0	26,346	0	52,516	78,862	0.370	0.738	1.108
2012	69,119	0	9	0	1,794	0	9,499	11,293	0.026	0.137	0.163
2013	70,432	0	8	0	239	0	20,152	20,390	0.003	0.286	0.290
2014	81,800	1	7	69,998	30,863	2,658	23,248	126,768	1.233	0.317	1.550
2015	79,057	0	7	0	5,547	0	11,959	17,506	0.070	0.151	0.221
<b>MA Total:</b>	<b>371,575</b>	<b>1</b>	<b>47</b>	<b>69,998</b>	<b>64,789</b>	<b>2,658</b>	<b>117,374</b>	<b>254,820</b>	<b>0.363</b>	<b>0.323</b>	<b>0.686</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.371	0.628	.
(14) Massachusetts Credibility:	0.190	0.280	.
(15) Countrywide Pure Premium:	1.430	0.660	2.090
(16) Countrywide Indicated Relativity:	1.595	1.432	.
(17) Countrywide Credibility:	0.390	0.360	.
(18) Countrywide Lost-Time Claims:	111.00	.	.
(19) Pure Premium Underlying Present Rate:	1.141	0.670	1.811
(20) Relativity to Underlying Present Rate:	1.209	1.223	.
(21) Credibility to Underlying Relativity:	0.420	0.360	.
(22) Industry Group Converted Pure Premium:	0.978	0.514	1.493
(23) Formula Relativity:	1.201	1.132	.
(24) Balanced Formula Relativity:	1.190	1.126	1.168



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## Calculation of Class Relativities

Class(es):		Effective: 7/1/2018							Miscellaneous		
2702 LOGGING OR LUMBERING & DRIVERS											
Converted Unlimited Losses											
Amount											
		Claim Count		Indemnity		Medical			MA Indicated Pure Premiums		
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2011	28.832	0	7	0	61.118	0	57.943	119.061	2.120	2.010	4.129
2012	28.970	0	6	0	6.531	0	36.915	43.446	0.225	1.274	1.500
2013	30.199	0	8	0	292.213	0	191.738	483.951	9.676	6.349	16.025
2014	33.107	0	6	0	52.230	0	66.896	119.125	1.578	2.021	3.598
2015	42.026	0	8	0	140.041	0	78.970	219.012	3.332	1.879	5.211
<b>MA Total:</b>	<b>163.135</b>	<b>0</b>	<b>35</b>	<b>0</b>	<b>552.133</b>	<b>0</b>	<b>432.462</b>	<b>984.595</b>	<b>3.385</b>	<b>2.651</b>	<b>6.035</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	1.410	2.219	.
(14) Massachusetts Credibility:	0.290	0.420	.
(15) Countrywide Pure Premium:	8.556	4.450	13.006
(16) Countrywide Indicated Relativity:	3.966	4.185	.
(17) Countrywide Credibility:	0.360	0.290	.
(18) Countrywide Lost-Time Claims:	1806.0	.	.
(19) Pure Premium Underlying Present Rate:	7.813	4.129	11.942
(20) Relativity to Underlying Present Rate:	3.206	3.129	.
(21) Credibility to Underlying Relativity:	0.350	0.290	.
(22) Industry Group Converted Pure Premium:	2.400	1.195	3.595
(23) Formula Relativity:	2.958	3.053	.
(24) Balanced Formula Relativity:	2.946	3.073	2.988

Class(es):		Effective: 7/1/2018							Manufacturing		
2710 SAWMILLS											
Converted Unlimited Losses											
Amount											
		Claim Count		Indemnity		Medical			MA Indicated Pure Premiums		
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2011	22.568	2	7	109.499	15.407	113.447	14.299	252.652	5.535	5.660	11.195
2012	25.090	0	17	0	24.725	0	37.529	62.254	0.985	1.496	2.481
2013	32.059	0	10	0	8.204	0	16.974	25.178	0.256	0.529	0.785
2014	30.445	0	8	0	19.244	0	18.379	37.623	0.632	0.604	1.236
2015	36.050	0	7	0	67.429	0	37.825	105.254	1.870	1.049	2.920
<b>MA Total:</b>	<b>146.211</b>	<b>2</b>	<b>49</b>	<b>109.499</b>	<b>135.009</b>	<b>113.447</b>	<b>125.006</b>	<b>482.961</b>	<b>1.672</b>	<b>1.631</b>	<b>3.303</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	1.709	3.171	.
(14) Massachusetts Credibility:	0.190	0.310	.
(15) Countrywide Pure Premium:	3.808	2.280	6.088
(16) Countrywide Indicated Relativity:	4.247	4.948	.
(17) Countrywide Credibility:	0.410	0.350	.
(18) Countrywide Lost-Time Claims:	2004.0	.	.
(19) Pure Premium Underlying Present Rate:	3.028	2.186	5.214
(20) Relativity to Underlying Present Rate:	3.210	3.988	.
(21) Credibility to Underlying Relativity:	0.400	0.340	.
(22) Industry Group Converted Pure Premium:	0.978	0.514	1.493
(23) Formula Relativity:	3.350	4.071	.
(24) Balanced Formula Relativity:	3.321	4.050	3.572

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## Calculation of Class Relativities

Class(es): 2731 PLANING OR MOLDING MILL		Effective: 7/1/2018							Manufacturing		
Converted Unlimited Losses											
Amount											
		Claim Count		Indemnity		Medical			MA Indicated Pure Premiums		
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2011	32,143	0	8	0	636	0	3,734	4,369	0.020	0.116	0.136
2012	30,486	0	8	0	0	0	4,427	4,427	0.000	0.145	0.145
2013	35,328	0	8	0	0	0	4,268	4,268	0.000	0.121	0.121
2014	37,484	0	7	0	21,957	0	31,438	53,395	0.586	0.839	1.424
2015	39,539	0	7	0	55,259	0	60,519	115,778	1.398	1.531	2.928
<b>MA Total:</b>	<b>174,978</b>	<b>0</b>	<b>38</b>	<b>0</b>	<b>77,851</b>	<b>0</b>	<b>104,387</b>	<b>182,238</b>	<b>0.445</b>	<b>0.597</b>	<b>1.041</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.455	1.160	.
(14) Massachusetts Credibility:	0.160	0.240	.
(15) Countrywide Pure Premium:	1.666	1.064	2.730
(16) Countrywide Indicated Relativity:	1.858	2.308	.
(17) Countrywide Credibility:	0.420	0.380	.
(18) Countrywide Lost-Time Claims:	1382.0	.	.
(19) Pure Premium Underlying Present Rate:	1.604	0.951	2.555
(20) Relativity to Underlying Present Rate:	1.700	1.736	.
(21) Credibility to Underlying Relativity:	0.420	0.380	.
(22) Industry Group Converted Pure Premium:	0.978	0.514	1.493
(23) Formula Relativity:	1.567	1.815	.
(24) Balanced Formula Relativity:	1.554	1.806	1.641

Class(es): 2747 COOPERAGE ASSEMBLY		Effective: 7/1/2018							Manufacturing		
Converted Unlimited Losses											
Amount											
		Claim Count		Indemnity		Medical			MA Indicated Pure Premiums		
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2011	0	0	0	0	0	0	0	0	0.000	0.000	0.000
2012	0	0	0	0	0	0	0	0	0.000	0.000	0.000
2013	0	0	0	0	0	0	0	0	0.000	0.000	0.000
2014	0	0	0	0	0	0	0	0	0.000	0.000	0.000
2015	0	0	0	0	0	0	0	0	0.000	0.000	0.000
<b>MA Total:</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0.000</b>	<b>0.000</b>	<b>0.000</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.000	0.000	.
(14) Massachusetts Credibility:	0.000	0.000	.
(15) Countrywide Pure Premium:	3.447	1.315	4.762
(16) Countrywide Indicated Relativity:	3.845	2.853	.
(17) Countrywide Credibility:	0.290	0.300	.
(18) Countrywide Lost-Time Claims:	51.000	.	.
(19) Pure Premium Underlying Present Rate:	2.634	1.551	4.184
(20) Relativity to Underlying Present Rate:	2.792	2.829	.
(21) Credibility to Underlying Relativity:	0.710	0.700	.
(22) Industry Group Converted Pure Premium:	0.978	0.514	1.493
(23) Formula Relativity:	3.097	2.836	.
(24) Balanced Formula Relativity:	3.070	2.822	2.985

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## Calculation of Class Relativities

Class(es): 2790 PATTERN MAKING NOC		Effective: 7/1/2018							Manufacturing		
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2011	37,339	0	7	0	656	0	4,082	4,739	0.018	0.109	0.127
2012	37,500	0	8	0	89,935	0	26,013	115,948	2.398	0.694	3.092
2013	35,372	0	4	0	213,737	0	39,116	252,853	6.043	1.106	7.148
2014	35,435	0	8	0	26,531	0	25,023	51,555	0.749	0.706	1.455
2015	43,579	0	3	0	1,831	0	4,857	6,688	0.042	0.111	0.153
<b>MA Total:</b>	<b>189,225</b>	<b>0</b>	<b>30</b>	<b>0</b>	<b>332,691</b>	<b>0</b>	<b>99,092</b>	<b>431,783</b>	<b>1.758</b>	<b>0.524</b>	<b>2.282</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	1.797	1.018	.
(14) Massachusetts Credibility:	0.130	0.190	.
(15) Countrywide Pure Premium:	0.552	0.328	0.880
(16) Countrywide Indicated Relativity:	0.616	0.712	.
(17) Countrywide Credibility:	0.440	0.410	.
(18) Countrywide Lost-Time Claims:	243.00	.	.
(19) Pure Premium Underlying Present Rate:	0.827	0.469	1.295
(20) Relativity to Underlying Present Rate:	0.877	0.855	.
(21) Credibility to Underlying Relativity:	0.430	0.400	.
(22) Industry Group Converted Pure Premium:	0.978	0.514	1.493
(23) Formula Relativity:	0.881	0.828	.
(24) Balanced Formula Relativity:	0.874	0.823	0.856

Class(es): 2802 CARPENTRY-SHOP ONLY & DRIVERS		Effective: 7/1/2018							Manufacturing		
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2011	1,001,798	10	196	1,101,509	1,507,554	169,724	860,957	3,639,743	2.604	1.029	3.633
2012	1,021,005	15	203	1,111,875	1,709,816	617,032	1,055,077	4,493,800	2.764	1.638	4.401
2013	1,074,411	3	209	82,586	1,387,721	39,090	817,146	2,326,544	1.368	0.797	2.165
2014	1,078,940	1	170	18,187	872,281	8,508	721,574	1,620,550	0.825	0.677	1.502
2015	1,138,820	6	166	628,947	1,800,000	300,784	979,220	3,708,950	2.133	1.124	3.257
<b>MA Total:</b>	<b>5,314,974</b>	<b>35</b>	<b>944</b>	<b>2,943,104</b>	<b>7,277,372</b>	<b>1,135,138</b>	<b>4,433,974</b>	<b>15,789,587</b>	<b>1.923</b>	<b>1.048</b>	<b>2.971</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	1.965	2.037	.
(14) Massachusetts Credibility:	0.700	1.000	.
(15) Countrywide Pure Premium:	2.236	1.269	3.504
(16) Countrywide Indicated Relativity:	2.493	2.753	.
(17) Countrywide Credibility:	0.150	0.000	.
(18) Countrywide Lost-Time Claims:	5500.0	.	.
(19) Pure Premium Underlying Present Rate:	2.116	1.234	3.351
(20) Relativity to Underlying Present Rate:	2.243	2.252	.
(21) Credibility to Underlying Relativity:	0.150	0.000	.
(22) Industry Group Converted Pure Premium:	0.978	0.514	1.493
(23) Formula Relativity:	2.086	2.037	.
(24) Balanced Formula Relativity:	2.068	2.027	2.054

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## Calculation of Class Relativities

Class(es): 2835 BRUSH OR BROOM ASSEMBLY		Effective: 7/1/2018							Manufacturing		
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2011	16.315	0	1	0	0	0	275	275	0.000	0.017	0.017
2012	47.825	0	4	0	496	0	4,114	4,610	0.010	0.086	0.096
2013	51.653	0	4	0	8,350	0	13,020	21,370	0.162	0.252	0.414
2014	46.309	0	5	0	246	0	5,760	6,006	0.005	0.124	0.130
2015	50.627	0	3	0	202	0	2,308	2,511	0.004	0.046	0.050
<b>MA Total:</b>	<b>212,729</b>	<b>0</b>	<b>17</b>	<b>0</b>	<b>9,294</b>	<b>0</b>	<b>25,478</b>	<b>34,772</b>	<b>0.044</b>	<b>0.120</b>	<b>0.163</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.045	0.233	.
(14) Massachusetts Credibility:	0.140	0.200	.
(15) Countrywide Pure Premium:	1.089	0.652	1.741
(16) Countrywide Indicated Relativity:	1.214	1.415	.
(17) Countrywide Credibility:	0.380	0.400	.
(18) Countrywide Lost-Time Claims:	100.00	.	.
(19) Pure Premium Underlying Present Rate:	0.908	0.523	1.431
(20) Relativity to Underlying Present Rate:	0.963	0.954	.
(21) Credibility to Underlying Relativity:	0.480	0.400	.
(22) Industry Group Converted Pure Premium:	0.978	0.514	1.493
(23) Formula Relativity:	0.930	0.995	.
(24) Balanced Formula Relativity:	0.922	0.990	0.945

Class(es): 2836 BRUSH OR BROOM MFG NOC		Effective: 7/1/2018							Manufacturing		
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2011	4.826	0	0	0	0	0	0	0	0.000	0.000	0.000
2012	5.100	0	0	0	0	0	0	0	0.000	0.000	0.000
2013	5.613	0	3	0	44	0	1,055	1,099	0.008	0.188	0.196
2014	5.804	0	1	0	271	0	628	899	0.047	0.108	0.155
2015	6.979	0	1	0	0	0	92	92	0.000	0.013	0.013
<b>MA Total:</b>	<b>28,321</b>	<b>0</b>	<b>5</b>	<b>0</b>	<b>315</b>	<b>0</b>	<b>1,774</b>	<b>2,090</b>	<b>0.011</b>	<b>0.063</b>	<b>0.074</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.011	0.122	.
(14) Massachusetts Credibility:	0.060	0.090	.
(15) Countrywide Pure Premium:	1.041	0.540	1.581
(16) Countrywide Indicated Relativity:	1.162	1.171	.
(17) Countrywide Credibility:	0.280	0.290	.
(18) Countrywide Lost-Time Claims:	47.000	.	.
(19) Pure Premium Underlying Present Rate:	0.987	0.548	1.535
(20) Relativity to Underlying Present Rate:	1.047	1.000	.
(21) Credibility to Underlying Relativity:	0.660	0.620	.
(22) Industry Group Converted Pure Premium:	0.978	0.514	1.493
(23) Formula Relativity:	1.017	0.971	.
(24) Balanced Formula Relativity:	1.008	0.966	0.993

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## Calculation of Class Relativities

Class(es): 2841 WOODENWARE MFG NOC		Effective: 7/1/2018							Manufacturing		
Converted Unlimited Losses											
Amount											
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2011	45,111	0	5	0	11,390	0	7,169	18,560	0.252	0.159	0.411
2012	37,113	0	6	0	13,114	0	3,413	16,527	0.353	0.092	0.445
2013	44,738	0	13	0	201,575	0	69,539	271,114	4.506	1.554	6.060
2014	49,723	0	10	0	78,263	0	17,284	95,547	1.574	0.348	1.922
2015	42,775	0	6	0	37,477	0	27,114	64,591	0.876	0.634	1.510
<b>MA Total:</b>	<b>219,459</b>	<b>0</b>	<b>40</b>	<b>0</b>	<b>341,819</b>	<b>0</b>	<b>124,519</b>	<b>466,339</b>	<b>1.558</b>	<b>0.567</b>	<b>2.125</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	1.592	1.103	.
(14) Massachusetts Credibility:	0.190	0.250	.
(15) Countrywide Pure Premium:	1.650	0.929	2.579
(16) Countrywide Indicated Relativity:	1.840	2.017	.
(17) Countrywide Credibility:	0.410	0.380	.
(18) Countrywide Lost-Time Claims:	177.00	.	.
(19) Pure Premium Underlying Present Rate:	1.961	0.853	2.814
(20) Relativity to Underlying Present Rate:	2.079	1.557	.
(21) Credibility to Underlying Relativity:	0.400	0.370	.
(22) Industry Group Converted Pure Premium:	0.978	0.514	1.493
(23) Formula Relativity:	1.888	1.618	.
(24) Balanced Formula Relativity:	1.872	1.610	1.782

Class(es): 2883 FURNITURE MFG-WOOD-NOC		Effective: 7/1/2018							Manufacturing		
Converted Unlimited Losses											
Amount											
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2011	383,665	6	79	569,785	250,511	143,008	164,882	1,128,185	2.138	0.802	2.941
2012	437,606	5	82	250,051	612,834	80,656	221,803	1,165,345	1.972	0.691	2.663
2013	450,967	1	77	30,846	672,244	3,429	387,129	1,093,649	1.559	0.866	2.425
2014	509,563	5	68	584,359	444,062	83,370	270,187	1,381,977	2.018	0.694	2.712
2015	545,609	3	62	382,462	236,403	100,980	298,050	1,017,894	1.134	0.731	1.866
<b>MA Total:</b>	<b>2,327,408</b>	<b>20</b>	<b>368</b>	<b>1,817,504</b>	<b>2,216,053</b>	<b>411,442</b>	<b>1,342,051</b>	<b>5,787,050</b>	<b>1.733</b>	<b>0.753</b>	<b>2.486</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	1.771	1.465	.
(14) Massachusetts Credibility:	0.440	0.640	.
(15) Countrywide Pure Premium:	1.508	0.765	2.273
(16) Countrywide Indicated Relativity:	1.682	1.660	.
(17) Countrywide Credibility:	0.280	0.180	.
(18) Countrywide Lost-Time Claims:	4935.0	.	.
(19) Pure Premium Underlying Present Rate:	1.502	0.838	2.340
(20) Relativity to Underlying Present Rate:	1.592	1.529	.
(21) Credibility to Underlying Relativity:	0.280	0.180	.
(22) Industry Group Converted Pure Premium:	0.978	0.514	1.493
(23) Formula Relativity:	1.696	1.512	.
(24) Balanced Formula Relativity:	1.681	1.504	1.620

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## Calculation of Class Relativities

Class(es): 2923 PIANO MFG		Effective: 7/1/2018							Manufacturing		
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2011	59,563	0	6	0	4,139	0	22,832	26,971	0.069	0.383	0.453
2012	50,048	0	2	0	0	0	1,714	1,714	0.000	0.034	0.034
2013	52,244	0	7	0	67,391	0	5,921	73,312	1.290	0.113	1.403
2014	52,592	0	2	0	0	0	2,117	2,117	0.000	0.040	0.040
2015	51,404	1	2	92,324	0	62,161	662	155,148	1.796	1.222	3.018
<b>MA Total:</b>	<b>265,851</b>	<b>1</b>	<b>19</b>	<b>92,324</b>	<b>71,530</b>	<b>62,161</b>	<b>33,246</b>	<b>259,262</b>	<b>0.616</b>	<b>0.359</b>	<b>0.975</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.630	0.698	.
(14) Massachusetts Credibility:	0.140	0.210	.
(15) Countrywide Pure Premium:	0.993	0.481	1.474
(16) Countrywide Indicated Relativity:	1.108	1.043	.
(17) Countrywide Credibility:	0.390	0.400	.
(18) Countrywide Lost-Time Claims:	106.00	.	.
(19) Pure Premium Underlying Present Rate:	0.728	0.437	1.164
(20) Relativity to Underlying Present Rate:	0.771	0.797	.
(21) Credibility to Underlying Relativity:	0.470	0.390	.
(22) Industry Group Converted Pure Premium:	0.978	0.514	1.493
(23) Formula Relativity:	0.883	0.874	.
(24) Balanced Formula Relativity:	0.875	0.870	0.873

Class(es): 2942 PENCIL, PENHOLDER OR CRAYON MFG		Effective: 7/1/2018							Manufacturing		
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2011	914,661	2	59	275,228	382,430	134,912	411,591	1,204,161	0.719	0.597	1.317
2012	856,620	3	31	662,815	582,122	231,218	191,339	1,667,494	1.453	0.493	1.947
2013	953,373	1	54	10,196	462,832	335	445,343	918,707	0.496	0.467	0.964
2014	145,227	0	7	0	20,536	0	26,945	47,481	0.141	0.186	0.327
2015	140,412	0	9	0	0	0	5,431	5,431	0.000	0.039	0.039
<b>MA Total:</b>	<b>3,010,294</b>	<b>6</b>	<b>160</b>	<b>948,239</b>	<b>1,447,920</b>	<b>366,465</b>	<b>1,080,649</b>	<b>3,843,273</b>	<b>0.796</b>	<b>0.481</b>	<b>1.277</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.814	0.935	.
(14) Massachusetts Credibility:	0.380	0.590	.
(15) Countrywide Pure Premium:	1.166	0.605	1.771
(16) Countrywide Indicated Relativity:	1.301	1.313	.
(17) Countrywide Credibility:	0.310	0.210	.
(18) Countrywide Lost-Time Claims:	485.00	.	.
(19) Pure Premium Underlying Present Rate:	0.807	0.524	1.331
(20) Relativity to Underlying Present Rate:	0.855	0.956	.
(21) Credibility to Underlying Relativity:	0.310	0.200	.
(22) Industry Group Converted Pure Premium:	0.978	0.514	1.493
(23) Formula Relativity:	0.978	1.018	.
(24) Balanced Formula Relativity:	0.969	1.013	0.984

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## Calculation of Class Relativities

Class(es):		Effective: 7/1/2018							Manufacturing		
3018 IRON OR STEEL: MFG: ROLLING MILL & DRIVERS											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2011	98,762	1	5	356,363	21,469	113,091	7,422	498,344	3,826	1,220	5,046
2012	180,999	1	18	3,137	66,211	34,061	47,958	151,367	0,383	0,453	0,836
2013	206,122	0	19	0	105,632	0	69,733	175,365	0,512	0,338	0,851
2014	185,303	1	17	2,162	144,384	15,601	55,273	217,421	0,791	0,382	1,173
2015	163,539	0	6	0	274,213	0	60,745	334,958	1,677	0,371	2,048
<b>MA Total:</b>	<b>834,726</b>	<b>3</b>	<b>65</b>	<b>361,662</b>	<b>611,909</b>	<b>162,753</b>	<b>241,130</b>	<b>1,377,455</b>	<b>1.166</b>	<b>0.484</b>	<b>1.650</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	1.192	0.941	.
(14) Massachusetts Credibility:	0.310	0.420	.
(15) Countrywide Pure Premium:	1.221	0.641	1.862
(16) Countrywide Indicated Relativity:	1.362	1.391	.
(17) Countrywide Credibility:	0.350	0.290	.
(18) Countrywide Lost-Time Claims:	416.00	.	.
(19) Pure Premium Underlying Present Rate:	1.767	0.819	2.586
(20) Relativity to Underlying Present Rate:	1.873	1.494	.
(21) Credibility to Underlying Relativity:	0.340	0.290	.
(22) Industry Group Converted Pure Premium:	0.978	0.514	1.493
(23) Formula Relativity:	1.483	1.232	.
(24) Balanced Formula Relativity:	1.470	1.226	1.386

Class(es):		Effective: 7/1/2018							Manufacturing		
3022 PIPE OR TUBE MFG NOC & DRIVERS											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2011	6,875	0	3	0	0	0	629	629	0.000	0.091	0.091
2012	5,700	0	1	0	0	0	626	626	0.000	0.110	0.110
2013	10,326	0	0	0	0	0	0	0	0.000	0.000	0.000
2014	17,051	1	4	39,036	19,969	51,314	16,216	126,536	3,460	3,960	7,421
2015	18,656	0	6	0	41,183	0	26,952	68,135	2,207	1,445	3,652
<b>MA Total:</b>	<b>58,609</b>	<b>1</b>	<b>14</b>	<b>39,036</b>	<b>61,152</b>	<b>51,314</b>	<b>44,423</b>	<b>195,925</b>	<b>1.709</b>	<b>1.633</b>	<b>3.343</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	1.747	3.176	.
(14) Massachusetts Credibility:	0.110	0.150	.
(15) Countrywide Pure Premium:	1.722	0.812	2.534
(16) Countrywide Indicated Relativity:	1.920	1.763	.
(17) Countrywide Credibility:	0.450	0.430	.
(18) Countrywide Lost-Time Claims:	481.00	.	.
(19) Pure Premium Underlying Present Rate:	1.694	0.932	2.626
(20) Relativity to Underlying Present Rate:	1.795	1.700	.
(21) Credibility to Underlying Relativity:	0.440	0.420	.
(22) Industry Group Converted Pure Premium:	0.978	0.514	1.493
(23) Formula Relativity:	1.846	1.949	.
(24) Balanced Formula Relativity:	1.830	1.939	1.868

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## Calculation of Class Relativities

Class(es):		Effective: 7/1/2018							Manufacturing		
3027 ROLLING MILL NOC & DRIVERS											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2011	12,389	0	0	0	0	0	0	0	0.000	0.000	0.000
2012	8,438	1	0	264,629	0	207,594	0	472,223	31,361	24,602	55,963
2013	218	0	0	0	0	0	0	0	0.000	0.000	0.000
2014	3,641	0	0	0	0	0	0	0	0.000	0.000	0.000
2015	10,658	0	2	0	0	0	1,161	1,161	0.000	0.109	0.109
<b>MA Total:</b>	<b>35,345</b>	<b>1</b>	<b>2</b>	<b>264,629</b>	<b>0</b>	<b>207,594</b>	<b>1,161</b>	<b>473,384</b>	<b>7,487</b>	<b>5,906</b>	<b>13,393</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	7.652	11.484	.
(14) Massachusetts Credibility:	0.090	0.150	.
(15) Countrywide Pure Premium:	1.290	0.669	1.959
(16) Countrywide Indicated Relativity:	1.438	1.452	.
(17) Countrywide Credibility:	0.460	0.430	.
(18) Countrywide Lost-Time Claims:	460.00	.	.
(19) Pure Premium Underlying Present Rate:	1.955	1.587	3.541
(20) Relativity to Underlying Present Rate:	2.072	2.895	.
(21) Credibility to Underlying Relativity:	0.450	0.420	.
(22) Industry Group Converted Pure Premium:	0.978	0.514	1.493
(23) Formula Relativity:	2.283	3.563	.
(24) Balanced Formula Relativity:	2.263	3.545	2.705

Class(es):		Effective: 7/1/2018							Manufacturing		
3028 PIPE OR TUBE MFG - IRON OR STEEL & DRIVERS											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2011	73,718	0	20	0	92,937	0	56,445	149,381	1,261	0,766	2,026
2012	5,317	0	3	0	0	0	3,255	3,255	0.000	0.612	0.612
2013	4,653	0	9	0	23,357	0	22,612	45,970	5,020	4,859	9,879
2014	5,315	0	1	0	9,328	0	8,572	17,900	1,755	1,613	3,368
2015	24,770	0	8	0	12,039	0	15,583	27,622	0,486	0,629	1,115
<b>MA Total:</b>	<b>113,773</b>	<b>0</b>	<b>41</b>	<b>0</b>	<b>137,661</b>	<b>0</b>	<b>106,467</b>	<b>244,128</b>	<b>1,210</b>	<b>0,936</b>	<b>2,146</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	1.237	1.820	.
(14) Massachusetts Credibility:	0.120	0.180	.
(15) Countrywide Pure Premium:	1.364	0.741	2.105
(16) Countrywide Indicated Relativity:	1.521	1.607	.
(17) Countrywide Credibility:	0.440	0.410	.
(18) Countrywide Lost-Time Claims:	1052.0	.	.
(19) Pure Premium Underlying Present Rate:	1.300	0.759	2.059
(20) Relativity to Underlying Present Rate:	1.379	1.384	.
(21) Credibility to Underlying Relativity:	0.440	0.410	.
(22) Industry Group Converted Pure Premium:	0.978	0.514	1.493
(23) Formula Relativity:	1.424	1.554	.
(24) Balanced Formula Relativity:	1.412	1.546	1.458



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## Calculation of Class Relativities

Class(es): 3030 IRON OR STEEL: FABRICATION: IRON/STEEL WORK-SHOP-STRUCT & DR									Effective: 7/1/2018 Manufacturing		
Converted Unlimited Losses											
Amount											
Claim Count				Indemnity		Medical			MA Indicated Pure Premiums		
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2011	118,717	2	43	209,449	166,542	40,656	183,547	600,193	3,167	1,889	5,056
2012	104,498	0	25	0	19,772	0	67,345	87,116	0,189	0,644	0,834
2013	115,752	0	33	0	1,255,855	0	284,954	1,540,809	10,850	2,462	13,311
2014	117,891	0	11	0	16,050	0	18,032	34,082	0,136	0,153	0,289
2015	124,216	0	23	0	312,600	0	224,656	537,256	2,517	1,809	4,325
<b>MA Total:</b>	<b>581,074</b>	<b>2</b>	<b>135</b>	<b>209,449</b>	<b>1,770,818</b>	<b>40,656</b>	<b>778,533</b>	<b>2,799,456</b>	<b>3,408</b>	<b>1,410</b>	<b>4,818</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	3.483	2.741	.
(14) Massachusetts Credibility:	0.330	0.480	.
(15) Countrywide Pure Premium:	2.761	1.319	4.080
(16) Countrywide Indicated Relativity:	3.079	2.863	.
(17) Countrywide Credibility:	0.340	0.260	.
(18) Countrywide Lost-Time Claims:	2719.0	.	.
(19) Pure Premium Underlying Present Rate:	2.885	1.688	4.573
(20) Relativity to Underlying Present Rate:	3.058	3.080	.
(21) Credibility to Underlying Relativity:	0.330	0.260	.
(22) Industry Group Converted Pure Premium:	0.978	0.514	1.493
(23) Formula Relativity:	3.206	2.861	.
(24) Balanced Formula Relativity:	3.178	2.847	3.064

Class(es): 3040 IRON OR STEEL: FABRICATION: IRON WORKS-SHOP-ORNAMENTAL & DR									Effective: 7/1/2018 Manufacturing		
Converted Unlimited Losses											
Amount											
Claim Count				Indemnity		Medical			MA Indicated Pure Premiums		
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2011	140,105	0	28	0	264,388	0	225,074	489,462	1,887	1,606	3,494
2012	151,401	2	25	212,622	41,928	63,411	46,262	364,224	1,681	0,724	2,406
2013	168,205	1	27	14,227	26,207	846	29,051	70,331	0,240	0,178	0,418
2014	184,645	1	31	294,688	118,843	26,145	51,711	491,386	2,240	0,422	2,661
2015	193,587	2	20	901,611	358,122	188,366	105,929	1,554,027	6,507	1,520	8,028
<b>MA Total:</b>	<b>837,944</b>	<b>6</b>	<b>131</b>	<b>1,423,148</b>	<b>809,488</b>	<b>278,768</b>	<b>458,027</b>	<b>2,969,430</b>	<b>2,664</b>	<b>0,879</b>	<b>3,544</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	2.723	1.710	.
(14) Massachusetts Credibility:	0.380	0.520	.
(15) Countrywide Pure Premium:	2.399	1.145	3.544
(16) Countrywide Indicated Relativity:	2.675	2.485	.
(17) Countrywide Credibility:	0.310	0.240	.
(18) Countrywide Lost-Time Claims:	1610.0	.	.
(19) Pure Premium Underlying Present Rate:	2.805	1.406	4.211
(20) Relativity to Underlying Present Rate:	2.973	2.566	.
(21) Credibility to Underlying Relativity:	0.310	0.240	.
(22) Industry Group Converted Pure Premium:	0.978	0.514	1.493
(23) Formula Relativity:	2.786	2.101	.
(24) Balanced Formula Relativity:	2.762	2.091	2.531

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## Calculation of Class Relativities

Class(es):		Effective: 7/1/2018							Manufacturing		
3041 IRON OR STEEL: FABRICATION: IRON WORKS-SHP-DEC/ART &FNDRS,DR											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2011	47,557	0	22	0	50,153	0	48,515	98,668	1,055	1,020	2,075
2012	34,678	0	9	0	19,805	0	125,401	145,206	0,571	3,616	4,187
2013	38,530	0	1	0	0	0	1,921	1,921	0,000	0,050	0,050
2014	50,510	0	4	0	0	0	2,536	2,536	0,000	0,050	0,050
2015	40,557	0	3	0	0	0	1,394	1,394	0,000	0,034	0,034
<b>MA Total:</b>	<b>211,833</b>	<b>0</b>	<b>39</b>	<b>0</b>	<b>69,958</b>	<b>0</b>	<b>179,765</b>	<b>249,724</b>	<b>0,330</b>	<b>0,849</b>	<b>1,179</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.338	1.650	.
(14) Massachusetts Credibility:	0.200	0.300	.
(15) Countrywide Pure Premium:	1.609	1.076	2.685
(16) Countrywide Indicated Relativity:	1.794	2.335	.
(17) Countrywide Credibility:	0.400	0.350	.
(18) Countrywide Lost-Time Claims:	184.00	.	.
(19) Pure Premium Underlying Present Rate:	2.183	1.407	3.590
(20) Relativity to Underlying Present Rate:	2.314	2.566	.
(21) Credibility to Underlying Relativity:	0.400	0.350	.
(22) Industry Group Converted Pure Premium:	0.978	0.514	1.493
(23) Formula Relativity:	1.711	2.210	.
(24) Balanced Formula Relativity:	1.696	2.199	1.869

Class(es):		Effective: 7/1/2018							Manufacturing		
3042 ELEVATOR OR ESCALATOR MFG											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2011	7,230	0	1	0	0	0	638	638	0,000	0,088	0,088
2012	6,818	2	3	297,694	14,106	48,098	5,413	365,311	45,730	7,848	53,579
2013	7,294	0	2	0	2,119	0	39,015	41,134	0,291	5,349	5,639
2014	6,749	0	2	0	0	0	761	761	0,000	0,113	0,113
2015	7,198	0	2	0	0	0	1,953	1,953	0,000	0,271	0,271
<b>MA Total:</b>	<b>35,289</b>	<b>2</b>	<b>10</b>	<b>297,694</b>	<b>16,225</b>	<b>48,098</b>	<b>47,779</b>	<b>409,797</b>	<b>8,896</b>	<b>2,717</b>	<b>11,612</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	9.091	5.283	.
(14) Massachusetts Credibility:	0.110	0.140	.
(15) Countrywide Pure Premium:	1.512	0.768	2.280
(16) Countrywide Indicated Relativity:	1.687	1.666	.
(17) Countrywide Credibility:	0.450	0.430	.
(18) Countrywide Lost-Time Claims:	166.00	.	.
(19) Pure Premium Underlying Present Rate:	3.293	1.347	4,640
(20) Relativity to Underlying Present Rate:	3.490	2.458	.
(21) Credibility to Underlying Relativity:	0.440	0.430	.
(22) Industry Group Converted Pure Premium:	0.978	0.514	1.493
(23) Formula Relativity:	3.295	2.513	.
(24) Balanced Formula Relativity:	3.266	2.500	3,002

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## Calculation of Class Relativities

Class(es):		Effective: 7/1/2018							Manufacturing		
3066 SHEET METAL WORK - SHOP											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical			MA Indicated Pure Premiums		
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2011	919,743	3	172	341,361	730,129	121,328	578,943	1,771,761	1.165	0.761	1.926
2012	899,054	3	150	152,989	408,800	57,099	334,806	953,695	0.625	0.436	1.061
2013	927,197	3	143	168,835	621,302	53,500	653,400	1,497,037	0.852	0.762	1.615
2014	920,719	4	139	298,538	670,687	94,441	441,643	1,505,309	1.053	0.582	1.635
2015	951,107	3	157	269,435	395,525	181,838	374,284	1,221,082	0.699	0.585	1.284
<b>MA Total:</b>	<b>4,617,820</b>	<b>16</b>	<b>761</b>	<b>1,231,158</b>	<b>2,826,443</b>	<b>508,207</b>	<b>2,383,076</b>	<b>6,948,883</b>	<b>0.879</b>	<b>0.626</b>	<b>1.505</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.898	1.217	.
(14) Massachusetts Credibility:	0.550	0.840	.
(15) Countrywide Pure Premium:	1.492	0.864	2.357
(16) Countrywide Indicated Relativity:	1.664	1.876	.
(17) Countrywide Credibility:	0.230	0.080	.
(18) Countrywide Lost-Time Claims:	1066.0	.	.
(19) Pure Premium Underlying Present Rate:	1.308	0.845	2.153
(20) Relativity to Underlying Present Rate:	1.386	1.542	.
(21) Credibility to Underlying Relativity:	0.220	0.080	.
(22) Industry Group Converted Pure Premium:	0.978	0.514	1.493
(23) Formula Relativity:	1.182	1.296	.
(24) Balanced Formula Relativity:	1.171	1.290	1.212

Class(es):		Effective: 7/1/2018							Manufacturing		
3076 FIREPROOF EQUIPMENT MFG											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical			MA Indicated Pure Premiums		
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2011	277,161	0	41	0	61,890	0	102,781	164,671	0.223	0.371	0.594
2012	241,644	1	49	11,541	304,905	379	136,185	453,011	1.310	0.565	1.875
2013	303,824	0	33	0	264,197	0	109,869	374,066	0.870	0.362	1.231
2014	364,179	0	34	0	26,149	0	54,907	81,056	0.072	0.151	0.223
2015	281,599	3	45	103,012	632,626	107,691	204,084	1,047,413	2.612	1.107	3.720
<b>MA Total:</b>	<b>1,468,408</b>	<b>4</b>	<b>202</b>	<b>114,553</b>	<b>1,289,768</b>	<b>108,070</b>	<b>607,825</b>	<b>2,120,216</b>	<b>0.956</b>	<b>0.488</b>	<b>1.444</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.977	0.948	.
(14) Massachusetts Credibility:	0.320	0.490	.
(15) Countrywide Pure Premium:	1.248	0.691	1.939
(16) Countrywide Indicated Relativity:	1.392	1.500	.
(17) Countrywide Credibility:	0.340	0.260	.
(18) Countrywide Lost-Time Claims:	8366.0	.	.
(19) Pure Premium Underlying Present Rate:	1.056	0.686	1.742
(20) Relativity to Underlying Present Rate:	1.119	1.252	.
(21) Credibility to Underlying Relativity:	0.340	0.250	.
(22) Industry Group Converted Pure Premium:	0.978	0.514	1.493
(23) Formula Relativity:	1.167	1.167	.
(24) Balanced Formula Relativity:	1.156	1.162	1.158

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## Calculation of Class Relativities

Class(es):		Effective: 7/1/2018							Manufacturing		
3081 FOUNDRY-FERROUS-NOC											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2011	76,954	2	21	27,937	92,252	6,628	122,007	248,823	1,562	1,672	3,233
2012	74,736	1	20	219,961	61,418	30,288	34,064	345,731	3,765	0,861	4,626
2013	16,664	0	4	0	11,950	0	142,194	154,143	0,717	8,533	9,250
2014	18,779	2	4	244,845	64	55,649	3,330	303,888	13,042	3,141	16,182
2015	15,003	0	4	0	10,999	0	35,487	46,485	0,733	2,365	3,098
<b>MA Total:</b>	<b>202,136</b>	<b>5</b>	<b>53</b>	<b>492,743</b>	<b>176,682</b>	<b>92,564</b>	<b>337,081</b>	<b>1,099,070</b>	<b>3,312</b>	<b>2,126</b>	<b>5,437</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	3.385	4.133	.
(14) Massachusetts Credibility:	0.200	0.290	.
(15) Countrywide Pure Premium:	1.818	0.990	2.808
(16) Countrywide Indicated Relativity:	2.028	2.148	.
(17) Countrywide Credibility:	0.400	0.360	.
(18) Countrywide Lost-Time Claims:	2312.0	.	.
(19) Pure Premium Underlying Present Rate:	2.269	1.364	3.634
(20) Relativity to Underlying Present Rate:	2.405	2.490	.
(21) Credibility to Underlying Relativity:	0.400	0.350	.
(22) Industry Group Converted Pure Premium:	0.978	0.514	1.493
(23) Formula Relativity:	2.450	2.843	.
(24) Balanced Formula Relativity:	2.429	2.829	2.567

Class(es):		Effective: 7/1/2018							Manufacturing		
3085 FOUNDRY-NON FERROUS											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2011	125,948	5	23	590,269	156,784	162,635	120,495	1,030,183	5,931	2,248	8,179
2012	109,479	0	28	0	251,696	0	65,622	317,318	2,299	0,599	2,898
2013	114,230	4	25	459,477	44,208	120,674	62,766	687,124	4,409	1,606	6,015
2014	116,847	0	23	0	167,591	0	62,451	230,042	1,434	0,534	1,969
2015	112,511	2	10	313,856	259,873	305,612	64,793	944,133	5,099	3,292	8,391
<b>MA Total:</b>	<b>579,016</b>	<b>11</b>	<b>109</b>	<b>1,363,601</b>	<b>880,152</b>	<b>588,922</b>	<b>376,126</b>	<b>3,208,801</b>	<b>3,875</b>	<b>1,667</b>	<b>5,542</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	3.960	3.241	.
(14) Massachusetts Credibility:	0.290	0.410	.
(15) Countrywide Pure Premium:	1.397	0.893	2.290
(16) Countrywide Indicated Relativity:	1.558	1.938	.
(17) Countrywide Credibility:	0.360	0.300	.
(18) Countrywide Lost-Time Claims:	823.00	.	.
(19) Pure Premium Underlying Present Rate:	2.210	1.124	3.334
(20) Relativity to Underlying Present Rate:	2.343	2.051	.
(21) Credibility to Underlying Relativity:	0.350	0.290	.
(22) Industry Group Converted Pure Premium:	0.978	0.514	1.493
(23) Formula Relativity:	2.529	2.505	.
(24) Balanced Formula Relativity:	2.508	2.492	2.502

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## Calculation of Class Relativities

Class(es):		Effective: 7/1/2018							Manufacturing		
3110 FORGING WORK - DROP OR MACHINE											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2011	16.479	0	14	0	252.983	0	85.658	338.641	15.351	5.198	20.549
2012	19.069	1	8	440.411	2.213	173.277	2.849	618.750	23.212	9.236	32.448
2013	14.727	0	11	0	51.805	0	38.120	89.925	3.518	2.588	6.106
2014	14.155	0	5	0	34.289	0	11.274	45.563	2.422	0.796	3.219
2015	11.186	0	6	0	103.737	0	48.609	152.346	9.274	4.346	13.620
<b>MA Total:</b>	<b>75.616</b>	<b>1</b>	<b>44</b>	<b>440,411</b>	<b>445,027</b>	<b>173,277</b>	<b>186,509</b>	<b>1,245,224</b>	<b>11,710</b>	<b>4,758</b>	<b>16,468</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	11.968	9.252	.
(14) Massachusetts Credibility:	0.160	0.250	.
(15) Countrywide Pure Premium:	2.285	1.021	3.306
(16) Countrywide Indicated Relativity:	2.548	2.215	.
(17) Countrywide Credibility:	0.420	0.380	.
(18) Countrywide Lost-Time Claims:	553.00	.	.
(19) Pure Premium Underlying Present Rate:	3.662	2.552	6.214
(20) Relativity to Underlying Present Rate:	3.882	4.656	.
(21) Credibility to Underlying Relativity:	0.420	0.370	.
(22) Industry Group Converted Pure Premium:	0.978	0.514	1.493
(23) Formula Relativity:	4.616	4.878	.
(24) Balanced Formula Relativity:	4.576	4.853	4.671

Class(es):		Effective: 7/1/2018							Manufacturing		
3111 BLACKSMITH											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2011	95.744	1	14	31.918	448	12.945	9.341	54.653	0.338	0.233	0.571
2012	55.644	0	13	0	1.396	0	5.500	6.896	0.025	0.099	0.124
2013	60.460	0	10	0	706	0	5.018	5.724	0.012	0.083	0.095
2014	67.119	2	12	135.177	18.006	39.214	19.748	212.144	2.282	0.878	3.161
2015	72.504	0	9	0	11.376	0	28.374	39.750	0.157	0.391	0.548
<b>MA Total:</b>	<b>351.473</b>	<b>3</b>	<b>58</b>	<b>167,096</b>	<b>31,932</b>	<b>52,159</b>	<b>67,981</b>	<b>319,168</b>	<b>0.566</b>	<b>0.342</b>	<b>0.908</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.579	0.665	.
(14) Massachusetts Credibility:	0.170	0.270	.
(15) Countrywide Pure Premium:	1.018	0.572	1.590
(16) Countrywide Indicated Relativity:	1.136	1.241	.
(17) Countrywide Credibility:	0.420	0.370	.
(18) Countrywide Lost-Time Claims:	258.00	.	.
(19) Pure Premium Underlying Present Rate:	0.971	0.648	1.619
(20) Relativity to Underlying Present Rate:	1.029	1.183	.
(21) Credibility to Underlying Relativity:	0.410	0.360	.
(22) Industry Group Converted Pure Premium:	0.978	0.514	1.493
(23) Formula Relativity:	0.997	1.064	.
(24) Balanced Formula Relativity:	0.989	1.059	1.013

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## Calculation of Class Relativities

Class(es):		Effective: 7/1/2018							Manufacturing		
3113 TOOL MFG-NOT DROP OR MACHINE FORGED-NOC											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2011	729,266	0	104	0	486,427	0	208,759	695,186	0.667	0.286	0.953
2012	838,290	0	115	0	385,826	0	184,311	570,137	0.460	0.220	0.680
2013	794,761	0	81	0	340,417	0	212,651	553,068	0.428	0.268	0.696
2014	848,311	3	65	286,295	242,493	80,095	186,882	795,765	0.623	0.315	0.938
2015	877,818	5	71	750,114	464,295	398,603	325,391	1,938,403	1.383	0.825	2.208
<b>MA Total:</b>	<b>4,088,447</b>	<b>8</b>	<b>436</b>	<b>1,036,409</b>	<b>1,919,458</b>	<b>478,698</b>	<b>1,117,994</b>	<b>4,552,559</b>	<b>0.723</b>	<b>0.391</b>	<b>1.114</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.739	0.759	.
(14) Massachusetts Credibility:	0.390	0.580	.
(15) Countrywide Pure Premium:	0.829	0.431	1.260
(16) Countrywide Indicated Relativity:	0.925	0.935	.
(17) Countrywide Credibility:	0.310	0.210	.
(18) Countrywide Lost-Time Claims:	1830.0	.	.
(19) Pure Premium Underlying Present Rate:	0.624	0.383	1.007
(20) Relativity to Underlying Present Rate:	0.662	0.698	.
(21) Credibility to Underlying Relativity:	0.300	0.210	.
(22) Industry Group Converted Pure Premium:	0.978	0.514	1.493
(23) Formula Relativity:	0.773	0.783	.
(24) Balanced Formula Relativity:	0.767	0.780	0.771

Class(es):		Effective: 7/1/2018							Manufacturing		
3114 TOOL MFG-DROP OR MACHINE FORGED-NOC: MACHINING OR FINISHING											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2011	16,070	0	1	0	0	0	252	252	0.000	0.016	0.016
2012	36,462	0	17	0	12,592	0	14,972	27,564	0.345	0.411	0.756
2013	34,544	1	9	3,063	101,304	2,677	76,452	183,495	3.021	2.291	5.312
2014	34,349	1	7	24,543	161,883	20,026	50,309	256,761	5.427	2.048	7.475
2015	38,343	0	13	0	2,364	0	11,712	14,076	0.062	0.305	0.367
<b>MA Total:</b>	<b>159,767</b>	<b>2</b>	<b>47</b>	<b>27,606</b>	<b>278,143</b>	<b>22,703</b>	<b>153,697</b>	<b>482,149</b>	<b>1.914</b>	<b>1.104</b>	<b>3.018</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	1.956	2.147	.
(14) Massachusetts Credibility:	0.130	0.200	.
(15) Countrywide Pure Premium:	1.145	0.647	1.792
(16) Countrywide Indicated Relativity:	1.277	1.405	.
(17) Countrywide Credibility:	0.440	0.400	.
(18) Countrywide Lost-Time Claims:	300.00	.	.
(19) Pure Premium Underlying Present Rate:	1.076	0.713	1.789
(20) Relativity to Underlying Present Rate:	1.141	1.302	.
(21) Credibility to Underlying Relativity:	0.430	0.400	.
(22) Industry Group Converted Pure Premium:	0.978	0.514	1.493
(23) Formula Relativity:	1.307	1.512	.
(24) Balanced Formula Relativity:	1.295	1.504	1.367

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## Calculation of Class Relativities

Class(es): 3118 SAW MFG		Effective: 7/1/2018							Manufacturing		
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical			MA Indicated Pure Premiums		
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2011	319,351	3	32	264,456	329,493	25,019	69,660	688,628	1,860	0,296	2,156
2012	319,398	0	28	0	302,236	0	83,991	386,227	0,946	0,263	1,209
2013	326,043	0	21	0	175,611	0	46,763	222,373	0,539	0,143	0,682
2014	329,012	1	20	378,562	374,666	45,093	70,893	869,215	2,289	0,353	2,642
2015	332,654	0	15	0	331,785	0	56,343	388,128	0,997	0,169	1,167
<b>MA Total:</b>	<b>1,626,457</b>	<b>4</b>	<b>116</b>	<b>643,018</b>	<b>1,513,792</b>	<b>70,112</b>	<b>327,650</b>	<b>2,554,572</b>	<b>1,326</b>	<b>0,245</b>	<b>1,571</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	1.355	0.476	.
(14) Massachusetts Credibility:	0.300	0.400	.
(15) Countrywide Pure Premium:	1.017	0.388	1.404
(16) Countrywide Indicated Relativity:	1.134	0.841	.
(17) Countrywide Credibility:	0.350	0.300	.
(18) Countrywide Lost-Time Claims:	133.00	.	.
(19) Pure Premium Underlying Present Rate:	0.856	0.368	1.224
(20) Relativity to Underlying Present Rate:	0.907	0.671	.
(21) Credibility to Underlying Relativity:	0.350	0.300	.
(22) Industry Group Converted Pure Premium:	0.978	0.514	1.493
(23) Formula Relativity:	1.121	0.644	.
(24) Balanced Formula Relativity:	1.111	0.641	0.949

Class(es): 3119 NEEDLE MFG		Effective: 7/1/2018							Manufacturing		
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical			MA Indicated Pure Premiums		
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2011	61,467	0	7	0	4,433	0	35,077	39,510	0,072	0,571	0,643
2012	69,433	0	5	0	0	0	1,831	1,831	0,000	0,026	0,026
2013	77,087	0	3	0	0	0	3,311	3,311	0,000	0,043	0,043
2014	57,363	1	7	58,474	4,491	19,839	13,256	96,060	1,098	0,577	1,675
2015	65,239	1	6	76,472	0	56,629	2,980	136,081	1,172	0,914	2,086
<b>MA Total:</b>	<b>330,589</b>	<b>2</b>	<b>28</b>	<b>134,946</b>	<b>8,924</b>	<b>76,468</b>	<b>56,455</b>	<b>276,793</b>	<b>0,435</b>	<b>0,402</b>	<b>0,837</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.445	0.782	.
(14) Massachusetts Credibility:	0.110	0.180	.
(15) Countrywide Pure Premium:	0.130	0.111	0.241
(16) Countrywide Indicated Relativity:	0.145	0.241	.
(17) Countrywide Credibility:	0.160	0.170	.
(18) Countrywide Lost-Time Claims:	12.000	.	.
(19) Pure Premium Underlying Present Rate:	0.358	0.259	0.617
(20) Relativity to Underlying Present Rate:	0.379	0.473	.
(21) Credibility to Underlying Relativity:	0.730	0.650	.
(22) Industry Group Converted Pure Premium:	0.978	0.514	1.493
(23) Formula Relativity:	0.349	0.489	.
(24) Balanced Formula Relativity:	0.346	0.487	0.394

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## Calculation of Class Relativities

Class(es): 3120 RAZOR MFG-SAFETY		Effective: 7/1/2018							Manufacturing		
Converted Unlimited Losses											
Amount											
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2011	10,289	0	0	0	0	0	0	0	0.000	0.000	0.000
2012	1,689	0	0	0	0	0	0	0	0.000	0.000	0.000
2013	7,300	0	0	0	0	0	0	0	0.000	0.000	0.000
2014	6,869	1	0	10,983	0	6,159	0	17,143	1,599	0.897	2,496
2015	34,123	0	1	0	0	0	2,493	2,493	0.000	0.073	0.073
<b>MA Total:</b>	<b>60,270</b>	<b>1</b>	<b>1</b>	<b>10,983</b>	<b>0</b>	<b>6,159</b>	<b>2,493</b>	<b>19,636</b>	<b>0.182</b>	<b>0.144</b>	<b>0.326</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.186	0.279	.
(14) Massachusetts Credibility:	0.080	0.100	.
(15) Countrywide Pure Premium:	0.841	0.522	1.363
(16) Countrywide Indicated Relativity:	0.938	1.133	.
(17) Countrywide Credibility:	0.170	0.180	.
(18) Countrywide Lost-Time Claims:	14.000	.	.
(19) Pure Premium Underlying Present Rate:	0.820	0.298	1.118
(20) Relativity to Underlying Present Rate:	0.869	0.543	.
(21) Credibility to Underlying Relativity:	0.750	0.720	.
(22) Industry Group Converted Pure Premium:	0.978	0.514	1.493
(23) Formula Relativity:	0.826	0.623	.
(24) Balanced Formula Relativity:	0.819	0.620	0.750

Class(es): 3122 CUTLERY MFG-NOC		Effective: 7/1/2018							Manufacturing		
Converted Unlimited Losses											
Amount											
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2011	104,035	0	31	0	67,178	0	26,751	93,929	0.646	0.257	0.903
2012	101,101	0	35	0	77,969	0	88,386	166,355	0.771	0.874	1.645
2013	108,468	3	41	191,377	29,924	30,467	99,984	351,752	2.040	1.203	3.243
2014	111,219	1	24	142,816	180,529	18,130	71,150	412,626	2.907	0.803	3.710
2015	122,922	1	38	61,467	67,761	14,459	79,933	223,620	1.051	0.768	1.819
<b>MA Total:</b>	<b>547,745</b>	<b>5</b>	<b>169</b>	<b>395,659</b>	<b>423,362</b>	<b>63,056</b>	<b>366,205</b>	<b>1,248,282</b>	<b>1.495</b>	<b>0.784</b>	<b>2.279</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	1.528	1.524	.
(14) Massachusetts Credibility:	0.190	0.300	.
(15) Countrywide Pure Premium:	0.901	0.548	1.449
(16) Countrywide Indicated Relativity:	1.005	1.188	.
(17) Countrywide Credibility:	0.380	0.350	.
(18) Countrywide Lost-Time Claims:	100.00	.	.
(19) Pure Premium Underlying Present Rate:	0.755	0.534	1.288
(20) Relativity to Underlying Present Rate:	0.800	0.974	.
(21) Credibility to Underlying Relativity:	0.430	0.350	.
(22) Industry Group Converted Pure Premium:	0.978	0.514	1.493
(23) Formula Relativity:	1.016	1.214	.
(24) Balanced Formula Relativity:	1.007	1.208	1.076



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## Calculation of Class Relativities

Class(es):		Effective: 7/1/2018							Manufacturing		
3127 PRECISION MEASURING TOOL MFG-NOC											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2011	182,630	0	34	0	44,392	0	73,863	118,255	0.243	0.404	0.648
2012	163,401	0	26	0	492,155	0	167,895	660,049	3.012	1.027	4.039
2013	2,144	0	0	0	0	0	0	0	0.000	0.000	0.000
2014	1,665	0	1	0	123,370	0	17,454	140,824	74.116	10.486	84.601
2015	2,614	0	0	0	0	0	0	0	0.000	0.000	0.000
<b>MA Total:</b>	<b>352,455</b>	<b>0</b>	<b>61</b>	<b>0</b>	<b>659,916</b>	<b>0</b>	<b>259,212</b>	<b>919,128</b>	<b>1.872</b>	<b>0.735</b>	<b>2.608</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	1.914	1.430	.
(14) Massachusetts Credibility:	0.130	0.210	.
(15) Countrywide Pure Premium:	0.000	0.000	0.000
(16) Countrywide Indicated Relativity:	0.471	0.636	.
(17) Countrywide Credibility:	0.000	0.000	.
(18) Countrywide Lost-Time Claims:	0.000	.	.
(19) Pure Premium Underlying Present Rate:	0.451	0.353	0.804
(20) Relativity to Underlying Present Rate:	0.478	0.645	.
(21) Credibility to Underlying Relativity:	0.870	0.790	.
(22) Industry Group Converted Pure Premium:	0.978	0.514	1.493
(23) Formula Relativity:	0.664	0.810	.
(24) Balanced Formula Relativity:	0.659	0.806	0.709

Class(es):		Effective: 7/1/2018							Manufacturing		
3131 BUTTON OR FASTENER MFG-METAL											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2011	8,386	0	0	0	0	0	0	0	0.000	0.000	0.000
2012	7,417	0	0	0	0	0	0	0	0.000	0.000	0.000
2013	6,832	0	0	0	0	0	0	0	0.000	0.000	0.000
2014	7,090	0	0	0	0	0	0	0	0.000	0.000	0.000
2015	7,968	0	1	0	0	0	1,980	1,980	0.000	0.248	0.248
<b>MA Total:</b>	<b>37,693</b>	<b>0</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>1,980</b>	<b>1,980</b>	<b>0.000</b>	<b>0.053</b>	<b>0.053</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.000	0.102	.
(14) Massachusetts Credibility:	0.060	0.100	.
(15) Countrywide Pure Premium:	0.812	0.455	1.267
(16) Countrywide Indicated Relativity:	0.905	0.988	.
(17) Countrywide Credibility:	0.470	0.450	.
(18) Countrywide Lost-Time Claims:	270.00	.	.
(19) Pure Premium Underlying Present Rate:	0.672	0.444	1.117
(20) Relativity to Underlying Present Rate:	0.713	0.810	.
(21) Credibility to Underlying Relativity:	0.470	0.450	.
(22) Industry Group Converted Pure Premium:	0.978	0.514	1.493
(23) Formula Relativity:	0.760	0.819	.
(24) Balanced Formula Relativity:	0.754	0.815	0.775

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## Calculation of Class Relativities

Class(es): 3132 NUT OR BOLT MFG		Effective: 7/1/2018							Manufacturing		
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2011	4,604	0	4	0	39,022	0	10,120	49,142	8,476	2,198	10,674
2012	6,680	1	2	617	0	25	2,941	3,583	0,092	0,444	0,536
2013	10,119	0	1	0	9,344	0	5,368	14,711	0,923	0,530	1,454
2014	10,358	0	4	0	100,156	0	35,920	136,076	9,670	3,468	13,137
2015	13,189	0	2	0	2,216	0	10,054	12,269	0,168	0,762	0,930
<b>MA Total:</b>	<b>44,951</b>	<b>1</b>	<b>13</b>	<b>617</b>	<b>150,737</b>	<b>25</b>	<b>64,401</b>	<b>215,780</b>	<b>3,367</b>	<b>1,433</b>	<b>4,800</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	3.441	2.787	.
(14) Massachusetts Credibility:	0.090	0.140	.
(15) Countrywide Pure Premium:	0.959	0.584	1.543
(16) Countrywide Indicated Relativity:	1.069	1.268	.
(17) Countrywide Credibility:	0.460	0.430	.
(18) Countrywide Lost-Time Claims:	314.00	.	.
(19) Pure Premium Underlying Present Rate:	1.526	1.026	2.552
(20) Relativity to Underlying Present Rate:	1.618	1.871	.
(21) Credibility to Underlying Relativity:	0.450	0.430	.
(22) Industry Group Converted Pure Premium:	0.978	0.514	1.493
(23) Formula Relativity:	1.530	1.740	.
(24) Balanced Formula Relativity:	1.516	1.732	1.590

Class(es): 3145 SCREW MFG		Effective: 7/1/2018							Manufacturing		
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2011	217,920	0	21	0	18,950	0	30,048	48,998	0,087	0,138	0,225
2012	207,820	0	22	0	24,368	0	28,141	52,509	0,117	0,135	0,253
2013	190,150	0	34	0	226,768	0	87,931	314,698	1,193	0,462	1,655
2014	199,751	0	15	0	184,940	0	48,116	233,057	0,926	0,241	1,167
2015	205,780	1	25	87,296	101,951	23,611	105,896	318,755	0,920	0,629	1,549
<b>MA Total:</b>	<b>1,021,420</b>	<b>1</b>	<b>117</b>	<b>87,296</b>	<b>556,977</b>	<b>23,611</b>	<b>300,132</b>	<b>968,017</b>	<b>6,631</b>	<b>0,317</b>	<b>0,948</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.645	0.616	.
(14) Massachusetts Credibility:	0.240	0.360	.
(15) Countrywide Pure Premium:	0.876	0.480	1.357
(16) Countrywide Indicated Relativity:	0.978	1.042	.
(17) Countrywide Credibility:	0.380	0.320	.
(18) Countrywide Lost-Time Claims:	649.00	.	.
(19) Pure Premium Underlying Present Rate:	0.736	0.449	1.185
(20) Relativity to Underlying Present Rate:	0.780	0.820	.
(21) Credibility to Underlying Relativity:	0.380	0.320	.
(22) Industry Group Converted Pure Premium:	0.978	0.514	1.493
(23) Formula Relativity:	0.822	0.818	.
(24) Balanced Formula Relativity:	0.815	0.814	0.815

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## Calculation of Class Relativities

Class(es): 3146 HARDWARE MFG-NOC		Effective: 7/1/2018							Manufacturing		
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2011	77.881	0	7	0	40	0	2.414	2.454	0.001	0.031	0.032
2012	75.843	0	11	0	364.617	0	165.647	530.264	4.808	2.184	6.992
2013	79.044	1	7	51.604	6.211	15.546	10.330	83.691	0.731	0.327	1.059
2014	105.273	0	11	0	201.828	0	60.648	262.476	1.917	0.576	2.493
2015	86.768	1	12	30.018	78.994	39.157	105.805	253.973	1.256	1.671	2.927
<b>MA Total:</b>	<b>424.809</b>	<b>2</b>	<b>48</b>	<b>81,622</b>	<b>651,690</b>	<b>54,703</b>	<b>344,844</b>	<b>1,132,860</b>	<b>1.726</b>	<b>0.941</b>	<b>2.667</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	1.764	1.829	.
(14) Massachusetts Credibility:	0.180	0.260	.
(15) Countrywide Pure Premium:	0.893	0.545	1.438
(16) Countrywide Indicated Relativity:	0.996	1.183	.
(17) Countrywide Credibility:	0.410	0.370	.
(18) Countrywide Lost-Time Claims:	1874.0	.	.
(19) Pure Premium Underlying Present Rate:	0.841	0.493	1.335
(20) Relativity to Underlying Present Rate:	0.892	0.900	.
(21) Credibility to Underlying Relativity:	0.410	0.370	.
(22) Industry Group Converted Pure Premium:	0.978	0.514	1.493
(23) Formula Relativity:	1.091	1.246	.
(24) Balanced Formula Relativity:	1.082	1.240	1.137

Class(es): 3169 STOVE MFG		Effective: 7/1/2018							Manufacturing		
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2011	380.953	3	84	82.856	94.487	27.909	150.154	355.405	0.466	0.467	0.933
2012	381.617	3	66	17.522	379.616	57.311	287.072	741.520	1.041	0.902	1.943
2013	376.468	2	62	137.177	340.102	13.281	363.276	853.836	1.268	1.000	2.268
2014	437.315	1	51	38.142	464.781	16.513	431.638	951.075	1.150	1.025	2.175
2015	415.233	3	48	183.187	144.745	224.104	147.166	699.202	0.790	0.894	1.684
<b>MA Total:</b>	<b>1,991,585</b>	<b>12</b>	<b>311</b>	<b>458,884</b>	<b>1,423,731</b>	<b>339,117</b>	<b>1,379,306</b>	<b>3,601,038</b>	<b>0.945</b>	<b>0.863</b>	<b>1.808</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.966	1.678	.
(14) Massachusetts Credibility:	0.390	0.600	.
(15) Countrywide Pure Premium:	1.289	0.722	2.010
(16) Countrywide Indicated Relativity:	1.437	1.566	.
(17) Countrywide Credibility:	0.310	0.200	.
(18) Countrywide Lost-Time Claims:	6640.0	.	.
(19) Pure Premium Underlying Present Rate:	1.302	0.836	2.138
(20) Relativity to Underlying Present Rate:	1.380	1.525	.
(21) Credibility to Underlying Relativity:	0.300	0.200	.
(22) Industry Group Converted Pure Premium:	0.978	0.514	1.493
(23) Formula Relativity:	1.236	1.625	.
(24) Balanced Formula Relativity:	1.226	1.617	1.360

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## Calculation of Class Relativities

Class(es):		Effective: 7/1/2018							Manufacturing		
3179 ELECTRICAL APPARATUS MFG-NOC											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2011	1,470,601	0	106	0	980,663	0	353,958	1,334,622	0.667	0.241	0.908
2012	1,448,367	3	79	457,144	263,774	44,166	221,497	986,581	0.498	0.183	0.681
2013	1,507,501	5	112	442,333	404,298	85,062	239,019	1,170,712	0.562	0.215	0.777
2014	1,236,577	2	85	72,876	485,516	42,340	123,192	723,925	0.452	0.134	0.585
2015	1,367,248	1	69	114,641	371,900	44,161	297,536	828,237	0.356	0.250	0.606
<b>MA Total:</b>	<b>7,030,294</b>	<b>11</b>	<b>451</b>	<b>1,086,994</b>	<b>2,506,152</b>	<b>215,728</b>	<b>1,235,203</b>	<b>5,044,077</b>	<b>0.511</b>	<b>0.206</b>	<b>0.717</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.522	0.401	.
(14) Massachusetts Credibility:	0.470	0.640	.
(15) Countrywide Pure Premium:	0.843	0.421	1.265
(16) Countrywide Indicated Relativity:	0.941	0.914	.
(17) Countrywide Credibility:	0.270	0.180	.
(18) Countrywide Lost-Time Claims:	4458.0	.	.
(19) Pure Premium Underlying Present Rate:	0.581	0.280	0.861
(20) Relativity to Underlying Present Rate:	0.616	0.510	.
(21) Credibility to Underlying Relativity:	0.260	0.180	.
(22) Industry Group Converted Pure Premium:	0.978	0.514	1.493
(23) Formula Relativity:	0.660	0.513	.
(24) Balanced Formula Relativity:	0.654	0.511	0.605

Class(es):		Effective: 7/1/2018							Manufacturing		
3180 ELECTRIC OR GAS LIGHTING FIXTURES MFG											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2011	314,685	3	51	309,590	491,047	52,687	241,432	1,094,755	2.544	0.935	3.479
2012	158,066	2	48	121,217	234,314	93,998	61,879	511,407	2.249	0.986	3.235
2013	152,488	0	33	0	22,903	0	47,686	70,589	0.150	0.313	0.463
2014	120,495	0	30	0	149,013	0	62,410	211,424	1.237	0.518	1.755
2015	119,660	2	23	181,413	109,066	54,366	58,705	403,550	2.428	0.945	3.372
<b>MA Total:</b>	<b>865,393</b>	<b>7</b>	<b>185</b>	<b>612,219</b>	<b>1,006,343</b>	<b>201,050</b>	<b>472,113</b>	<b>2,291,725</b>	<b>1.870</b>	<b>0.778</b>	<b>2.648</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	1.911	1.513	.
(14) Massachusetts Credibility:	0.280	0.410	.
(15) Countrywide Pure Premium:	1.143	0.534	1.677
(16) Countrywide Indicated Relativity:	1.275	1.160	.
(17) Countrywide Credibility:	0.360	0.300	.
(18) Countrywide Lost-Time Claims:	407.00	.	.
(19) Pure Premium Underlying Present Rate:	1.252	0.751	2.003
(20) Relativity to Underlying Present Rate:	1.327	1.370	.
(21) Credibility to Underlying Relativity:	0.360	0.290	.
(22) Industry Group Converted Pure Premium:	0.978	0.514	1.493
(23) Formula Relativity:	1.472	1.365	.
(24) Balanced Formula Relativity:	1.459	1.359	1.424

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## Calculation of Class Relativities

Class(es):		Effective: 7/1/2018							Manufacturing		
3188 PLUMBERS SUPPLIES MFG-NOC											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2011	29.712	0	0	0	0	0	0	0	0.000	0.000	0.000
2012	23.754	0	0	0	0	0	0	0	0.000	0.000	0.000
2013	18.059	0	4	0	26.019	0	14.426	40.444	1.441	0.799	2.240
2014	22.598	0	7	0	15.245	0	13.580	28.825	0.675	0.601	1.276
2015	21.597	0	5	0	161.321	0	47.816	209.137	7.470	2.214	9.684
<b>MA Total:</b>	<b>115.720</b>	<b>0</b>	<b>16</b>	<b>0</b>	<b>202.585</b>	<b>0</b>	<b>75.822</b>	<b>278.407</b>	<b>1.751</b>	<b>0.655</b>	<b>2.406</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	1.789	1.274	.
(14) Massachusetts Credibility:	0.100	0.150	.
(15) Countrywide Pure Premium:	1.005	0.543	1.548
(16) Countrywide Indicated Relativity:	1.121	1.179	.
(17) Countrywide Credibility:	0.450	0.430	.
(18) Countrywide Lost-Time Claims:	398.00	.	.
(19) Pure Premium Underlying Present Rate:	0.775	0.431	1.206
(20) Relativity to Underlying Present Rate:	0.822	0.786	.
(21) Credibility to Underlying Relativity:	0.450	0.420	.
(22) Industry Group Converted Pure Premium:	0.978	0.514	1.493
(23) Formula Relativity:	1.053	1.028	.
(24) Balanced Formula Relativity:	1.044	1.023	1.037

Class(es):		Effective: 7/1/2018							Manufacturing		
3200 ARMS MFG-SMALL											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2011	174.009	0	38	0	63.121	0	74.996	138.117	0.363	0.431	0.794
2012	221.072	1	64	28.487	133.153	11.553	83.767	256.959	0.731	0.431	1.162
2013	78.866	0	14	0	4.887	0	16.451	21.338	0.062	0.209	0.271
2014	69.092	2	12	69.853	51.780	12.008	30.041	163.683	1.760	0.609	2.369
2015	69.171	0	7	0	41.663	0	28.250	69.913	0.602	0.408	1.011
<b>MA Total:</b>	<b>612.210</b>	<b>3</b>	<b>135</b>	<b>98.340</b>	<b>294.605</b>	<b>23.561</b>	<b>233.505</b>	<b>650.010</b>	<b>0.642</b>	<b>0.420</b>	<b>1.062</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.656	0.816	.
(14) Massachusetts Credibility:	0.230	0.340	.
(15) Countrywide Pure Premium:	0.000	0.000	0.000
(16) Countrywide Indicated Relativity:	1.139	1.176	.
(17) Countrywide Credibility:	0.000	0.000	.
(18) Countrywide Lost-Time Claims:	0.000	.	.
(19) Pure Premium Underlying Present Rate:	1.089	0.653	1.742
(20) Relativity to Underlying Present Rate:	1.154	1.192	.
(21) Credibility to Underlying Relativity:	0.770	0.660	.
(22) Industry Group Converted Pure Premium:	0.978	0.514	1.493
(23) Formula Relativity:	1.040	1.064	.
(24) Balanced Formula Relativity:	1.031	1.059	1.041

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## Calculation of Class Relativities

Class(es): 3220 CAN MFG		Effective: 7/1/2018							Manufacturing		
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical			MA Indicated Pure Premiums		
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2011	63.105	4	9	1,308,630	29,169	132,051	14,528	1,484,378	21,200	2,323	23,522
2012	103.474	1	12	271,750	26,715	29,828	30,499	358,792	2,884	0,583	3,467
2013	97.625	1	10	195,988	9,627	8,251	15,667	229,532	2,106	0,245	2,351
2014	100.269	2	12	266,857	10,335	443,858	11,004	732,054	2,764	4,536	7,301
2015	98.802	0	11	0	103,492	0	44,010	147,502	1,047	0,445	1,493
<b>MA Total:</b>	<b>463,275</b>	<b>8</b>	<b>54</b>	<b>2,043,225</b>	<b>179,337</b>	<b>613,988</b>	<b>115,708</b>	<b>2,952,258</b>	<b>4,797</b>	<b>1,575</b>	<b>6,373</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	4.903	3.063	.
(14) Massachusetts Credibility:	0.250	0.320	.
(15) Countrywide Pure Premium:	0.737	0.367	1.103
(16) Countrywide Indicated Relativity:	0.821	0.796	.
(17) Countrywide Credibility:	0.380	0.340	.
(18) Countrywide Lost-Time Claims:	333.00	.	.
(19) Pure Premium Underlying Present Rate:	1.847	0.731	2.578
(20) Relativity to Underlying Present Rate:	1.958	1.334	.
(21) Credibility to Underlying Relativity:	0.370	0.340	.
(22) Industry Group Converted Pure Premium:	0.978	0.514	1.493
(23) Formula Relativity:	2.262	1.704	.
(24) Balanced Formula Relativity:	2.243	1.696	2.054

Class(es): 3255 WIRE CLOTH MFG		Effective: 7/1/2018							Manufacturing		
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical			MA Indicated Pure Premiums		
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2011	1.158	0	0	0	0	0	0	0	0.000	0.000	0.000
2012	1.634	0	1	0	0	0	694	694	0.000	0.425	0.425
2013	1.948	0	0	0	0	0	0	0	0.000	0.000	0.000
2014	1.620	0	0	0	0	0	0	0	0.000	0.000	0.000
2015	1.937	0	0	0	0	0	0	0	0.000	0.000	0.000
<b>MA Total:</b>	<b>8,297</b>	<b>0</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>694</b>	<b>694</b>	<b>0.000</b>	<b>0.084</b>	<b>0.084</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.000	0.163	.
(14) Massachusetts Credibility:	0.040	0.060	.
(15) Countrywide Pure Premium:	0.835	0.505	1.340
(16) Countrywide Indicated Relativity:	0.931	1.096	.
(17) Countrywide Credibility:	0.270	0.280	.
(18) Countrywide Lost-Time Claims:	42.000	.	.
(19) Pure Premium Underlying Present Rate:	1.243	0.659	1.902
(20) Relativity to Underlying Present Rate:	1.318	1.202	.
(21) Credibility to Underlying Relativity:	0.690	0.660	.
(22) Industry Group Converted Pure Premium:	0.978	0.514	1.493
(23) Formula Relativity:	1.161	1.110	.
(24) Balanced Formula Relativity:	1.151	1.104	1.135

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## Calculation of Class Relativities

Class(es): 3257 WIRE GOODS MFG - NOC		Effective: 7/1/2018							Manufacturing		
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2011	163.038	2	25	359.243	89.377	249.293	43.421	741.334	2.752	1.795	4.547
2012	183.590	1	42	87.967	109.054	36.462	86.930	320.413	1.073	0.672	1.745
2013	205.502	0	29	0	23.754	0	34.935	58.688	0.116	0.170	0.286
2014	210.922	1	44	38.838	173.915	5.845	84.456	303.054	1.009	0.428	1.437
2015	217.374	0	61	0	400.072	0	238.993	639.065	1.840	1.099	2.940
<b>MA Total:</b>	<b>980.426</b>	<b>4</b>	<b>201</b>	<b>486.048</b>	<b>796.171</b>	<b>291.600</b>	<b>488.735</b>	<b>2,062.554</b>	<b>1.308</b>	<b>0.796</b>	<b>2.104</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	1.337	1.548	.
(14) Massachusetts Credibility:	0.300	0.410	.
(15) Countrywide Pure Premium:	1.148	0.631	1.779
(16) Countrywide Indicated Relativity:	1.281	1.369	.
(17) Countrywide Credibility:	0.350	0.300	.
(18) Countrywide Lost-Time Claims:	1098.0	.	.
(19) Pure Premium Underlying Present Rate:	1.312	0.647	1.959
(20) Relativity to Underlying Present Rate:	1.391	1.180	.
(21) Credibility to Underlying Relativity:	0.350	0.290	.
(22) Industry Group Converted Pure Premium:	0.978	0.514	1.493
(23) Formula Relativity:	1.336	1.388	.
(24) Balanced Formula Relativity:	1.324	1.381	1.344

Class(es): 3270 EYELET MFG		Effective: 7/1/2018							Manufacturing		
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2011	12.312	0	1	0	0	0	442	442	0.000	0.036	0.036
2012	8.897	0	0	0	0	0	0	0	0.000	0.000	0.000
2013	5.234	0	0	0	0	0	0	0	0.000	0.000	0.000
2014	6.237	0	1	0	0	0	585	585	0.000	0.094	0.094
2015	6.211	0	1	0	0	0	59	59	0.000	0.009	0.009
<b>MA Total:</b>	<b>38.891</b>	<b>0</b>	<b>3</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>1,086</b>	<b>1,086</b>	<b>0.000</b>	<b>0.028</b>	<b>0.028</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.000	0.054	.
(14) Massachusetts Credibility:	0.070	0.110	.
(15) Countrywide Pure Premium:	1.125	0.567	1.693
(16) Countrywide Indicated Relativity:	1.255	1.231	.
(17) Countrywide Credibility:	0.460	0.450	.
(18) Countrywide Lost-Time Claims:	167.00	.	.
(19) Pure Premium Underlying Present Rate:	0.955	0.594	1.548
(20) Relativity to Underlying Present Rate:	1.012	1.083	.
(21) Credibility to Underlying Relativity:	0.470	0.440	.
(22) Industry Group Converted Pure Premium:	0.978	0.514	1.493
(23) Formula Relativity:	1.053	1.036	.
(24) Balanced Formula Relativity:	1.044	1.031	1.039

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## Calculation of Class Relativities

Class(es):		Effective: 7/1/2018							Manufacturing		
3300 BED SPRING OR WIRE MATTRESS MFG											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical			MA Indicated Pure Premiums		
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2011	6,792	0	0	0	0	0	0	0	0.000	0.000	0.000
2012	5,957	0	1	0	0	0	107	107	0.000	0.018	0.018
2013	0	0	0	0	0	0	0	0	0.000	0.000	0.000
2014	0	0	0	0	0	0	0	0	0.000	0.000	0.000
2015	113	0	0	0	0	0	0	0	0.000	0.000	0.000
<b>MA Total:</b>	<b>12,862</b>	<b>0</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>107</b>	<b>107</b>	<b>0.000</b>	<b>0.008</b>	<b>0.008</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.000	0.016	.
(14) Massachusetts Credibility:	0.060	0.090	.
(15) Countrywide Pure Premium:	1.615	1.186	2.801
(16) Countrywide Indicated Relativity:	1.801	2.573	.
(17) Countrywide Credibility:	0.470	0.460	.
(18) Countrywide Lost-Time Claims:	314.00	.	.
(19) Pure Premium Underlying Present Rate:	1.801	1.162	2.963
(20) Relativity to Underlying Present Rate:	1.909	2.120	.
(21) Credibility to Underlying Relativity:	0.470	0.450	.
(22) Industry Group Converted Pure Premium:	0.978	0.514	1.493
(23) Formula Relativity:	1.744	2.139	.
(24) Balanced Formula Relativity:	1.729	2.128	1.867

Class(es):		Effective: 7/1/2018							Manufacturing		
3315 BRASS OR COPPER GOODS MFG											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical			MA Indicated Pure Premiums		
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2011	210,916	0	44	0	425,672	0	142,113	567,785	2,018	0,674	2,692
2012	196,336	2	53	210,388	68,601	59,413	84,844	423,246	1,421	0,735	2,156
2013	196,174	1	32	92,871	46,420	11,263	87,078	237,632	0,710	0,501	1,211
2014	199,184	0	36	0	59,784	0	45,764	105,548	0,300	0,230	0,530
2015	212,728	0	48	0	256,272	0	210,676	466,948	1,205	0,990	2,195
<b>MA Total:</b>	<b>1,015,338</b>	<b>3</b>	<b>213</b>	<b>303,259</b>	<b>856,749</b>	<b>70,675</b>	<b>570,476</b>	<b>1,801,159</b>	<b>1,142</b>	<b>0,631</b>	<b>1,774</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	1.168	1.228	.
(14) Massachusetts Credibility:	0.330	0.490	.
(15) Countrywide Pure Premium:	1.800	0.752	2,553
(16) Countrywide Indicated Relativity:	2.008	1.633	.
(17) Countrywide Credibility:	0.340	0.260	.
(18) Countrywide Lost-Time Claims:	225.00	.	.
(19) Pure Premium Underlying Present Rate:	1.735	0.987	2,722
(20) Relativity to Underlying Present Rate:	1.839	1.800	.
(21) Credibility to Underlying Relativity:	0.330	0.250	.
(22) Industry Group Converted Pure Premium:	0.978	0.514	1,493
(23) Formula Relativity:	1.675	1.476	.
(24) Balanced Formula Relativity:	1.660	1.469	1,594



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## Calculation of Class Relativities

Class(es): 3336 TYPE FOUNDRY		Effective: 7/1/2018							Manufacturing		
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2011	5,154	0	3	0	48,298	0	14,617	62,915	9,370	2,836	12,206
2012	6,167	0	3	0	13,321	0	6,082	19,403	2,160	0,986	3,146
2013	7,023	0	2	0	3,372	0	1,887	5,259	0,480	0,269	0,749
2014	9,353	0	0	0	0	0	0	0	0,000	0,000	0,000
2015	5,644	0	2	0	2,816	0	1,218	4,034	0,499	0,216	0,715
<b>MA Total:</b>	<b>33,342</b>	<b>0</b>	<b>10</b>	<b>0</b>	<b>67,807</b>	<b>0</b>	<b>23,803</b>	<b>91,610</b>	<b>2,034</b>	<b>0,714</b>	<b>2,748</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	2.078	1.388	.
(14) Massachusetts Credibility:	0.090	0.120	.
(15) Countrywide Pure Premium:	1.547	0.600	2.146
(16) Countrywide Indicated Relativity:	1.725	1.301	.
(17) Countrywide Credibility:	0.460	0.440	.
(18) Countrywide Lost-Time Claims:	293.00	.	.
(19) Pure Premium Underlying Present Rate:	2.194	0.891	3.085
(20) Relativity to Underlying Present Rate:	2.325	1.626	.
(21) Credibility to Underlying Relativity:	0.450	0.440	.
(22) Industry Group Converted Pure Premium:	0.978	0.514	1.493
(23) Formula Relativity:	2.027	1.454	.
(24) Balanced Formula Relativity:	2.009	1.447	1.816

Class(es): 3365 WELDING OR CUTTING - NOC & DRIVERS		Effective: 7/1/2018							Construction		
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2011	107,860	2	26	224,800	83,485	45,690	68,375	422,351	2,858	1,058	3,916
2012	121,714	1	17	158,826	532,384	25,792	198,912	915,913	5,679	1,846	7,525
2013	122,325	1	31	67,773	718,489	20,174	285,463	1,091,900	6,428	2,499	8,926
2014	139,858	2	31	16,964	52,983	10,227	89,880	170,053	0,500	0,716	1,216
2015	154,118	1	23	5,957	379,918	3,878	321,569	711,322	2,504	2,112	4,615
<b>MA Total:</b>	<b>645,875</b>	<b>7</b>	<b>128</b>	<b>474,320</b>	<b>1,767,260</b>	<b>105,760</b>	<b>964,199</b>	<b>3,311,539</b>	<b>3,471</b>	<b>1,657</b>	<b>5,127</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	1.323	1.401	.
(14) Massachusetts Credibility:	0.370	0.490	.
(15) Countrywide Pure Premium:	2.556	0.953	3.510
(16) Countrywide Indicated Relativity:	0.998	0.842	.
(17) Countrywide Credibility:	0.320	0.260	.
(18) Countrywide Lost-Time Claims:	1122.0	.	.
(19) Pure Premium Underlying Present Rate:	3.585	1.593	5.177
(20) Relativity to Underlying Present Rate:	1.306	1.188	.
(21) Credibility to Underlying Relativity:	0.310	0.250	.
(22) Industry Group Converted Pure Premium:	2.624	1.182	3.806
(23) Formula Relativity:	1.214	1.202	.
(24) Balanced Formula Relativity:	1.221	1.204	1.215

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## Calculation of Class Relativities

Class(es): 3372 ELECTROPLATING		Effective: 7/1/2018							Manufacturing		
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2011	525.677	1	71	100.326	581.670	17.684	719.519	1,419.199	1.297	1.402	2.700
2012	538.632	2	66	149.699	47.445	37.160	107.341	341.645	0.366	0.268	0.634
2013	541.986	0	82	0	386.906	0	395.142	782.048	0.714	0.729	1.443
2014	542.333	0	76	0	485.710	0	246.923	732.634	0.896	0.455	1.351
2015	562.107	1	46	118.514	203.529	33.905	126.199	482.147	0.573	0.285	0.858
<b>MA Total:</b>	<b>2,710.736</b>	<b>4</b>	<b>341</b>	<b>368.539</b>	<b>1,705.259</b>	<b>88.750</b>	<b>1,595.124</b>	<b>3,757.673</b>	<b>0.765</b>	<b>0.621</b>	<b>1.386</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.782	1.208	.
(14) Massachusetts Credibility:	0.400	0.650	.
(15) Countrywide Pure Premium:	1.314	0.768	2.083
(16) Countrywide Indicated Relativity:	1.466	1.667	.
(17) Countrywide Credibility:	0.300	0.180	.
(18) Countrywide Lost-Time Claims:	1083.0	.	.
(19) Pure Premium Underlying Present Rate:	1.046	0.759	1.805
(20) Relativity to Underlying Present Rate:	1.108	1.385	.
(21) Credibility to Underlying Relativity:	0.300	0.170	.
(22) Industry Group Converted Pure Premium:	0.978	0.514	1.493
(23) Formula Relativity:	1.085	1.321	.
(24) Balanced Formula Relativity:	1.076	1.314	1.158

Class(es): 3373 GALVANIZING OR TINNING - NOT ELECTROLYTIC		Effective: 7/1/2018							Manufacturing		
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2011	12.269	0	2	0	2.921	0	3.345	6.266	0.238	0.273	0.511
2012	17.048	0	2	0	1.028	0	1.969	2.998	0.060	0.116	0.176
2013	9.776	0	0	0	0	0	0	0	0.000	0.000	0.000
2014	9.304	1	0	206.085	0	25.892	0	231.976	22.150	2.783	24.933
2015	7.823	0	1	0	0	0	445	445	0.000	0.057	0.057
<b>MA Total:</b>	<b>56.220</b>	<b>1</b>	<b>5</b>	<b>206.085</b>	<b>3.949</b>	<b>25.892</b>	<b>5.759</b>	<b>241.685</b>	<b>3.736</b>	<b>0.563</b>	<b>4.299</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	3.818	1.095	.
(14) Massachusetts Credibility:	0.110	0.150	.
(15) Countrywide Pure Premium:	1.815	0.826	2.641
(16) Countrywide Indicated Relativity:	2.025	1.793	.
(17) Countrywide Credibility:	0.450	0.430	.
(18) Countrywide Lost-Time Claims:	166.00	.	.
(19) Pure Premium Underlying Present Rate:	1.781	0.905	2.686
(20) Relativity to Underlying Present Rate:	1.888	1.651	.
(21) Credibility to Underlying Relativity:	0.440	0.420	.
(22) Industry Group Converted Pure Premium:	0.978	0.514	1.493
(23) Formula Relativity:	2.162	1.629	.
(24) Balanced Formula Relativity:	2.143	1.620	1.963

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## Calculation of Class Relativities

Class(es): 3381 SILVERWARE MFG		Effective: 7/1/2018							Manufacturing		
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2011	4,893	0	0	0	0	0	0	0	0.000	0.000	0.000
2012	5,810	0	0	0	0	0	0	0	0.000	0.000	0.000
2013	5,499	0	0	0	0	0	0	0	0.000	0.000	0.000
2014	8,487	0	2	0	0	0	1,291	1,291	0.000	0.152	0.152
2015	8,683	0	0	0	0	0	0	0	0.000	0.000	0.000
<b>MA Total:</b>	<b>33,372</b>	<b>0</b>	<b>2</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>1,291</b>	<b>1,291</b>	<b>0.000</b>	<b>0.039</b>	<b>0.039</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.000	0.075	.
(14) Massachusetts Credibility:	0.070	0.110	.
(15) Countrywide Pure Premium:	0.000	0.000	0.000
(16) Countrywide Indicated Relativity:	1.290	1.261	.
(17) Countrywide Credibility:	0.000	0.000	.
(18) Countrywide Lost-Time Claims:	0.000	.	.
(19) Pure Premium Underlying Present Rate:	1.233	0.701	1.933
(20) Relativity to Underlying Present Rate:	1.307	1.279	.
(21) Credibility to Underlying Relativity:	0.930	0.890	.
(22) Industry Group Converted Pure Premium:	0.978	0.514	1.493
(23) Formula Relativity:	1.215	1.146	.
(24) Balanced Formula Relativity:	1.205	1.141	1.183

Class(es): 3383 JEWELRY MFG		Effective: 7/1/2018							Manufacturing		
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2011	379,078	0	33	0	77,164	0	46,135	123,300	0.204	0.122	0.325
2012	598,819	5	81	523,331	622,829	176,263	212,228	1,534,651	1.914	0.649	2,563
2013	650,118	1	74	145,613	458,552	448,794	204,945	1,257,904	0.929	1.006	1,935
2014	601,071	3	65	391,202	797,222	114,809	440,255	1,743,488	1.977	0.923	2,901
2015	671,675	2	50	58,025	367,146	46,204	315,589	786,963	0.633	0.539	1,172
<b>MA Total:</b>	<b>2,900,760</b>	<b>11</b>	<b>303</b>	<b>1,118,170</b>	<b>2,322,913</b>	<b>786,070</b>	<b>1,219,153</b>	<b>5,446,306</b>	<b>1.186</b>	<b>0.691</b>	<b>1.878</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	1.212	1.344	.
(14) Massachusetts Credibility:	0.350	0.500	.
(15) Countrywide Pure Premium:	0.613	0.362	0.975
(16) Countrywide Indicated Relativity:	0.684	0.785	.
(17) Countrywide Credibility:	0.330	0.250	.
(18) Countrywide Lost-Time Claims:	317.00	.	.
(19) Pure Premium Underlying Present Rate:	0.702	0.371	1.073
(20) Relativity to Underlying Present Rate:	0.744	0.677	.
(21) Credibility to Underlying Relativity:	0.320	0.250	.
(22) Industry Group Converted Pure Premium:	0.978	0.514	1.493
(23) Formula Relativity:	0.888	1.038	.
(24) Balanced Formula Relativity:	0.881	1.032	0.933

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## Calculation of Class Relativities

Class(es): 3385 WATCH MFG		Effective: 7/1/2018							Manufacturing		
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2011	25.703	0	2	0	0	0	915	915	0.000	0.036	0.036
2012	26.063	0	2	0	452	0	819	1,271	0.017	0.031	0.049
2013	27.418	0	2	0	0	0	798	798	0.000	0.029	0.029
2014	27.438	0	2	0	0	0	533	533	0.000	0.019	0.019
2015	28.623	0	3	0	10,468	0	12,035	22,503	0.366	0.420	0.786
<b>MA Total:</b>	<b>135,245</b>	<b>0</b>	<b>11</b>	<b>0</b>	<b>10,920</b>	<b>0</b>	<b>15,100</b>	<b>26,020</b>	<b>0.081</b>	<b>0.112</b>	<b>0.192</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.083	0.217	.
(14) Massachusetts Credibility:	0.080	0.110	.
(15) Countrywide Pure Premium:	0.280	0.208	0.488
(16) Countrywide Indicated Relativity:	0.313	0.451	.
(17) Countrywide Credibility:	0.190	0.200	.
(18) Countrywide Lost-Time Claims:	18.000	.	.
(19) Pure Premium Underlying Present Rate:	0.379	0.199	0.578
(20) Relativity to Underlying Present Rate:	0.402	0.363	.
(21) Credibility to Underlying Relativity:	0.730	0.690	.
(22) Industry Group Converted Pure Premium:	0.978	0.514	1.493
(23) Formula Relativity:	0.359	0.365	.
(24) Balanced Formula Relativity:	0.356	0.363	0.358

Class(es): 3507 CONSTRUCTION OR AGRICULTURAL MACHINERY MFG		Effective: 7/1/2018							Manufacturing		
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2011	30.920	0	4	0	0	0	2,401	2,401	0.000	0.078	0.078
2012	37.035	1	6	167,097	0	15,870	5,235	188,202	4.512	0.570	5.082
2013	52.458	0	16	0	94,145	0	47,605	141,750	1.795	0.907	2.702
2014	55.651	0	12	0	16,148	0	7,593	23,740	0.290	0.136	0.427
2015	35.050	0	7	0	9,098	0	25,708	34,806	0.260	0.733	0.993
<b>MA Total:</b>	<b>211,115</b>	<b>1</b>	<b>45</b>	<b>167,097</b>	<b>119,390</b>	<b>15,870</b>	<b>88,541</b>	<b>390,898</b>	<b>1.357</b>	<b>0.495</b>	<b>1.852</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	1.387	0.962	.
(14) Massachusetts Credibility:	0.160	0.230	.
(15) Countrywide Pure Premium:	1.268	0.628	1.896
(16) Countrywide Indicated Relativity:	1.414	1.362	.
(17) Countrywide Credibility:	0.420	0.390	.
(18) Countrywide Lost-Time Claims:	5721.0	.	.
(19) Pure Premium Underlying Present Rate:	1.369	0.729	2.099
(20) Relativity to Underlying Present Rate:	1.452	1.331	.
(21) Credibility to Underlying Relativity:	0.420	0.380	.
(22) Industry Group Converted Pure Premium:	0.978	0.514	1.493
(23) Formula Relativity:	1.426	1.258	.
(24) Balanced Formula Relativity:	1.413	1.252	1.358

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## Calculation of Class Relativities

Class(es):		Effective: 7/1/2018							Manufacturing		
3515 TEXTILE MACHINERY MFG											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2011	30.947	0	11	0	11.827	0	12.571	24.399	0.382	0.406	0.788
2012	33.046	1	14	271.595	32.758	21.019	45.347	370.721	9.210	2.008	11.218
2013	33.505	0	19	0	13.093	0	22.211	35.304	0.391	0.663	1.054
2014	35.015	0	24	0	44.229	0	30.595	74.825	1.263	0.874	2.137
2015	43.110	1	18	45.375	42.094	12.411	25.392	125.273	2.029	0.877	2.906
<b>MA Total:</b>	<b>175.622</b>	<b>2</b>	<b>86</b>	<b>316.971</b>	<b>144.002</b>	<b>33.431</b>	<b>136.118</b>	<b>630.521</b>	<b>2.625</b>	<b>0.965</b>	<b>3.590</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	2.683	1.877	.
(14) Massachusetts Credibility:	0.140	0.220	.
(15) Countrywide Pure Premium:	1.097	0.823	1.921
(16) Countrywide Indicated Relativity:	1.224	1.787	.
(17) Countrywide Credibility:	0.320	0.340	.
(18) Countrywide Lost-Time Claims:	68.000	.	.
(19) Pure Premium Underlying Present Rate:	1.186	0.773	1.959
(20) Relativity to Underlying Present Rate:	1.257	1.410	.
(21) Credibility to Underlying Relativity:	0.540	0.440	.
(22) Industry Group Converted Pure Premium:	0.978	0.514	1.493
(23) Formula Relativity:	1.446	1.641	.
(24) Balanced Formula Relativity:	1.434	1.633	1.502

Class(es):		Effective: 7/1/2018							Manufacturing		
3558 BOOT OR SHOE MACHINERY MFG											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2011	9.780	0	1	0	0	0	466	466	0.000	0.048	0.048
2012	1.695	0	0	0	0	0	0	0	0.000	0.000	0.000
2013	2.219	0	0	0	0	0	0	0	0.000	0.000	0.000
2014	2.251	0	0	0	0	0	0	0	0.000	0.000	0.000
2015	2.313	0	0	0	0	0	0	0	0.000	0.000	0.000
<b>MA Total:</b>	<b>18.257</b>	<b>0</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>466</b>	<b>466</b>	<b>0.000</b>	<b>0.026</b>	<b>0.026</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.000	0.050	.
(14) Massachusetts Credibility:	0.040	0.070	.
(15) Countrywide Pure Premium:	0.000	0.000	0.000
(16) Countrywide Indicated Relativity:	0.376	0.642	.
(17) Countrywide Credibility:	0.000	0.000	.
(18) Countrywide Lost-Time Claims:	0.000	.	.
(19) Pure Premium Underlying Present Rate:	0.359	0.357	0.716
(20) Relativity to Underlying Present Rate:	0.381	0.651	.
(21) Credibility to Underlying Relativity:	0.960	0.930	.
(22) Industry Group Converted Pure Premium:	0.978	0.514	1.493
(23) Formula Relativity:	0.366	0.609	.
(24) Balanced Formula Relativity:	0.362	0.606	0.446

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## Calculation of Class Relativities

Class(es):		Effective: 7/1/2018							Manufacturing		
3571 STEAM OR AIR PRESSURE GAUGE MFG											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2011	5,200	0	1	0	0	0	303	303	0.000	0.058	0.058
2012	6,485	0	1	0	0	0	413	413	0.000	0.064	0.064
2013	4,046	0	0	0	0	0	0	0	0.000	0.000	0.000
2014	7,421	0	0	0	0	0	0	0	0.000	0.000	0.000
2015	8,824	0	0	0	0	0	0	0	0.000	0.000	0.000
<b>MA Total:</b>	<b>31,976</b>	<b>0</b>	<b>2</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>716</b>	<b>716</b>	<b>0.000</b>	<b>0.022</b>	<b>0.022</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.000	0.044	.
(14) Massachusetts Credibility:	0.050	0.070	.
(15) Countrywide Pure Premium:	0.341	0.165	0.506
(16) Countrywide Indicated Relativity:	0.381	0.357	.
(17) Countrywide Credibility:	0.100	0.110	.
(18) Countrywide Lost-Time Claims:	4.000	.	.
(19) Pure Premium Underlying Present Rate:	0.447	0.241	0.688
(20) Relativity to Underlying Present Rate:	0.474	0.440	.
(21) Credibility to Underlying Relativity:	0.850	0.820	.
(22) Industry Group Converted Pure Premium:	0.978	0.514	1.493
(23) Formula Relativity:	0.441	0.403	.
(24) Balanced Formula Relativity:	0.437	0.401	0.425

Class(es):		Effective: 7/1/2018							Manufacturing		
3574 CASH REGISTER MFG											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2011	5,565,824	15	658	1,921,084	4,225,919	526,851	2,219,693	8,893,548	1,104	0.493	1,598
2012	5,594,093	15	571	1,460,335	2,824,217	371,471	1,721,287	6,377,309	0.766	0.374	1,140
2013	5,988,002	9	541	1,203,100	4,371,702	458,044	1,984,899	8,017,745	0.931	0.408	1,339
2014	6,014,990	14	520	1,314,482	2,441,848	937,799	1,860,444	6,554,573	0.624	0.465	1,090
2015	6,280,321	8	466	809,155	4,504,609	472,703	1,953,358	7,739,825	0.846	0.386	1,232
<b>MA Total:</b>	<b>29,443,229</b>	<b>61</b>	<b>2,756</b>	<b>6,708,155</b>	<b>18,368,295</b>	<b>2,766,868</b>	<b>9,739,681</b>	<b>37,582,999</b>	<b>0.852</b>	<b>0.425</b>	<b>1,276</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.870	0.826	.
(14) Massachusetts Credibility:	0.950	1.000	.
(15) Countrywide Pure Premium:	0.854	0.430	1.284
(16) Countrywide Indicated Relativity:	0.952	0.934	.
(17) Countrywide Credibility:	0.030	0.000	.
(18) Countrywide Lost-Time Claims:	20616	.	.
(19) Pure Premium Underlying Present Rate:	0.814	0.435	1.249
(20) Relativity to Underlying Present Rate:	0.863	0.794	.
(21) Credibility to Underlying Relativity:	0.020	0.000	.
(22) Industry Group Converted Pure Premium:	0.978	0.514	1.493
(23) Formula Relativity:	0.873	0.826	.
(24) Balanced Formula Relativity:	0.865	0.822	0.850

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## Calculation of Class Relativities

Class(es): 3612 PUMP MFG		Effective: 7/1/2018							Manufacturing		
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2011	280,271	1	30	198,861	49,749	29,118	49,775	327,503	0.887	0.281	1.169
2012	264,910	1	25	54,421	60,886	55,452	82,274	253,033	0.435	0.520	0.955
2013	294,411	0	25	0	197,994	0	357,112	555,106	0.673	1.213	1.885
2014	293,375	0	22	0	17,573	0	24,591	42,163	0.060	0.084	0.144
2015	279,141	0	19	0	45,054	0	76,778	121,832	0.161	0.275	0.436
<b>MA Total:</b>	<b>1,412,108</b>	<b>2</b>	<b>121</b>	<b>253,282</b>	<b>371,255</b>	<b>84,570</b>	<b>590,530</b>	<b>1,299,637</b>	<b>0.442</b>	<b>0.478</b>	<b>0.920</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.452	0.930	.
(14) Massachusetts Credibility:	0.290	0.440	.
(15) Countrywide Pure Premium:	0.985	0.470	1.456
(16) Countrywide Indicated Relativity:	1.099	1.020	.
(17) Countrywide Credibility:	0.360	0.280	.
(18) Countrywide Lost-Time Claims:	1971.0	.	.
(19) Pure Premium Underlying Present Rate:	0.882	0.552	1.434
(20) Relativity to Underlying Present Rate:	0.935	1.008	.
(21) Credibility to Underlying Relativity:	0.350	0.280	.
(22) Industry Group Converted Pure Premium:	0.978	0.514	1.493
(23) Formula Relativity:	0.854	0.977	.
(24) Balanced Formula Relativity:	0.847	0.972	0.890

Class(es): 3620 BOILERMAKING		Effective: 7/1/2018							Manufacturing		
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2011	147,119	4	33	832,659	431,872	911,986	286,228	2,462,744	8.595	8.145	16.740
2012	152,820	1	23	166,941	57,916	15,489	32,269	272,615	1.471	0.313	1.784
2013	179,144	1	18	13,871	44,062	825	110,878	169,636	0.323	0.624	0.947
2014	161,029	0	24	0	45,869	0	48,835	94,704	0.285	0.303	0.588
2015	158,970	1	18	185,851	18,728	33,533	16,348	254,459	1.287	0.314	1.601
<b>MA Total:</b>	<b>799,082</b>	<b>7</b>	<b>116</b>	<b>1,199,322</b>	<b>598,447</b>	<b>961,833</b>	<b>494,557</b>	<b>3,254,159</b>	<b>2.250</b>	<b>1.823</b>	<b>4.072</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	2.299	3.544	.
(14) Massachusetts Credibility:	0.330	0.590	.
(15) Countrywide Pure Premium:	1.525	0.793	2.318
(16) Countrywide Indicated Relativity:	1.701	1.720	.
(17) Countrywide Credibility:	0.340	0.210	.
(18) Countrywide Lost-Time Claims:	1452.0	.	.
(19) Pure Premium Underlying Present Rate:	2.075	1.974	4.049
(20) Relativity to Underlying Present Rate:	2.199	3.602	.
(21) Credibility to Underlying Relativity:	0.330	0.200	.
(22) Industry Group Converted Pure Premium:	0.978	0.514	1.493
(23) Formula Relativity:	2.063	3.172	.
(24) Balanced Formula Relativity:	2.045	3.157	2.428

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## Calculation of Class Relativities

Class(es): 3634 VALVE MFG		Effective: 7/1/2018							Manufacturing		
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2011	293,743	0	22	0	198,765	0	162,793	361,558	0.677	0.554	1.231
2012	332,482	0	22	0	51,098	0	46,941	98,039	0.154	0.141	0.295
2013	441,895	0	33	0	274,238	0	117,683	391,921	0.621	0.266	0.887
2014	322,852	2	35	188,296	239,528	25,343	109,490	562,656	1.325	0.418	1.743
2015	460,279	0	23	0	150,340	0	63,092	213,432	0.327	0.137	0.464
<b>MA Total:</b>	<b>1,851,251</b>	<b>2</b>	<b>135</b>	<b>188,296</b>	<b>913,968</b>	<b>25,343</b>	<b>499,999</b>	<b>1,627,605</b>	<b>0.595</b>	<b>0.284</b>	<b>0.879</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.609	0.552	.
(14) Massachusetts Credibility:	0.310	0.440	.
(15) Countrywide Pure Premium:	0.771	0.417	1.188
(16) Countrywide Indicated Relativity:	0.860	0.905	.
(17) Countrywide Credibility:	0.350	0.280	.
(18) Countrywide Lost-Time Claims:	1005.0	.	.
(19) Pure Premium Underlying Present Rate:	0.799	0.424	1.222
(20) Relativity to Underlying Present Rate:	0.847	0.773	.
(21) Credibility to Underlying Relativity:	0.340	0.280	.
(22) Industry Group Converted Pure Premium:	0.978	0.514	1.493
(23) Formula Relativity:	0.777	0.713	.
(24) Balanced Formula Relativity:	0.771	0.709	0.749

Class(es): 3635 GEAR MFG OR GRINDING		Effective: 7/1/2018							Manufacturing		
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2011	242,217	2	51	139,536	116,810	59,795	142,561	458,702	1.058	0.835	1.894
2012	252,636	1	49	18,510	942,709	758	281,995	1,243,972	3.805	1.119	4.924
2013	257,744	1	48	94,862	302,950	29,969	187,117	614,898	1.543	0.842	2.386
2014	273,066	2	33	140,518	544,122	17,976	242,077	944,694	2.507	0.952	3.460
2015	302,157	0	40	0	65,173	0	76,666	141,839	0.216	0.254	0.469
<b>MA Total:</b>	<b>1,327,819</b>	<b>6</b>	<b>221</b>	<b>393,426</b>	<b>1,971,763</b>	<b>108,498</b>	<b>930,416</b>	<b>3,404,104</b>	<b>1.781</b>	<b>0.782</b>	<b>2.564</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	1.820	1.521	.
(14) Massachusetts Credibility:	0.330	0.520	.
(15) Countrywide Pure Premium:	1.005	0.524	1.529
(16) Countrywide Indicated Relativity:	1.121	1.137	.
(17) Countrywide Credibility:	0.340	0.240	.
(18) Countrywide Lost-Time Claims:	507.00	.	.
(19) Pure Premium Underlying Present Rate:	1.238	0.879	2.117
(20) Relativity to Underlying Present Rate:	1.312	1.604	.
(21) Credibility to Underlying Relativity:	0.330	0.240	.
(22) Industry Group Converted Pure Premium:	0.978	0.514	1.493
(23) Formula Relativity:	1.415	1.449	.
(24) Balanced Formula Relativity:	1.403	1.442	1.416



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## Calculation of Class Relativities

Class(es): 3642 BATTERY MFG-DRY		Effective: 7/1/2018							Manufacturing		
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2011	170.172	0	6	0	94.649	0	27.554	122.203	0.556	0.162	0.718
2012	317.808	0	15	0	10.488	0	14.211	24.698	0.033	0.045	0.078
2013	157.524	0	5	0	30.873	0	16.788	47.661	0.196	0.107	0.303
2014	196.131	0	14	0	220.732	0	67.187	287.918	1.125	0.343	1.468
2015	167.546	0	9	0	13.391	0	24.655	38.046	0.080	0.147	0.227
<b>MA Total:</b>	<b>1,009,180</b>	<b>0</b>	<b>49</b>	<b>0</b>	<b>370,132</b>	<b>0</b>	<b>150,394</b>	<b>520,527</b>	<b>0.367</b>	<b>0.149</b>	<b>0.516</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.375	0.290	.
(14) Massachusetts Credibility:	0.210	0.280	.
(15) Countrywide Pure Premium:	0.701	0.366	1.067
(16) Countrywide Indicated Relativity:	0.782	0.793	.
(17) Countrywide Credibility:	0.400	0.360	.
(18) Countrywide Lost-Time Claims:	120.00	.	.
(19) Pure Premium Underlying Present Rate:	0.559	0.254	0.812
(20) Relativity to Underlying Present Rate:	0.592	0.463	.
(21) Credibility to Underlying Relativity:	0.390	0.360	.
(22) Industry Group Converted Pure Premium:	0.978	0.514	1.493
(23) Formula Relativity:	0.622	0.533	.
(24) Balanced Formula Relativity:	0.617	0.531	0.587

Class(es): 3643 ELECTRIC POWER OR TRANSMISSION EQUIP MFG		Effective: 7/1/2018							Manufacturing		
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2011	699.369	1	35	104.884	35.109	21.996	61.973	223.961	0.200	0.120	0.320
2012	809.473	3	60	708.123	547.987	188.107	291.921	1,736.138	1.552	0.593	2.145
2013	881.007	0	97	0	322.884	0	275.173	598.057	0.366	0.312	0.679
2014	917.874	2	65	18.325	192.482	8.251	162.935	381.993	0.230	0.187	0.416
2015	896.036	2	60	153.412	604.435	64.917	422.512	1,245.276	0.846	0.544	1.390
<b>MA Total:</b>	<b>4,203,759</b>	<b>8</b>	<b>317</b>	<b>984,744</b>	<b>1,702,897</b>	<b>283,270</b>	<b>1,214,514</b>	<b>4,185,426</b>	<b>0.639</b>	<b>0.356</b>	<b>0.996</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.653	0.693	.
(14) Massachusetts Credibility:	0.440	0.600	.
(15) Countrywide Pure Premium:	0.924	0.449	1.374
(16) Countrywide Indicated Relativity:	1.031	0.975	.
(17) Countrywide Credibility:	0.280	0.200	.
(18) Countrywide Lost-Time Claims:	2167.0	.	.
(19) Pure Premium Underlying Present Rate:	0.808	0.397	1.205
(20) Relativity to Underlying Present Rate:	0.856	0.724	.
(21) Credibility to Underlying Relativity:	0.280	0.200	.
(22) Industry Group Converted Pure Premium:	0.978	0.514	1.493
(23) Formula Relativity:	0.816	0.755	.
(24) Balanced Formula Relativity:	0.809	0.752	0.789

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## Calculation of Class Relativities

Class(es): 3647 BATTERY MFG-STORAGE		Effective: 7/1/2018							Manufacturing		
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2011	4,221	0	0	0	0	0	0	0	0.000	0.000	0.000
2012	10,851	0	0	0	0	0	0	0	0.000	0.000	0.000
2013	3,280	0	0	0	0	0	0	0	0.000	0.000	0.000
2014	791	0	0	0	0	0	0	0	0.000	0.000	0.000
2015	860	0	0	0	0	0	0	0	0.000	0.000	0.000
<b>MA Total:</b>	<b>20,002</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0.000</b>	<b>0.000</b>	<b>0.000</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.000	0.000	.
(14) Massachusetts Credibility:	0.050	0.080	.
(15) Countrywide Pure Premium:	1.141	0.517	1.658
(16) Countrywide Indicated Relativity:	1.272	1.122	.
(17) Countrywide Credibility:	0.480	0.460	.
(18) Countrywide Lost-Time Claims:	374.00	.	.
(19) Pure Premium Underlying Present Rate:	0.895	0.504	1.399
(20) Relativity to Underlying Present Rate:	0.948	0.920	.
(21) Credibility to Underlying Relativity:	0.470	0.460	.
(22) Industry Group Converted Pure Premium:	0.978	0.514	1.493
(23) Formula Relativity:	1.056	0.939	.
(24) Balanced Formula Relativity:	1.047	0.935	1.008

Class(es): 3648 AUTOMOTIVE LIGHTING, IGNITION APPARATUS MFG NOC		Effective: 7/1/2018							Manufacturing		
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2011	2,822	0	0	0	0	0	0	0	0.000	0.000	0.000
2012	1,014	0	0	0	0	0	0	0	0.000	0.000	0.000
2013	417	0	0	0	0	0	0	0	0.000	0.000	0.000
2014	933	0	1	0	0	0	302	302	0.000	0.324	0.324
2015	1,248	0	0	0	0	0	0	0	0.000	0.000	0.000
<b>MA Total:</b>	<b>6,434</b>	<b>0</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>302</b>	<b>302</b>	<b>0.000</b>	<b>0.047</b>	<b>0.047</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.000	0.091	.
(14) Massachusetts Credibility:	0.030	0.050	.
(15) Countrywide Pure Premium:	0.623	0.358	0.981
(16) Countrywide Indicated Relativity:	0.695	0.776	.
(17) Countrywide Credibility:	0.490	0.480	.
(18) Countrywide Lost-Time Claims:	515.00	.	.
(19) Pure Premium Underlying Present Rate:	0.599	0.407	1.007
(20) Relativity to Underlying Present Rate:	0.635	0.743	.
(21) Credibility to Underlying Relativity:	0.480	0.470	.
(22) Industry Group Converted Pure Premium:	0.978	0.514	1.493
(23) Formula Relativity:	0.645	0.726	.
(24) Balanced Formula Relativity:	0.640	0.723	0.668

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## Calculation of Class Relativities

Class(es):		Effective: 7/1/2018							Manufacturing		
3681 TELEVISION, RADIO, TELEPHONE OR TELECOMMUNCTN DEVICE MFG NOC											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2011	5,337,843	8	267	769,790	1,006,563	167,483	727,579	2,671,415	0.333	0.168	0.500
2012	5,306,356	6	193	379,258	1,603,775	242,000	742,704	2,967,738	0.374	0.186	0.559
2013	5,235,540	11	201	1,352,333	1,564,849	319,710	700,822	3,937,714	0.557	0.195	0.752
2014	5,584,838	7	197	933,080	539,090	257,332	488,160	2,217,661	0.264	0.133	0.397
2015	5,297,901	3	184	109,283	1,395,001	46,889	843,320	2,394,493	0.284	0.168	0.452
<b>MA Total:</b>	<b>26,762,478</b>	<b>35</b>	<b>1,042</b>	<b>3,543,743</b>	<b>6,109,278</b>	<b>1,033,413</b>	<b>3,502,586</b>	<b>14,189,021</b>	<b>0.361</b>	<b>0.169</b>	<b>0.530</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.369	0.330	.
(14) Massachusetts Credibility:	0.680	1.000	.
(15) Countrywide Pure Premium:	0.358	0.196	0.554
(16) Countrywide Indicated Relativity:	0.400	0.425	.
(17) Countrywide Credibility:	0.160	0.000	.
(18) Countrywide Lost-Time Claims:	3037.0	.	.
(19) Pure Premium Underlying Present Rate:	0.384	0.234	0.618
(20) Relativity to Underlying Present Rate:	0.407	0.426	.
(21) Credibility to Underlying Relativity:	0.160	0.000	.
(22) Industry Group Converted Pure Premium:	0.978	0.514	1.493
(23) Formula Relativity:	0.380	0.330	.
(24) Balanced Formula Relativity:	0.376	0.328	0.360

Class(es):		Effective: 7/1/2018							Manufacturing		
3685 INSTRUMENT MFG NOC											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2011	5,578,349	7	238	448,815	729,464	200,864	523,375	1,902,518	0.211	0.130	0.341
2012	5,477,243	4	241	302,059	1,746,666	55,974	789,456	2,894,154	0.374	0.154	0.528
2013	5,690,542	11	205	1,094,556	1,286,151	402,460	664,721	3,447,887	0.418	0.188	0.606
2014	6,761,170	5	251	313,826	1,297,677	79,672	885,068	2,576,244	0.238	0.143	0.381
2015	7,213,290	9	245	763,266	1,300,273	186,332	797,276	3,047,146	0.286	0.136	0.422
<b>MA Total:</b>	<b>30,720,595</b>	<b>36</b>	<b>1,180</b>	<b>2,922,523</b>	<b>6,360,229</b>	<b>925,302</b>	<b>3,659,895</b>	<b>13,867,950</b>	<b>0.302</b>	<b>0.149</b>	<b>0.451</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.309	0.290	.
(14) Massachusetts Credibility:	0.660	0.940	.
(15) Countrywide Pure Premium:	0.444	0.226	0.669
(16) Countrywide Indicated Relativity:	0.495	0.490	.
(17) Countrywide Credibility:	0.170	0.030	.
(18) Countrywide Lost-Time Claims:	2437.0	.	.
(19) Pure Premium Underlying Present Rate:	0.314	0.169	0.483
(20) Relativity to Underlying Present Rate:	0.333	0.309	.
(21) Credibility to Underlying Relativity:	0.170	0.030	.
(22) Industry Group Converted Pure Premium:	0.978	0.514	1.493
(23) Formula Relativity:	0.344	0.297	.
(24) Balanced Formula Relativity:	0.341	0.295	0.326

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## Calculation of Class Relativities

Class(es):		Effective: 7/1/2018							Construction			
3724 MACHINERY OR EQUIPMENT ERECT OR REPAIR NOC &DR												
		Converted Unlimited Losses										
		Amount										
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums				
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)	
2011	2,175,134	14	332	2,472,135	2,926,938	567,946	1,651,125	7,618,144	2,482	1,020	3,502	
2012	2,271,614	16	318	2,596,838	3,945,174	731,189	2,084,134	9,357,335	2,880	1,239	4,119	
2013	2,547,705	11	323	2,325,060	5,892,272	602,082	2,408,977	11,228,391	3,225	1,182	4,407	
2014	2,742,710	19	316	2,429,023	6,228,441	1,146,103	2,850,914	12,654,479	3,157	1,457	4,614	
2015	3,257,850	16	410	2,508,565	5,451,828	869,897	3,430,914	12,261,203	2,443	1,320	3,764	
<b>MA Total:</b>	<b>12,995,012</b>	<b>76</b>	<b>1,699</b>	<b>12,331,620</b>	<b>24,444,653</b>	<b>3,917,217</b>	<b>12,426,063</b>	<b>53,119,553</b>	<b>2,830</b>	<b>1,258</b>	<b>4,088</b>	

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	1.079	1.064	.
(14) Massachusetts Credibility:	1.000	1.000	.
(15) Countrywide Pure Premium:	1.709	0.735	2.444
(16) Countrywide Indicated Relativity:	0.667	0.649	.
(17) Countrywide Credibility:	0.000	0.000	.
(18) Countrywide Lost-Time Claims:	7678.0	.	.
(19) Pure Premium Underlying Present Rate:	2.475	1.218	3.693
(20) Relativity to Underlying Present Rate:	0.902	0.909	.
(21) Credibility to Underlying Relativity:	0.000	0.000	.
(22) Industry Group Converted Pure Premium:	2.624	1.182	3.806
(23) Formula Relativity:	1.079	1.064	.
(24) Balanced Formula Relativity:	1.085	1.065	1.079

Class(es):		Effective: 7/1/2018							Construction			
3726 BOILER INSTALLATION OR REPAIR-STEAM												
		Converted Unlimited Losses										
		Amount										
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums				
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)	
2011	68,554	1	13	21,395	4,745	15,573	14,318	56,031	0.381	0.436	0.817	
2012	66,743	3	7	606,000	69,756	73,083	43,313	792,152	10.125	1.744	11.869	
2013	67,705	1	7	65,966	72,105	16,927	36,394	191,392	2.039	0.788	2.827	
2014	99,961	1	4	119,037	6,753	33,458	33,039	192,286	1.258	0.665	1.924	
2015	113,846	0	6	0	5,502	0	10,039	15,541	0.048	0.088	0.137	
<b>MA Total:</b>	<b>416,809</b>	<b>6</b>	<b>37</b>	<b>812,397</b>	<b>158,861</b>	<b>139,040</b>	<b>137,103</b>	<b>1,247,401</b>	<b>2,330</b>	<b>0,663</b>	<b>2,993</b>	

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.888	0.560	.
(14) Massachusetts Credibility:	0.350	0.400	.
(15) Countrywide Pure Premium:	1.991	0.709	2.700
(16) Countrywide Indicated Relativity:	0.777	0.626	.
(17) Countrywide Credibility:	0.330	0.300	.
(18) Countrywide Lost-Time Claims:	614.00	.	.
(19) Pure Premium Underlying Present Rate:	4.589	1.497	6.086
(20) Relativity to Underlying Present Rate:	1.672	1.117	.
(21) Credibility to Underlying Relativity:	0.320	0.300	.
(22) Industry Group Converted Pure Premium:	2.624	1.182	3.806
(23) Formula Relativity:	1.102	0.747	.
(24) Balanced Formula Relativity:	1.109	0.748	0.997

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## Calculation of Class Relativities

Class(es): 3808 AUTOMOBILE MFG OR ASSEMBLY		Effective: 7/1/2018							Manufacturing		
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2011	119,558	0	43	0	10,226	0	28,422	38,648	0.086	0.238	0.323
2012	91,227	0	50	0	22,079	0	64,874	86,953	0.242	0.711	0.953
2013	115,967	0	27	0	49,825	0	143,822	193,648	0.430	1.240	1.670
2014	130,689	2	35	106,890	9,097	73,579	35,579	225,145	0.888	0.835	1.723
2015	155,929	0	47	0	230,987	0	178,874	409,862	1.481	1.147	2.629
<b>MA Total:</b>	<b>613,370</b>	<b>2</b>	<b>202</b>	<b>106,890</b>	<b>322,215</b>	<b>73,579</b>	<b>451,572</b>	<b>954,256</b>	<b>0.700</b>	<b>0.856</b>	<b>1.556</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.715	1.665	.
(14) Massachusetts Credibility:	0.250	0.360	.
(15) Countrywide Pure Premium:	1.564	0.674	2.238
(16) Countrywide Indicated Relativity:	1.745	1.463	.
(17) Countrywide Credibility:	0.380	0.320	.
(18) Countrywide Lost-Time Claims:	5294.0	.	.
(19) Pure Premium Underlying Present Rate:	1.437	0.776	2.213
(20) Relativity to Underlying Present Rate:	1.523	1.416	.
(21) Credibility to Underlying Relativity:	0.370	0.320	.
(22) Industry Group Converted Pure Premium:	0.978	0.514	1.493
(23) Formula Relativity:	1.405	1.521	.
(24) Balanced Formula Relativity:	1.393	1.513	1.434

Class(es): 3821 AUTOMOBILE DISMANTLING & DRIVERS		Effective: 7/1/2018							Goods and Services		
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period (1)	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2011	191,480	1	47	25,442	468,428	4,773	215,490	714,134	2.579	1.150	3.730
2012	175,047	0	42	0	199,095	0	144,490	343,585	1.137	0.825	1.963
2013	174,556	1	28	112,320	38,823	97,482	129,295	377,920	0.866	1.299	2.165
2014	160,662	3	27	327,447	29,151	285,425	88,073	730,096	2.220	2.325	4.544
2015	156,663	1	18	3,385	229,249	14,099	75,741	322,474	1.485	0.573	2.058
<b>MA Total:</b>	<b>858,409</b>	<b>6</b>	<b>162</b>	<b>468,594</b>	<b>964,747</b>	<b>401,778</b>	<b>653,089</b>	<b>2,488,208</b>	<b>1.670</b>	<b>1.229</b>	<b>2.899</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	1.994	2.579	.
(14) Massachusetts Credibility:	0.330	0.480	.
(15) Countrywide Pure Premium:	2.958	1.702	4.661
(16) Countrywide Indicated Relativity:	3.543	3.557	.
(17) Countrywide Credibility:	0.340	0.260	.
(18) Countrywide Lost-Time Claims:	1103.0	.	.
(19) Pure Premium Underlying Present Rate:	1.967	1.133	3.100
(20) Relativity to Underlying Present Rate:	2.372	2.224	.
(21) Credibility to Underlying Relativity:	0.330	0.260	.
(22) Industry Group Converted Pure Premium:	0.837	0.476	1.314
(23) Formula Relativity:	2.645	2.741	.
(24) Balanced Formula Relativity:	2.628	2.740	2.668

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## Calculation of Class Relativities

Class(es):		Effective: 7/1/2018							Manufacturing		
3826 AIRCRAFT ENGINE MFG											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical			MA Indicated Pure Premiums		
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2011	2,020,234	17	309	2,013,323	2,591,221	754,396	2,289,984	7,648,925	2,279	1,507	3,786
2012	1,903,634	16	244	1,673,192	1,922,606	677,083	1,709,322	5,982,204	1,889	1,254	3,143
2013	1,849,772	15	291	1,415,416	2,959,438	780,907	2,600,438	7,756,199	2,365	1,828	4,193
2014	1,729,388	19	246	1,875,666	2,748,204	859,045	2,337,783	7,820,697	2,674	1,849	4,522
2015	1,607,228	9	258	1,434,855	6,246,219	372,460	3,861,979	11,915,514	4,779	2,635	7,414
<b>MA Total:</b>	<b>9,110,256</b>	<b>76</b>	<b>1,348</b>	<b>8,412,452</b>	<b>16,467,688</b>	<b>3,443,891</b>	<b>12,799,506</b>	<b>41,123,538</b>	<b>2,731</b>	<b>1,783</b>	<b>4,514</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	2.791	3.467	.
(14) Massachusetts Credibility:	0.890	1.000	.
(15) Countrywide Pure Premium:	0.439	0.154	0.593
(16) Countrywide Indicated Relativity:	0.489	0.335	.
(17) Countrywide Credibility:	0.060	0.000	.
(18) Countrywide Lost-Time Claims:	396.00	.	.
(19) Pure Premium Underlying Present Rate:	2.235	1.519	3.755
(20) Relativity to Underlying Present Rate:	2.370	2.772	.
(21) Credibility to Underlying Relativity:	0.050	0.000	.
(22) Industry Group Converted Pure Premium:	0.978	0.514	1.493
(23) Formula Relativity:	2.632	3.467	.
(24) Balanced Formula Relativity:	2.609	3.450	2.899

Class(es):		Effective: 7/1/2018							Manufacturing		
3841 TUBULAR METAL PRODUCTS MFG OR ASSEMBLY											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical			MA Indicated Pure Premiums		
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2011	56,334	0	7	0	0	0	2,579	2,579	0.000	0.046	0.046
2012	51,296	0	3	0	1,291	0	9,979	11,270	0.025	0.195	0.220
2013	46,193	0	2	0	0	0	976	976	0.000	0.021	0.021
2014	57,808	0	5	0	66,281	0	23,847	90,128	1.147	0.413	1.559
2015	59,280	0	2	0	187,919	0	30,740	218,659	3.170	0.519	3.689
<b>MA Total:</b>	<b>270,911</b>	<b>0</b>	<b>19</b>	<b>0</b>	<b>255,491</b>	<b>0</b>	<b>68,121</b>	<b>323,612</b>	<b>0.943</b>	<b>0.251</b>	<b>1.195</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.964	0.489	.
(14) Massachusetts Credibility:	0.130	0.200	.
(15) Countrywide Pure Premium:	0.545	0.410	0.955
(16) Countrywide Indicated Relativity:	0.608	0.890	.
(17) Countrywide Credibility:	0.290	0.310	.
(18) Countrywide Lost-Time Claims:	52.000	.	.
(19) Pure Premium Underlying Present Rate:	0.594	0.400	0.995
(20) Relativity to Underlying Present Rate:	0.630	0.731	.
(21) Credibility to Underlying Relativity:	0.580	0.490	.
(22) Industry Group Converted Pure Premium:	0.978	0.514	1.493
(23) Formula Relativity:	0.667	0.732	.
(24) Balanced Formula Relativity:	0.661	0.728	0.684

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## Calculation of Class Relativities

Class(es):		Effective: 7/1/2018							Miscellaneous		
4000 SAND OR GRAVEL DIGGING & DRIVERS											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2011	326.814	1	49	277.493	361.022	121.765	149.194	909.474	1.954	0.829	2.783
2012	344.864	1	32	278.102	318.082	196.627	166.460	959.272	1.729	1.053	2.782
2013	392.176	1	38	301.802	313.477	115.743	296.834	1,027.856	1.569	1.052	2.621
2014	397.186	3	33	537.152	689.241	216.139	253.294	1,695.826	3.088	1.182	4.270
2015	447.688	3	51	852.080	1,192.805	306.526	306.881	2,658.293	4.568	1.370	5.938
<b>MA Total:</b>	<b>1,908.729</b>	<b>9</b>	<b>203</b>	<b>2,246.630</b>	<b>2,874.627</b>	<b>956.801</b>	<b>1,172.663</b>	<b>7,250.721</b>	<b>2.683</b>	<b>1.116</b>	<b>3.799</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	1.118	0.934	.
(14) Massachusetts Credibility:	0.480	0.650	.
(15) Countrywide Pure Premium:	2.602	1.283	3.884
(16) Countrywide Indicated Relativity:	1.206	1.206	.
(17) Countrywide Credibility:	0.260	0.180	.
(18) Countrywide Lost-Time Claims:	992.00	.	.
(19) Pure Premium Underlying Present Rate:	2.225	1.076	3.301
(20) Relativity to Underlying Present Rate:	0.913	0.815	.
(21) Credibility to Underlying Relativity:	0.260	0.170	.
(22) Industry Group Converted Pure Premium:	2.400	1.195	3.595
(23) Formula Relativity:	1.087	0.963	.
(24) Balanced Formula Relativity:	1.083	0.969	1.045

Class(es):		Effective: 7/1/2018							Manufacturing		
4021 BRICK OR CLAY PRODUCTS MFG NOC & DRIVERS											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2011	11.703	0	5	0	461	0	2,571	3.032	0.039	0.220	0.259
2012	13.269	0	0	0	0	0	0	0	0.000	0.000	0.000
2013	12.117	0	0	0	0	0	0	0	0.000	0.000	0.000
2014	15.367	0	0	0	0	0	0	0	0.000	0.000	0.000
2015	13.365	0	0	0	0	0	0	0	0.000	0.000	0.000
<b>MA Total:</b>	<b>65.822</b>	<b>0</b>	<b>5</b>	<b>0</b>	<b>461</b>	<b>0</b>	<b>2,571</b>	<b>3.032</b>	<b>0.007</b>	<b>0.039</b>	<b>0.046</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.007	0.076	.
(14) Massachusetts Credibility:	0.110	0.170	.
(15) Countrywide Pure Premium:	2.186	1.248	3.434
(16) Countrywide Indicated Relativity:	2.438	2.709	.
(17) Countrywide Credibility:	0.450	0.420	.
(18) Countrywide Lost-Time Claims:	295.00	.	.
(19) Pure Premium Underlying Present Rate:	1.764	1.163	2.927
(20) Relativity to Underlying Present Rate:	1.870	2.122	.
(21) Credibility to Underlying Relativity:	0.440	0.410	.
(22) Industry Group Converted Pure Premium:	0.978	0.514	1.493
(23) Formula Relativity:	1.920	2.021	.
(24) Balanced Formula Relativity:	1.904	2.011	1.941

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## Calculation of Class Relativities

Class(es):		Effective: 7/1/2018							Manufacturing		
4024 REFRACTORY PRODUCTS MFG & DRIVERS											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2011	36,915	0	3	0	75,055	0	32,029	107,083	2,033	0,868	2,901
2012	6,510	0	1	0	0	0	609	609	0,000	0,094	0,094
2013	4,733	0	1	0	0	0	256	256	0,000	0,054	0,054
2014	5,869	0	1	0	7,419	0	5,909	13,328	1,264	1,007	2,271
2015	42	0	0	0	0	0	0	0	0,000	0,000	0,000
<b>MA Total:</b>	<b>54,070</b>	<b>0</b>	<b>6</b>	<b>0</b>	<b>82,474</b>	<b>0</b>	<b>38,803</b>	<b>121,276</b>	<b>1,525</b>	<b>0,718</b>	<b>2,243</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	1.559	1.395	.
(14) Massachusetts Credibility:	0.100	0.140	.
(15) Countrywide Pure Premium:	1.480	0.735	2.216
(16) Countrywide Indicated Relativity:	1.651	1.596	.
(17) Countrywide Credibility:	0.400	0.430	.
(18) Countrywide Lost-Time Claims:	119.00	.	.
(19) Pure Premium Underlying Present Rate:	1.459	0.755	2.213
(20) Relativity to Underlying Present Rate:	1.546	1.377	.
(21) Credibility to Underlying Relativity:	0.500	0.430	.
(22) Industry Group Converted Pure Premium:	0.978	0.514	1.493
(23) Formula Relativity:	1.589	1.474	.
(24) Balanced Formula Relativity:	1.576	1.466	1.538

Class(es):		Effective: 7/1/2018							Manufacturing		
4034 CONCRETE PRODUCTS MFG & DRIVERS											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2011	161,217	1	38	27,344	637,910	75,507	331,374	1,072,136	4,126	2,524	6,650
2012	152,103	2	35	41,497	348,497	31,605	299,884	721,483	2,564	2,179	4,743
2013	155,112	3	39	100,085	323,747	68,170	238,730	730,733	2,732	1,979	4,711
2014	175,307	2	48	114,923	260,498	172,831	266,189	814,441	2,142	2,504	4,646
2015	200,529	0	37	0	568,857	0	239,853	808,709	2,837	1,196	4,033
<b>MA Total:</b>	<b>844,269</b>	<b>8</b>	<b>197</b>	<b>283,850</b>	<b>2,139,509</b>	<b>348,113</b>	<b>1,376,030</b>	<b>4,147,502</b>	<b>2,870</b>	<b>2,042</b>	<b>4,913</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	2.934	3.971	.
(14) Massachusetts Credibility:	0.390	0.600	.
(15) Countrywide Pure Premium:	2.798	1.469	4.267
(16) Countrywide Indicated Relativity:	3.121	3.187	.
(17) Countrywide Credibility:	0.310	0.200	.
(18) Countrywide Lost-Time Claims:	2598.0	.	.
(19) Pure Premium Underlying Present Rate:	2.972	1.944	4.916
(20) Relativity to Underlying Present Rate:	3.151	3.548	.
(21) Credibility to Underlying Relativity:	0.300	0.200	.
(22) Industry Group Converted Pure Premium:	0.978	0.514	1.493
(23) Formula Relativity:	3.057	3.729	.
(24) Balanced Formula Relativity:	3.030	3.711	3.265



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## Calculation of Class Relativities

Class(es): 4036 PLASTERBOARD OR PLASTER BLOCK MFG & DRIVERS									Effective: 7/1/2018			Manufacturing		
Converted Unlimited Losses														
Amount														
Claim Count				Indemnity		Medical		MA Indicated Pure Premiums						
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)			
2011	10.922	0	0	0	0	0	0	0	0.000	0.000	0.000			
2012	11.371	0	0	0	0	0	0	0	0.000	0.000	0.000			
2013	11.496	0	0	0	0	0	0	0	0.000	0.000	0.000			
2014	10.463	0	2	0	15.179	0	17.836	33.015	1.451	1.705	3.155			
2015	10.394	0	1	0	1.034	0	4.799	5.832	0.099	0.462	0.561			
<b>MA Total:</b>	<b>54.646</b>	<b>0</b>	<b>3</b>	<b>0</b>	<b>16.213</b>	<b>0</b>	<b>22.635</b>	<b>38.847</b>	<b>0.297</b>	<b>0.414</b>	<b>0.711</b>			

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.303	0.805	.
(14) Massachusetts Credibility:	0.090	0.120	.
(15) Countrywide Pure Premium:	1.361	0.641	2.002
(16) Countrywide Indicated Relativity:	1.518	1.392	.
(17) Countrywide Credibility:	0.460	0.440	.
(18) Countrywide Lost-Time Claims:	246.00	.	.
(19) Pure Premium Underlying Present Rate:	1.203	0.501	1.704
(20) Relativity to Underlying Present Rate:	1.275	0.915	.
(21) Credibility to Underlying Relativity:	0.450	0.440	.
(22) Industry Group Converted Pure Premium:	0.978	0.514	1.493
(23) Formula Relativity:	1.299	1.112	.
(24) Balanced Formula Relativity:	1.288	1.106	1.225

Class(es): 4038 PLASTER STATUARY OR ORNAMENT MFG									Effective: 7/1/2018			Manufacturing		
Converted Unlimited Losses														
Amount														
Claim Count				Indemnity		Medical		MA Indicated Pure Premiums						
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)			
2011	17.974	0	0	0	0	0	0	0	0.000	0.000	0.000			
2012	17.308	0	0	0	0	0	0	0	0.000	0.000	0.000			
2013	15.298	0	0	0	0	0	0	0	0.000	0.000	0.000			
2014	15.837	0	0	0	0	0	0	0	0.000	0.000	0.000			
2015	15.537	0	0	0	0	0	0	0	0.000	0.000	0.000			
<b>MA Total:</b>	<b>81.953</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0.000</b>	<b>0.000</b>	<b>0.000</b>			

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.000	0.000	.
(14) Massachusetts Credibility:	0.120	0.170	.
(15) Countrywide Pure Premium:	1.768	0.801	2.568
(16) Countrywide Indicated Relativity:	1.971	1.737	.
(17) Countrywide Credibility:	0.310	0.330	.
(18) Countrywide Lost-Time Claims:	64.000	.	.
(19) Pure Premium Underlying Present Rate:	1.599	0.819	2.418
(20) Relativity to Underlying Present Rate:	1.695	1.495	.
(21) Credibility to Underlying Relativity:	0.570	0.500	.
(22) Industry Group Converted Pure Premium:	0.978	0.514	1.493
(23) Formula Relativity:	1.577	1.321	.
(24) Balanced Formula Relativity:	1.564	1.314	1.478

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## Calculation of Class Relativities

Class(es):		Effective: 7/1/2018							Manufacturing		
4053 POTTERY MFG: CHINA OR TABLEWARE											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical			MA Indicated Pure Premiums		
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2011	50,266	1	13	66,700	18,266	28,034	52,495	165,495	1,690	1,602	3,292
2012	47,506	0	5	0	17,153	0	22,054	39,207	0,361	0,464	0,825
2013	59,234	0	8	0	11,400	0	50,930	62,330	0,192	0,860	1,052
2014	71,577	2	7	142,981	395,689	121,983	23,596	684,250	7,526	2,034	9,560
2015	78,092	0	11	0	50,619	0	33,625	84,244	0,648	0,431	1,079
<b>MA Total:</b>	<b>306,676</b>	<b>3</b>	<b>44</b>	<b>209,681</b>	<b>493,127</b>	<b>150,018</b>	<b>182,699</b>	<b>1,035,526</b>	<b>2,292</b>	<b>1,085</b>	<b>3,377</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	2.342	2.110	.
(14) Massachusetts Credibility:	0.150	0.230	.
(15) Countrywide Pure Premium:	0.827	0.579	1.406
(16) Countrywide Indicated Relativity:	0.922	1.256	.
(17) Countrywide Credibility:	0.260	0.280	.
(18) Countrywide Lost-Time Claims:	41.000	.	.
(19) Pure Premium Underlying Present Rate:	0.830	0.521	1.351
(20) Relativity to Underlying Present Rate:	0.880	0.950	.
(21) Credibility to Underlying Relativity:	0.590	0.490	.
(22) Industry Group Converted Pure Premium:	0.978	0.514	1.493
(23) Formula Relativity:	1.110	1.302	.
(24) Balanced Formula Relativity:	1.101	1.296	1.168

Class(es):		Effective: 7/1/2018							Manufacturing		
4062 POTTERY MFG: PORCELAIN WARE-MECHANICAL PRESS FORMING											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical			MA Indicated Pure Premiums		
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2011	30,269	0	3	0	0	0	908	908	0.000	0.030	0.030
2012	39,662	0	0	0	0	0	0	0	0.000	0.000	0.000
2013	43,212	0	0	0	0	0	0	0	0.000	0.000	0.000
2014	58,612	0	2	0	993	0	5,710	6,703	0.017	0.097	0.114
2015	69,316	0	1	0	0	0	236	236	0.000	0.003	0.003
<b>MA Total:</b>	<b>241,071</b>	<b>0</b>	<b>6</b>	<b>0</b>	<b>993</b>	<b>0</b>	<b>6,853</b>	<b>7,847</b>	<b>0.004</b>	<b>0.028</b>	<b>0.033</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.004	0.055	.
(14) Massachusetts Credibility:	0.140	0.210	.
(15) Countrywide Pure Premium:	0.994	0.610	1.604
(16) Countrywide Indicated Relativity:	1.109	1.324	.
(17) Countrywide Credibility:	0.430	0.400	.
(18) Countrywide Lost-Time Claims:	321.00	.	.
(19) Pure Premium Underlying Present Rate:	0.856	0.525	1.381
(20) Relativity to Underlying Present Rate:	0.908	0.958	.
(21) Credibility to Underlying Relativity:	0.430	0.390	.
(22) Industry Group Converted Pure Premium:	0.978	0.514	1.493
(23) Formula Relativity:	0.868	0.915	.
(24) Balanced Formula Relativity:	0.860	0.910	0.877

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## Calculation of Class Relativities

Class(es):		Effective: 7/1/2018							Manufacturing		
4112 INCANDESCENT LAMP MFG											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2011	182,773	0	2	0	0	0	204	204	0.000	0.001	0.001
2012	201,629	0	3	0	1,630	0	9,838	11,468	0.008	0.049	0.057
2013	72,342	0	3	0	0	0	1,200	1,200	0.000	0.017	0.017
2014	55,027	0	5	0	4,647	0	12,408	17,055	0.084	0.225	0.310
2015	54,906	0	8	0	4,213	0	6,592	10,805	0.077	0.120	0.197
<b>MA Total:</b>	<b>566,676</b>	<b>0</b>	<b>21</b>	<b>0</b>	<b>10,489</b>	<b>0</b>	<b>30,241</b>	<b>40,731</b>	<b>0.019</b>	<b>0.053</b>	<b>0.072</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.019	0.104	.
(14) Massachusetts Credibility:	0.130	0.190	.
(15) Countrywide Pure Premium:	0.036	0.046	0.082
(16) Countrywide Indicated Relativity:	0.040	0.100	.
(17) Countrywide Credibility:	0.140	0.150	.
(18) Countrywide Lost-Time Claims:	9.000	.	.
(19) Pure Premium Underlying Present Rate:	0.319	0.166	0.484
(20) Relativity to Underlying Present Rate:	0.338	0.303	.
(21) Credibility to Underlying Relativity:	0.730	0.660	.
(22) Industry Group Converted Pure Premium:	0.978	0.514	1.493
(23) Formula Relativity:	0.255	0.234	.
(24) Balanced Formula Relativity:	0.252	0.233	0.246

Class(es):		Effective: 7/1/2018							Manufacturing		
4114 GLASSWARE MFG-NOC											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2011	134,183	1	17	17,217	16,633	11,534	26,746	72,130	0.252	0.285	0.538
2012	153,620	0	18	0	33,485	0	18,662	52,148	0.218	0.121	0.339
2013	136,672	1	13	93,102	5,561	15,984	7,449	122,096	0.722	0.171	0.893
2014	157,682	0	17	0	263,695	0	101,547	365,243	1.672	0.644	2.316
2015	188,417	0	22	0	106,844	0	51,540	158,384	0.567	0.274	0.841
<b>MA Total:</b>	<b>770,574</b>	<b>2</b>	<b>87</b>	<b>110,318</b>	<b>426,220</b>	<b>27,518</b>	<b>205,944</b>	<b>770,000</b>	<b>0.696</b>	<b>0.303</b>	<b>0.999</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.712	0.589	.
(14) Massachusetts Credibility:	0.250	0.340	.
(15) Countrywide Pure Premium:	1.600	0.615	2.214
(16) Countrywide Indicated Relativity:	1.784	1.334	.
(17) Countrywide Credibility:	0.380	0.330	.
(18) Countrywide Lost-Time Claims:	384.00	.	.
(19) Pure Premium Underlying Present Rate:	1.066	0.525	1.591
(20) Relativity to Underlying Present Rate:	1.130	0.958	.
(21) Credibility to Underlying Relativity:	0.370	0.330	.
(22) Industry Group Converted Pure Premium:	0.978	0.514	1.493
(23) Formula Relativity:	1.274	0.956	.
(24) Balanced Formula Relativity:	1.263	0.952	1.156

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## Calculation of Class Relativities

Class(es): 4130 GLASS MERCHANT		Effective: 7/1/2018							Manufacturing		
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2011	172.898	0	40	0	348.553	0	229.027	577.580	2.016	1.325	3.341
2012	188.031	3	36	75.382	24.446	34.796	47.061	181.686	0.531	0.435	0.966
2013	193.870	0	25	0	373.143	0	121.655	494.797	1.925	0.628	2.552
2014	217.699	1	30	325.297	35.758	108.227	58.929	528.212	1.659	0.768	2.426
2015	211.398	1	19	148.500	47.690	20.159	42.019	258.368	0.928	0.294	1.222
<b>MA Total:</b>	<b>983.896</b>	<b>5</b>	<b>150</b>	<b>549,180</b>	<b>829,590</b>	<b>163,182</b>	<b>498,690</b>	<b>2,040,642</b>	<b>1.401</b>	<b>0.673</b>	<b>2.074</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	1.432	1.308	.
(14) Massachusetts Credibility:	0.320	0.470	.
(15) Countrywide Pure Premium:	1.443	0.854	2.297
(16) Countrywide Indicated Relativity:	1.610	1.853	.
(17) Countrywide Credibility:	0.340	0.270	.
(18) Countrywide Lost-Time Claims:	841.00	.	.
(19) Pure Premium Underlying Present Rate:	1.604	0.916	2.520
(20) Relativity to Underlying Present Rate:	1.700	1.671	.
(21) Credibility to Underlying Relativity:	0.340	0.260	.
(22) Industry Group Converted Pure Premium:	0.978	0.514	1.493
(23) Formula Relativity:	1.584	1.550	.
(24) Balanced Formula Relativity:	1.570	1.542	1.560

Class(es): 4133 CATHEDRAL OR ART GLASS WINDOW MFG		Effective: 7/1/2018							Manufacturing		
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2011	8.692	0	0	0	0	0	0	0	0.000	0.000	0.000
2012	8.411	0	1	0	6.090	0	200	6.290	0.724	0.024	0.748
2013	10.431	0	1	0	79	0	611	690	0.008	0.059	0.066
2014	14.947	0	1	0	0	0	1,226	1,226	0.000	0.082	0.082
2015	11.759	0	2	0	0	0	1,480	1,480	0.000	0.126	0.126
<b>MA Total:</b>	<b>54.240</b>	<b>0</b>	<b>5</b>	<b>0</b>	<b>6,169</b>	<b>0</b>	<b>3,517</b>	<b>9,686</b>	<b>0.114</b>	<b>0.065</b>	<b>0.179</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.116	0.126	.
(14) Massachusetts Credibility:	0.080	0.110	.
(15) Countrywide Pure Premium:	0.970	0.428	1.399
(16) Countrywide Indicated Relativity:	1.082	0.930	.
(17) Countrywide Credibility:	0.230	0.240	.
(18) Countrywide Lost-Time Claims:	29.000	.	.
(19) Pure Premium Underlying Present Rate:	0.851	0.442	1.293
(20) Relativity to Underlying Present Rate:	0.903	0.806	.
(21) Credibility to Underlying Relativity:	0.690	0.650	.
(22) Industry Group Converted Pure Premium:	0.978	0.514	1.493
(23) Formula Relativity:	0.881	0.761	.
(24) Balanced Formula Relativity:	0.873	0.757	0.833

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## Calculation of Class Relativities

Class(es): 4150 OPTICAL GOODS MFG-NOC		Effective: 7/1/2018							Manufacturing		
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2011	2,042,029	4	103	379,266	558,486	53,798	265,817	1,257,368	0.459	0.157	0.616
2012	1,803,305	2	103	53,888	378,334	11,231	224,239	667,692	0.240	0.131	0.370
2013	1,758,297	0	107	0	284,135	0	244,793	528,928	0.162	0.139	0.301
2014	1,889,441	1	101	145,832	365,351	44,959	193,503	749,646	0.271	0.126	0.397
2015	1,958,383	2	100	261,883	171,704	35,536	195,252	664,374	0.221	0.118	0.339
<b>MA Total:</b>	<b>9,451,455</b>	<b>9</b>	<b>514</b>	<b>840,869</b>	<b>1,758,011</b>	<b>145,525</b>	<b>1,123,604</b>	<b>3,868,009</b>	<b>0.275</b>	<b>0.134</b>	<b>0.409</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.281	0.261	.
(14) Massachusetts Credibility:	0.420	0.590	.
(15) Countrywide Pure Premium:	0.388	0.189	0.577
(16) Countrywide Indicated Relativity:	0.432	0.410	.
(17) Countrywide Credibility:	0.290	0.210	.
(18) Countrywide Lost-Time Claims:	92,000	.	.
(19) Pure Premium Underlying Present Rate:	0.327	0.170	0.498
(20) Relativity to Underlying Present Rate:	0.347	0.311	.
(21) Credibility to Underlying Relativity:	0.290	0.200	.
(22) Industry Group Converted Pure Premium:	0.978	0.514	1.493
(23) Formula Relativity:	0.344	0.302	.
(24) Balanced Formula Relativity:	0.341	0.301	0.327

Class(es): 4239 PAPER MFG		Effective: 7/1/2018							Manufacturing		
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2011	446,925	1	54	356,447	467,627	190,905	247,771	1,262,749	1.844	0.982	2.825
2012	410,444	0	48	0	309,232	0	196,340	505,572	0.753	0.478	1.232
2013	163,576	0	27	0	59,526	0	38,121	97,648	0.364	0.233	0.597
2014	171,243	1	43	63,335	84,596	6,098	90,587	244,616	0.864	0.565	1.428
2015	192,752	0	38	0	99,621	0	154,533	254,154	0.517	0.802	1.319
<b>MA Total:</b>	<b>1,384,941</b>	<b>2</b>	<b>210</b>	<b>419,782</b>	<b>1,020,602</b>	<b>197,003</b>	<b>727,352</b>	<b>2,364,739</b>	<b>1.040</b>	<b>0.667</b>	<b>1.707</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	1.063	1.298	.
(14) Massachusetts Credibility:	0.330	0.480	.
(15) Countrywide Pure Premium:	1.155	0.431	1.585
(16) Countrywide Indicated Relativity:	1.288	0.935	.
(17) Countrywide Credibility:	0.340	0.260	.
(18) Countrywide Lost-Time Claims:	2014.0	.	.
(19) Pure Premium Underlying Present Rate:	1.202	0.696	1.898
(20) Relativity to Underlying Present Rate:	1.274	1.270	.
(21) Credibility to Underlying Relativity:	0.330	0.260	.
(22) Industry Group Converted Pure Premium:	0.978	0.514	1.493
(23) Formula Relativity:	1.209	1.196	.
(24) Balanced Formula Relativity:	1.199	1.190	1.196

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## Calculation of Class Relativities

Class(es):		Effective: 7/1/2018							Manufacturing		
4243 BOX MFG-FOLDING PAPER-NOC											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2011	272.750	4	56	155.894	493.469	71.446	142.673	863.482	2.381	0.785	3.166
2012	271.995	2	38	278.507	701.407	240.082	220.943	1,440.940	3.603	1.695	5.298
2013	226.965	1	30	14.964	305.439	7.506	97.628	425.538	1.412	0.463	1.875
2014	243.323	1	27	186.992	156.175	37.892	140.417	521.476	1.410	0.733	2.143
2015	213.373	1	35	56.722	305.257	6.280	151.736	519.994	1.696	0.741	2.437
<b>MA Total:</b>	<b>1,228.407</b>	<b>9</b>	<b>186</b>	<b>693.079</b>	<b>1,961,748</b>	<b>363,206</b>	<b>753,398</b>	<b>3,771,430</b>	<b>2.161</b>	<b>0.909</b>	<b>3.070</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	2.209	1.767	.
(14) Massachusetts Credibility:	0.360	0.510	.
(15) Countrywide Pure Premium:	0.903	0.447	1.350
(16) Countrywide Indicated Relativity:	1.007	0.971	.
(17) Countrywide Credibility:	0.320	0.250	.
(18) Countrywide Lost-Time Claims:	1163.0	.	.
(19) Pure Premium Underlying Present Rate:	1.778	0.922	2.700
(20) Relativity to Underlying Present Rate:	1.885	1.682	.
(21) Credibility to Underlying Relativity:	0.320	0.240	.
(22) Industry Group Converted Pure Premium:	0.978	0.514	1.493
(23) Formula Relativity:	1.721	1.548	.
(24) Balanced Formula Relativity:	1.706	1.540	1.649

Class(es):		Effective: 7/1/2018							Manufacturing		
4244 CORRUGATED OR FIBERBOARD CONTAINER MFG											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2011	372.335	0	44	0	142.611	0	137.365	279.976	0.383	0.369	0.752
2012	333.313	0	31	0	127.362	0	110.905	238.267	0.382	0.333	0.715
2013	310.612	2	34	528.717	95.402	60.642	119.302	804.063	2.009	0.579	2.589
2014	325.214	5	37	278.104	384.871	77.131	168.617	908.723	2.039	0.756	2.794
2015	205.715	0	29	0	504.560	0	82.075	586.635	2.453	0.399	2.852
<b>MA Total:</b>	<b>1,547.190</b>	<b>7</b>	<b>175</b>	<b>806.822</b>	<b>1,254,806</b>	<b>137,773</b>	<b>618,264</b>	<b>2,817,664</b>	<b>1.332</b>	<b>0.489</b>	<b>1.821</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	1.362	0.950	.
(14) Massachusetts Credibility:	0.340	0.510	.
(15) Countrywide Pure Premium:	1.126	0.538	1.665
(16) Countrywide Indicated Relativity:	1.256	1.168	.
(17) Countrywide Credibility:	0.330	0.250	.
(18) Countrywide Lost-Time Claims:	1207.0	.	.
(19) Pure Premium Underlying Present Rate:	1.176	0.724	1.900
(20) Relativity to Underlying Present Rate:	1.247	1.321	.
(21) Credibility to Underlying Relativity:	0.330	0.240	.
(22) Industry Group Converted Pure Premium:	0.978	0.514	1.493
(23) Formula Relativity:	1.289	1.094	.
(24) Balanced Formula Relativity:	1.278	1.088	1.213

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## Calculation of Class Relativities

Class(es): 4250 PAPER COATING		Effective: 7/1/2018							Manufacturing		
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2011	811,526	1	88	17,498	721,658	24,037	569,382	1,332,574	0.911	0.731	1.642
2012	870,006	3	77	525,744	875,960	272,776	465,989	2,140,469	1.611	0.849	2.460
2013	926,296	1	85	75,143	465,716	12,104	309,489	862,452	0.584	0.347	0.931
2014	923,429	1	93	82,943	836,264	5,011	395,790	1,320,008	0.995	0.434	1.429
2015	945,444	0	78	0	474,721	0	279,438	754,159	0.502	0.296	0.798
<b>MA Total:</b>	<b>4,476,702</b>	<b>6</b>	<b>421</b>	<b>701,328</b>	<b>3,374,320</b>	<b>313,927</b>	<b>2,020,088</b>	<b>6,409,663</b>	<b>0.910</b>	<b>0.521</b>	<b>1.432</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.930	1.014	.
(14) Massachusetts Credibility:	0.480	0.770	.
(15) Countrywide Pure Premium:	0.749	0.408	1.157
(16) Countrywide Indicated Relativity:	0.835	0.886	.
(17) Countrywide Credibility:	0.260	0.120	.
(18) Countrywide Lost-Time Claims:	741.00	.	.
(19) Pure Premium Underlying Present Rate:	0.985	0.691	1.676
(20) Relativity to Underlying Present Rate:	1.044	1.260	.
(21) Credibility to Underlying Relativity:	0.260	0.110	.
(22) Industry Group Converted Pure Premium:	0.978	0.514	1.493
(23) Formula Relativity:	0.935	1.026	.
(24) Balanced Formula Relativity:	0.927	1.020	0.959

Class(es): 4251 STATIONERY MFG		Effective: 7/1/2018							Manufacturing		
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2011	149,014	0	7	0	37,801	0	20,561	58,361	0.254	0.138	0.392
2012	147,754	0	7	0	543,070	0	106,955	650,025	3.676	0.724	4.399
2013	138,853	0	8	0	9,783	0	9,967	19,750	0.070	0.072	0.142
2014	109,254	0	3	0	307,508	0	63,399	370,907	2.815	0.580	3.395
2015	113,342	0	7	0	42,017	0	15,681	57,698	0.371	0.138	0.509
<b>MA Total:</b>	<b>658,217</b>	<b>0</b>	<b>32</b>	<b>0</b>	<b>940,179</b>	<b>0</b>	<b>216,563</b>	<b>1,156,742</b>	<b>1.428</b>	<b>0.329</b>	<b>1.757</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	1.460	0.640	.
(14) Massachusetts Credibility:	0.240	0.320	.
(15) Countrywide Pure Premium:	1.098	0.544	1.642
(16) Countrywide Indicated Relativity:	1.225	1.181	.
(17) Countrywide Credibility:	0.380	0.340	.
(18) Countrywide Lost-Time Claims:	348.00	.	.
(19) Pure Premium Underlying Present Rate:	1.194	0.522	1.716
(20) Relativity to Underlying Present Rate:	1.265	0.953	.
(21) Credibility to Underlying Relativity:	0.380	0.340	.
(22) Industry Group Converted Pure Premium:	0.978	0.514	1.493
(23) Formula Relativity:	1.297	0.930	.
(24) Balanced Formula Relativity:	1.285	0.925	1.161

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## Calculation of Class Relativities

Class(es): 4273 BAG MFG-PAPER OR PLASTIC		Effective: 7/1/2018							Manufacturing		
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2011	39,265	0	11	0	2,330	0	6,535	8,865	0.059	0.166	0.226
2012	51,959	0	13	0	10,633	0	17,689	28,322	0.205	0.340	0.545
2013	48,010	1	15	74,517	78,377	24,821	35,784	213,498	3.185	1.262	4.447
2014	48,334	0	11	0	206,005	0	90,413	296,418	4.262	1.871	6.133
2015	46,720	2	15	274,694	45,416	47,519	42,870	410,499	6.852	1.935	8.786
<b>MA Total:</b>	<b>234,288</b>	<b>3</b>	<b>65</b>	<b>349,211</b>	<b>342,761</b>	<b>72,340</b>	<b>193,291</b>	<b>957,602</b>	<b>2.954</b>	<b>1.134</b>	<b>4.087</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	3.019	2.205	.
(14) Massachusetts Credibility:	0.150	0.220	.
(15) Countrywide Pure Premium:	1.010	0.497	1.507
(16) Countrywide Indicated Relativity:	1.126	1.078	.
(17) Countrywide Credibility:	0.430	0.390	.
(18) Countrywide Lost-Time Claims:	715.00	.	.
(19) Pure Premium Underlying Present Rate:	0.981	0.575	1.556
(20) Relativity to Underlying Present Rate:	1.040	1.050	.
(21) Credibility to Underlying Relativity:	0.420	0.390	.
(22) Industry Group Converted Pure Premium:	0.978	0.514	1.493
(23) Formula Relativity:	1.374	1.315	.
(24) Balanced Formula Relativity:	1.362	1.308	1.343

Class(es): 4279 PAPER GOODS MFG NOC		Effective: 7/1/2018							Manufacturing		
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2011	327,007	2	47	56,937	180,218	102,764	169,257	509,176	0.725	0.832	1.557
2012	316,717	2	46	80,507	47,756	9,741	81,693	219,697	0.405	0.289	0.694
2013	349,087	1	40	132,294	188,934	17,981	113,836	453,046	0.920	0.378	1.298
2014	407,010	3	74	79,412	228,899	55,752	161,326	525,389	0.758	0.533	1.291
2015	566,214	1	59	241,338	235,061	9,880	221,716	707,995	0.841	0.409	1.250
<b>MA Total:</b>	<b>1,966,036</b>	<b>9</b>	<b>266</b>	<b>590,489</b>	<b>880,868</b>	<b>196,117</b>	<b>747,828</b>	<b>2,415,303</b>	<b>0.748</b>	<b>0.480</b>	<b>1.229</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.765	0.934	.
(14) Massachusetts Credibility:	0.340	0.520	.
(15) Countrywide Pure Premium:	1.135	0.512	1.647
(16) Countrywide Indicated Relativity:	1.266	1.111	.
(17) Countrywide Credibility:	0.330	0.240	.
(18) Countrywide Lost-Time Claims:	1410.0	.	.
(19) Pure Premium Underlying Present Rate:	0.956	0.584	1.539
(20) Relativity to Underlying Present Rate:	1.013	1.065	.
(21) Credibility to Underlying Relativity:	0.330	0.240	.
(22) Industry Group Converted Pure Premium:	0.978	0.514	1.493
(23) Formula Relativity:	1.012	1.008	.
(24) Balanced Formula Relativity:	1.003	1.003	1.003



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## Calculation of Class Relativities

Class(es):		Effective: 7/1/2018							Manufacturing		
4283 BUILDING OR ROOFING PAPER OR FELT PREPARATION-NO INSTALLATION											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2011	2.317	0	0	0	0	0	0	0	0.000	0.000	0.000
2012	4.842	0	0	0	0	0	0	0	0.000	0.000	0.000
2013	15.366	0	3	0	5.482	0	3.357	8.839	0.357	0.218	0.575
2014	6.683	0	1	0	15.575	0	755	16.330	2.331	0.113	2.444
2015	10.701	0	2	0	112.341	0	51.008	163.349	10.498	4.767	15.265
<b>MA Total:</b>	<b>39.909</b>	<b>0</b>	<b>6</b>	<b>0</b>	<b>133.398</b>	<b>0</b>	<b>55.120</b>	<b>188.518</b>	<b>3.343</b>	<b>1.381</b>	<b>4.724</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	3.416	2.686	.
(14) Massachusetts Credibility:	0.070	0.100	.
(15) Countrywide Pure Premium:	0.689	0.359	1.047
(16) Countrywide Indicated Relativity:	0.768	0.778	.
(17) Countrywide Credibility:	0.460	0.450	.
(18) Countrywide Lost-Time Claims:	164.00	.	.
(19) Pure Premium Underlying Present Rate:	0.963	0.509	1.472
(20) Relativity to Underlying Present Rate:	1.021	0.928	.
(21) Credibility to Underlying Relativity:	0.470	0.450	.
(22) Industry Group Converted Pure Premium:	0.978	0.514	1.493
(23) Formula Relativity:	1.072	1.036	.
(24) Balanced Formula Relativity:	1.063	1.031	1.052

Class(es):		Effective: 7/1/2018							Manufacturing		
4299 PRINTING											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2011	2.215.530	15	243	1,359,529	829,685	329,064	560,721	3,078,999	0.988	0.402	1,390
2012	2.134.945	7	189	1,197,431	661,791	647,441	353,090	2,859,752	0.871	0.469	1,339
2013	2.269.803	8	302	810,946	1,558,251	235,872	1,045,519	3,650,588	1.044	0.565	1,608
2014	2.210.087	11	191	997,181	985,905	145,857	595,972	2,724,915	0.897	0.336	1,233
2015	2.439.778	15	226	1,200,721	1,086,703	1,017,755	793,276	4,098,455	0.938	0.742	1,680
<b>MA Total:</b>	<b>11,270,142</b>	<b>56</b>	<b>1,151</b>	<b>5,565,808</b>	<b>5,122,335</b>	<b>2,375,989</b>	<b>3,348,577</b>	<b>16,412,709</b>	<b>0.948</b>	<b>0.508</b>	<b>1,456</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.969	0.988	.
(14) Massachusetts Credibility:	0.670	0.990	.
(15) Countrywide Pure Premium:	0.782	0.432	1.214
(16) Countrywide Indicated Relativity:	0.872	0.938	.
(17) Countrywide Credibility:	0.170	0.010	.
(18) Countrywide Lost-Time Claims:	5697.0	.	.
(19) Pure Premium Underlying Present Rate:	0.889	0.524	1.413
(20) Relativity to Underlying Present Rate:	0.943	0.957	.
(21) Credibility to Underlying Relativity:	0.160	0.000	.
(22) Industry Group Converted Pure Premium:	0.978	0.514	1.493
(23) Formula Relativity:	0.948	0.987	.
(24) Balanced Formula Relativity:	0.940	0.982	0.955

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## Calculation of Class Relativities

Class(es): 4304 NEWSPAPER PUBLISHING		Effective: 7/1/2018							Manufacturing		
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2011	245.611	5	32	476.507	126.256	647.808	122.731	1,373.302	2.454	3.137	5.591
2012	208.899	7	34	731.270	82.144	383.925	68.820	1,266.160	3.894	2.167	6.061
2013	594.154	4	72	459.859	984.300	283.882	461.270	2,189.310	2.431	1.254	3.685
2014	598.084	2	76	371.926	677.743	139.942	343.726	1,533.337	1.755	0.809	2.564
2015	694.569	5	66	566.626	1,780.892	275.080	856.071	3,478.669	3.380	1.629	5.008
<b>MA Total:</b>	<b>2,341,317</b>	<b>23</b>	<b>280</b>	<b>2,606,188</b>	<b>3,651,335</b>	<b>1,730,638</b>	<b>1,852,618</b>	<b>9,840,778</b>	<b>2.673</b>	<b>1.530</b>	<b>4.203</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	2.731	2.976	.
(14) Massachusetts Credibility:	0.500	0.840	.
(15) Countrywide Pure Premium:	1.942	1.103	3.045
(16) Countrywide Indicated Relativity:	2.166	2.394	.
(17) Countrywide Credibility:	0.250	0.080	.
(18) Countrywide Lost-Time Claims:	1402.0	.	.
(19) Pure Premium Underlying Present Rate:	2.048	1.654	3.702
(20) Relativity to Underlying Present Rate:	2.171	3.019	.
(21) Credibility to Underlying Relativity:	0.250	0.080	.
(22) Industry Group Converted Pure Premium:	0.978	0.514	1.493
(23) Formula Relativity:	2.450	2.933	.
(24) Balanced Formula Relativity:	2.429	2.918	2.597

Class(es): 4307 BOOKBINDING		Effective: 7/1/2018							Manufacturing		
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2011	143.040	3	13	52.992	25.354	127.480	56.099	261.924	0.548	1.283	1.831
2012	156.087	1	8	173.621	25.402	10.417	26.811	236.250	1.275	0.239	1.514
2013	149.037	0	10	0	286.526	0	68.787	355.313	1.923	0.462	2.384
2014	159.570	0	11	0	14.358	0	31.809	46.167	0.090	0.199	0.289
2015	156.716	1	14	169.485	3.912	42.555	19.354	235.306	1.106	0.395	1.501
<b>MA Total:</b>	<b>764.449</b>	<b>5</b>	<b>56</b>	<b>396.097</b>	<b>355.552</b>	<b>180.451</b>	<b>202.860</b>	<b>1,134.961</b>	<b>0.983</b>	<b>0.501</b>	<b>1.485</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	1.005	0.975	.
(14) Massachusetts Credibility:	0.220	0.330	.
(15) Countrywide Pure Premium:	0.568	0.359	0.926
(16) Countrywide Indicated Relativity:	0.633	0.778	.
(17) Countrywide Credibility:	0.390	0.340	.
(18) Countrywide Lost-Time Claims:	232.00	.	.
(19) Pure Premium Underlying Present Rate:	0.801	0.496	1.297
(20) Relativity to Underlying Present Rate:	0.849	0.905	.
(21) Credibility to Underlying Relativity:	0.390	0.330	.
(22) Industry Group Converted Pure Premium:	0.978	0.514	1.493
(23) Formula Relativity:	0.799	0.885	.
(24) Balanced Formula Relativity:	0.792	0.881	0.823

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## Calculation of Class Relativities

Class(es):		Effective: 7/1/2018							Manufacturing		
4308 LINOTYPE OR HAND COMPOSITION											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical			MA Indicated Pure Premiums		
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2011	114	0	0	0	0	0	0	0	0.000	0.000	0.000
2012	115	0	0	0	0	0	0	0	0.000	0.000	0.000
2013	118	0	0	0	0	0	0	0	0.000	0.000	0.000
2014	105	0	0	0	0	0	0	0	0.000	0.000	0.000
2015	106	0	0	0	0	0	0	0	0.000	0.000	0.000
<b>MA Total:</b>	<b>559</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0.000</b>	<b>0.000</b>	<b>0.000</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.000	0.000	.
(14) Massachusetts Credibility:	0.020	0.010	.
(15) Countrywide Pure Premium:	0.000	0.000	0.000
(16) Countrywide Indicated Relativity:	1.636	0.396	.
(17) Countrywide Credibility:	0.000	0.000	.
(18) Countrywide Lost-Time Claims:	0.000	.	.
(19) Pure Premium Underlying Present Rate:	1.563	0.220	1.784
(20) Relativity to Underlying Present Rate:	1.657	0.402	.
(21) Credibility to Underlying Relativity:	0.980	0.990	.
(22) Industry Group Converted Pure Premium:	0.978	0.514	1.493
(23) Formula Relativity:	1.624	0.398	.
(24) Balanced Formula Relativity:	1.610	0.396	1.192

Class(es):		Effective: 7/1/2018							Manufacturing		
4351 PHOTOENGRAVING											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical			MA Indicated Pure Premiums		
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2011	240.577	0	25	0	66.879	0	14.443	81.322	0.278	0.060	0.338
2012	243.488	0	15	0	7.821	0	6.006	13.826	0.032	0.025	0.057
2013	264.619	1	25	374.347	75.408	126.555	29.059	605.368	1.700	0.588	2.288
2014	270.241	1	29	162.790	45.337	6.664	49.481	264.272	0.770	0.208	0.978
2015	285.673	1	25	70.332	41.490	2.879	67.075	181.776	0.391	0.245	0.636
<b>MA Total:</b>	<b>1,304.597</b>	<b>3</b>	<b>119</b>	<b>607.469</b>	<b>236.934</b>	<b>136.098</b>	<b>166.064</b>	<b>1,146.565</b>	<b>0.647</b>	<b>0.232</b>	<b>0.879</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.662	0.450	.
(14) Massachusetts Credibility:	0.210	0.290	.
(15) Countrywide Pure Premium:	0.397	0.254	0.651
(16) Countrywide Indicated Relativity:	0.443	0.551	.
(17) Countrywide Credibility:	0.260	0.270	.
(18) Countrywide Lost-Time Claims:	39.000	.	.
(19) Pure Premium Underlying Present Rate:	0.413	0.206	0.619
(20) Relativity to Underlying Present Rate:	0.438	0.376	.
(21) Credibility to Underlying Relativity:	0.530	0.440	.
(22) Industry Group Converted Pure Premium:	0.978	0.514	1.493
(23) Formula Relativity:	0.486	0.445	.
(24) Balanced Formula Relativity:	0.482	0.442	0.468

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## Calculation of Class Relativities

Class(es): 4352 ENGRAVING		Effective: 7/1/2018							Manufacturing		
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2011	58,801	0	3	0	328	0	2,107	2,435	0.006	0.036	0.041
2012	52,698	0	4	0	191,547	0	58,249	249,796	3.635	1.105	4.740
2013	46,244	0	1	0	0	0	171	171	0.000	0.004	0.004
2014	50,295	0	2	0	0	0	572	572	0.000	0.011	0.011
2015	64,195	0	1	0	0	0	475	475	0.000	0.007	0.007
<b>MA Total:</b>	<b>272,233</b>	<b>0</b>	<b>11</b>	<b>0</b>	<b>191,876</b>	<b>0</b>	<b>61,574</b>	<b>253,450</b>	<b>0.705</b>	<b>0.226</b>	<b>0.931</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.720	0.440	.
(14) Massachusetts Credibility:	0.160	0.200	.
(15) Countrywide Pure Premium:	0.530	0.266	0.796
(16) Countrywide Indicated Relativity:	0.591	0.576	.
(17) Countrywide Credibility:	0.360	0.380	.
(18) Countrywide Lost-Time Claims:	89,000	.	.
(19) Pure Premium Underlying Present Rate:	0.954	0.371	1.326
(20) Relativity to Underlying Present Rate:	1.012	0.677	.
(21) Credibility to Underlying Relativity:	0.480	0.420	.
(22) Industry Group Converted Pure Premium:	0.978	0.514	1.493
(23) Formula Relativity:	0.814	0.591	.
(24) Balanced Formula Relativity:	0.807	0.588	0.732

Class(es): 4360 MOTION PICTURE: DEVLPMNT OF NEGATIVES, PRINTING & ALL SUB OP		Effective: 7/1/2018							Manufacturing		
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2011	113,515	0	3	0	20,515	0	28,001	48,516	0.181	0.247	0.427
2012	122,081	0	3	0	973	0	6,465	7,437	0.008	0.053	0.061
2013	576,029	0	5	0	0	0	22,261	22,261	0.000	0.039	0.039
2014	572,166	0	6	0	2,103	0	6,034	8,137	0.004	0.011	0.014
2015	567,136	0	1	0	0	0	303	303	0.000	0.001	0.001
<b>MA Total:</b>	<b>1,950,925</b>	<b>0</b>	<b>18</b>	<b>0</b>	<b>23,590</b>	<b>0</b>	<b>63,063</b>	<b>86,653</b>	<b>0.012</b>	<b>0.032</b>	<b>0.044</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.012	0.063	.
(14) Massachusetts Credibility:	0.240	0.350	.
(15) Countrywide Pure Premium:	0.391	0.199	0.589
(16) Countrywide Indicated Relativity:	0.436	0.431	.
(17) Countrywide Credibility:	0.380	0.330	.
(18) Countrywide Lost-Time Claims:	179,000	.	.
(19) Pure Premium Underlying Present Rate:	0.399	0.218	0.618
(20) Relativity to Underlying Present Rate:	0.423	0.399	.
(21) Credibility to Underlying Relativity:	0.380	0.320	.
(22) Industry Group Converted Pure Premium:	0.978	0.514	1.493
(23) Formula Relativity:	0.329	0.292	.
(24) Balanced Formula Relativity:	0.327	0.290	0.314

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## Calculation of Class Relativities

Class(es):		Effective: 7/1/2018							Office and Clerical		
4361 PHOTOGRAPHER - ALL EMP & CLERICAL, SALES, DRIVERS											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period (1)	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2011	640,956	2	35	93,343	21,179	14,307	33,272	162,100	0.179	0.074	0.253
2012	643,701	1	19	22,362	50,163	80,508	35,765	188,798	0.113	0.181	0.293
2013	610,285	1	24	225,054	25,174	387,435	38,638	676,301	0.410	0.698	1.108
2014	610,340	0	23	0	55,304	0	85,493	140,797	0.091	0.140	0.231
2015	611,318	1	13	146,892	12,604	25,345	11,611	196,452	0.261	0.060	0.321
<b>MA Total:</b>	<b>3,116,600</b>	<b>5</b>	<b>114</b>	<b>487,650</b>	<b>164,423</b>	<b>507,595</b>	<b>204,780</b>	<b>1,364,448</b>	<b>0.209</b>	<b>0.229</b>	<b>0.438</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	2.933	5.241	.
(14) Massachusetts Credibility:	0.270	0.430	.
(15) Countrywide Pure Premium:	0.374	0.201	0.575
(16) Countrywide Indicated Relativity:	6.155	5.205	.
(17) Countrywide Credibility:	0.370	0.290	.
(18) Countrywide Lost-Time Claims:	600.00	.	.
(19) Pure Premium Underlying Present Rate:	0.323	0.233	0.556
(20) Relativity to Underlying Present Rate:	4.440	4.823	.
(21) Credibility to Underlying Relativity:	0.360	0.280	.
(22) Industry Group Converted Pure Premium:	0.071	0.044	0.115
(23) Formula Relativity:	4.668	5.113	.
(24) Balanced Formula Relativity:	4.699	5.127	4.861

Class(es):		Effective: 7/1/2018							Goods and Services		
4362 MOTION PICTURE: FILM EXCH & PROJECTION RMS, CL											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period (1)	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2011	10,871	0	0	0	0	0	0	0	0.000	0.000	0.000
2012	9,920	0	0	0	0	0	0	0	0.000	0.000	0.000
2013	8,720	0	0	0	0	0	0	0	0.000	0.000	0.000
2014	5,625	0	0	0	0	0	0	0	0.000	0.000	0.000
2015	4,486	0	0	0	0	0	0	0	0.000	0.000	0.000
<b>MA Total:</b>	<b>39,622</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0.000</b>	<b>0.000</b>	<b>0.000</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.000	0.000	.
(14) Massachusetts Credibility:	0.040	0.070	.
(15) Countrywide Pure Premium:	0.000	0.000	0.000
(16) Countrywide Indicated Relativity:	0.352	0.335	.
(17) Countrywide Credibility:	0.000	0.000	.
(18) Countrywide Lost-Time Claims:	0.000	.	.
(19) Pure Premium Underlying Present Rate:	0.294	0.172	0.466
(20) Relativity to Underlying Present Rate:	0.354	0.337	.
(21) Credibility to Underlying Relativity:	0.960	0.930	.
(22) Industry Group Converted Pure Premium:	0.837	0.476	1.314
(23) Formula Relativity:	0.340	0.314	.
(24) Balanced Formula Relativity:	0.338	0.313	0.329

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## Calculation of Class Relativities

Class(es): 4410 RUBBER GOODS MFG NOC		Effective: 7/1/2018							Manufacturing		
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2011	481,322	3	89	679,213	266,728	158,386	279,595	1,383,921	1,965	0,910	2,875
2012	482,758	0	74	0	203,617	0	148,596	352,214	0,422	0,308	0,730
2013	575,846	3	94	117,081	198,518	44,174	202,307	562,080	0,548	0,428	0,976
2014	482,606	4	69	355,630	788,227	93,366	670,818	1,908,042	2,370	1,583	3,954
2015	455,152	1	76	69,989	252,858	47,718	217,253	587,817	0,709	0,582	1,291
<b>MA Total:</b>	<b>2,477,684</b>	<b>11</b>	<b>402</b>	<b>1,221,914</b>	<b>1,709,948</b>	<b>343,644</b>	<b>1,518,569</b>	<b>4,794,074</b>	<b>1.183</b>	<b>0.752</b>	<b>1.935</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	1.209	1.461	.
(14) Massachusetts Credibility:	0.440	0.600	.
(15) Countrywide Pure Premium:	1.253	0.664	1.917
(16) Countrywide Indicated Relativity:	1.397	1.442	.
(17) Countrywide Credibility:	0.280	0.200	.
(18) Countrywide Lost-Time Claims:	2816.0	.	.
(19) Pure Premium Underlying Present Rate:	1.401	0.669	2.070
(20) Relativity to Underlying Present Rate:	1.485	1.221	.
(21) Credibility to Underlying Relativity:	0.280	0.200	.
(22) Industry Group Converted Pure Premium:	0.978	0.514	1.493
(23) Formula Relativity:	1.339	1.409	.
(24) Balanced Formula Relativity:	1.328	1.402	1.353

Class(es): 4432 FOUNTAIN PEN MFG		Effective: 7/1/2018							Manufacturing		
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2011	44,121	0	4	0	5,493	0	4,468	9,961	0,125	0,101	0,226
2012	56,910	0	2	0	452	0	2,855	3,308	0,008	0,050	0,058
2013	57,316	0	5	0	5,626	0	18,312	23,938	0,098	0,319	0,418
2014	60,186	0	3	0	6,096	0	12,045	18,141	0,101	0,200	0,301
2015	73,496	0	4	0	14,528	0	1,816	16,344	0,198	0,025	0,222
<b>MA Total:</b>	<b>292,030</b>	<b>0</b>	<b>18</b>	<b>0</b>	<b>32,196</b>	<b>0</b>	<b>39,496</b>	<b>71,692</b>	<b>0.110</b>	<b>0.135</b>	<b>0.245</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.113	0.263	.
(14) Massachusetts Credibility:	0.120	0.180	.
(15) Countrywide Pure Premium:	0.317	0.303	0.620
(16) Countrywide Indicated Relativity:	0.354	0.658	.
(17) Countrywide Credibility:	0.240	0.250	.
(18) Countrywide Lost-Time Claims:	31,000	.	.
(19) Pure Premium Underlying Present Rate:	0.492	0.292	0.783
(20) Relativity to Underlying Present Rate:	0.521	0.532	.
(21) Credibility to Underlying Relativity:	0.640	0.570	.
(22) Industry Group Converted Pure Premium:	0.978	0.514	1.493
(23) Formula Relativity:	0.432	0.515	.
(24) Balanced Formula Relativity:	0.428	0.513	0.457

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## Calculation of Class Relativities

Class(es): 4439 LACQUER OR SPIRIT VARNISH MFG		Effective: 7/1/2018							Manufacturing		
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2011	37,214	2	5	164,074	85,610	23,852	61,273	334,809	6,709	2,287	8,997
2012	37,210	0	7	0	5,625	0	11,010	16,635	0,151	0,296	0,447
2013	41,149	0	4	0	0	0	1,788	1,788	0,000	0,043	0,043
2014	38,754	1	4	342,530	0	352,941	5,034	700,506	8,839	9,237	18,076
2015	41,771	0	10	0	486,593	0	215,276	701,869	11,649	5,154	16,803
<b>MA Total:</b>	<b>196,098</b>	<b>3</b>	<b>30</b>	<b>506,605</b>	<b>577,828</b>	<b>376,793</b>	<b>294,381</b>	<b>1,755,607</b>	<b>5,530</b>	<b>3,423</b>	<b>8,953</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	5.652	6.655	.
(14) Massachusetts Credibility:	0.170	0.250	.
(15) Countrywide Pure Premium:	0.654	0.439	1.094
(16) Countrywide Indicated Relativity:	0.730	0.953	.
(17) Countrywide Credibility:	0.180	0.190	.
(18) Countrywide Lost-Time Claims:	16,000	.	.
(19) Pure Premium Underlying Present Rate:	1.646	0.995	2,641
(20) Relativity to Underlying Present Rate:	1.745	1.816	.
(21) Credibility to Underlying Relativity:	0.650	0.560	.
(22) Industry Group Converted Pure Premium:	0.978	0.514	1,493
(23) Formula Relativity:	2.226	2.862	.
(24) Balanced Formula Relativity:	2.207	2.848	2,428

Class(es): 4452 PLASTICS MFG: FABRICATED PRODUCTS NOC		Effective: 7/1/2018							Manufacturing		
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2011	562,578	9	96	853,671	649,684	149,688	279,161	1,932,204	2,672	0,762	3,435
2012	635,188	2	93	36,947	232,657	6,035	141,947	417,586	0,424	0,233	0,657
2013	558,468	3	88	386,688	313,132	206,933	248,883	1,155,636	1,253	0,816	2,069
2014	697,898	4	87	256,364	636,054	291,247	234,424	1,418,089	1,279	0,753	2,032
2015	694,840	5	103	519,117	1,278,930	206,773	571,651	2,576,472	2,588	1,120	3,708
<b>MA Total:</b>	<b>3,148,971</b>	<b>23</b>	<b>467</b>	<b>2,052,788</b>	<b>3,110,457</b>	<b>860,676</b>	<b>1,476,066</b>	<b>7,499,987</b>	<b>1,640</b>	<b>0,742</b>	<b>2,382</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	1.676	1.443	.
(14) Massachusetts Credibility:	0.520	0.730	.
(15) Countrywide Pure Premium:	1.138	0.635	1,774
(16) Countrywide Indicated Relativity:	1.270	1.378	.
(17) Countrywide Credibility:	0.240	0.140	.
(18) Countrywide Lost-Time Claims:	2088.0	.	.
(19) Pure Premium Underlying Present Rate:	1.669	0.877	2,546
(20) Relativity to Underlying Present Rate:	1.769	1.601	.
(21) Credibility to Underlying Relativity:	0.240	0.130	.
(22) Industry Group Converted Pure Premium:	0.978	0.514	1,493
(23) Formula Relativity:	1.601	1.454	.
(24) Balanced Formula Relativity:	1.587	1.447	1,539

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## Calculation of Class Relativities

Class(es):		Effective: 7/1/2018							Manufacturing		
4459 PLASTICS MFG: SHEETS, RODS OR TUBES											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2011	616.126	2	120	70.954	475.600	26.043	372.124	944.722	0.887	0.646	1.533
2012	495.097	4	87	396.589	568.929	145.097	262.395	1,373.011	1.950	0.823	2.773
2013	628.364	1	109	72.749	974.456	6.412	413.087	1,466.703	1.667	0.668	2.334
2014	658.725	2	117	231.060	791.647	48.951	390.831	1,462.489	1.553	0.668	2.220
2015	491.464	2	61	108.807	382.270	63.535	293.458	848.069	0.999	0.726	1.726
<b>MA Total:</b>	<b>2,889.777</b>	<b>11</b>	<b>494</b>	<b>880.159</b>	<b>3,192.901</b>	<b>290.039</b>	<b>1,731.895</b>	<b>6,094.994</b>	<b>1.409</b>	<b>0.700</b>	<b>2.109</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	1.441	1.360	.
(14) Massachusetts Credibility:	0.450	0.680	.
(15) Countrywide Pure Premium:	1.076	0.577	1.653
(16) Countrywide Indicated Relativity:	1.200	1.251	.
(17) Countrywide Credibility:	0.280	0.160	.
(18) Countrywide Lost-Time Claims:	2604.0	.	.
(19) Pure Premium Underlying Present Rate:	1.282	0.787	2.070
(20) Relativity to Underlying Present Rate:	1.359	1.436	.
(21) Credibility to Underlying Relativity:	0.270	0.160	.
(22) Industry Group Converted Pure Premium:	0.978	0.514	1.493
(23) Formula Relativity:	1.351	1.355	.
(24) Balanced Formula Relativity:	1.340	1.348	1.343

Class(es):		Effective: 7/1/2018							Manufacturing		
4470 CABLE MFG - INSULATED ELECTRICAL											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2011	471.694	1	48	47.657	404.870	14.936	145.350	612.812	0.959	0.340	1.299
2012	528.113	0	60	0	587.697	0	253.860	841.556	1.113	0.481	1.594
2013	503.684	1	57	211.291	322.871	52.725	129.433	716.320	1.061	0.362	1.422
2014	423.595	3	52	651.333	511.722	169.421	185.206	1,517.682	2.746	0.837	3.583
2015	475.096	1	38	75.377	203.297	17.025	101.777	397.477	0.587	0.250	0.837
<b>MA Total:</b>	<b>2,402.181</b>	<b>6</b>	<b>255</b>	<b>985.658</b>	<b>2,030.458</b>	<b>254.107</b>	<b>815.625</b>	<b>4,085.848</b>	<b>1.256</b>	<b>0.445</b>	<b>1.701</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	1.283	0.866	.
(14) Massachusetts Credibility:	0.370	0.510	.
(15) Countrywide Pure Premium:	1.007	0.477	1.483
(16) Countrywide Indicated Relativity:	1.123	1.035	.
(17) Countrywide Credibility:	0.320	0.250	.
(18) Countrywide Lost-Time Claims:	470.00	.	.
(19) Pure Premium Underlying Present Rate:	0.940	0.475	1.415
(20) Relativity to Underlying Present Rate:	0.996	0.866	.
(21) Credibility to Underlying Relativity:	0.310	0.240	.
(22) Industry Group Converted Pure Premium:	0.978	0.514	1.493
(23) Formula Relativity:	1.143	0.908	.
(24) Balanced Formula Relativity:	1.133	0.904	1.054



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## Calculation of Class Relativities

Class(es): 4484 PLASTICS MFG: MOLDED PRODUCTS NOC		Effective: 7/1/2018							Manufacturing		
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2011	1,781,311	13	266	1,136,552	1,172,752	592,873	923,359	3,825,536	1,296	0,851	2,148
2012	1,769,191	11	226	836,840	846,275	385,581	463,533	2,532,229	0,951	0,480	1,431
2013	1,736,689	7	213	445,705	545,045	87,908	495,272	1,573,930	0,570	0,336	0,906
2014	1,990,910	9	222	682,790	899,234	627,241	643,594	2,852,859	0,795	0,638	1,433
2015	2,311,914	4	327	272,198	1,873,411	85,772	1,123,321	3,354,703	0,928	0,523	1,451
<b>MA Total:</b>	<b>9,590,015</b>	<b>44</b>	<b>1,254</b>	<b>3,374,085</b>	<b>5,336,717</b>	<b>1,779,376</b>	<b>3,649,079</b>	<b>14,139,257</b>	<b>0,908</b>	<b>0,566</b>	<b>1,474</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.928	1.101	.
(14) Massachusetts Credibility:	0.660	0.960	.
(15) Countrywide Pure Premium:	1.020	0.593	1.613
(16) Countrywide Indicated Relativity:	1.138	1.286	.
(17) Countrywide Credibility:	0.170	0.020	.
(18) Countrywide Lost-Time Claims:	10053	.	.
(19) Pure Premium Underlying Present Rate:	1.021	0.564	1.585
(20) Relativity to Underlying Present Rate:	1.083	1.029	.
(21) Credibility to Underlying Relativity:	0.170	0.020	.
(22) Industry Group Converted Pure Premium:	0.978	0.514	1.493
(23) Formula Relativity:	0.990	1.103	.
(24) Balanced Formula Relativity:	0.982	1.097	1.021

Class(es): 4493 FABRIC COATING OR IMPREGNATING NOC		Effective: 7/1/2018							Manufacturing		
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2011	357,513	2	73	18,809	301,868	44,346	218,683	583,706	0,897	0,736	1,633
2012	398,253	2	107	23,734	214,796	8,549	177,524	424,603	0,599	0,467	1,066
2013	408,814	0	58	0	153,918	0	99,734	253,652	0,376	0,244	0,620
2014	402,658	1	61	279,882	561,540	20,646	262,982	1,125,050	2,090	0,704	2,794
2015	336,027	0	43	0	119,023	0	67,802	186,824	0,354	0,202	0,556
<b>MA Total:</b>	<b>1,903,264</b>	<b>5</b>	<b>342</b>	<b>322,425</b>	<b>1,351,144</b>	<b>73,542</b>	<b>826,725</b>	<b>2,573,835</b>	<b>0,879</b>	<b>0,473</b>	<b>1,352</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.899	0.920	.
(14) Massachusetts Credibility:	0.370	0.550	.
(15) Countrywide Pure Premium:	1.090	0.546	1.636
(16) Countrywide Indicated Relativity:	1.215	1.186	.
(17) Countrywide Credibility:	0.320	0.230	.
(18) Countrywide Lost-Time Claims:	184.00	.	.
(19) Pure Premium Underlying Present Rate:	1.187	0.717	1.904
(20) Relativity to Underlying Present Rate:	1.258	1.308	.
(21) Credibility to Underlying Relativity:	0.310	0.220	.
(22) Industry Group Converted Pure Premium:	0.978	0.514	1.493
(23) Formula Relativity:	1.111	1.066	.
(24) Balanced Formula Relativity:	1.102	1.061	1.088

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## Calculation of Class Relativities

Class(es): 4511 ANALYTICAL CHEMIST		Effective: 7/1/2018							Goods and Services		
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period (1)	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2011	4,885,748	1	100	80,171	312,179	61,844	280,893	735,087	0.080	0.070	0.150
2012	5,995,616	4	109	86,458	386,534	167,070	280,864	920,926	0.079	0.075	0.154
2013	5,650,471	4	106	208,982	157,816	218,220	161,065	746,083	0.065	0.067	0.132
2014	6,578,399	4	100	808,472	193,501	116,739	275,634	1,394,346	0.152	0.060	0.212
2015	5,386,613	1	73	135,916	597,518	172,210	273,229	1,178,873	0.136	0.083	0.219
<b>MA Total:</b>	<b>28,496,847</b>	<b>14</b>	<b>488</b>	<b>1,319,999</b>	<b>1,647,547</b>	<b>736,082</b>	<b>1,271,685</b>	<b>4,975,314</b>	<b>0.104</b>	<b>0.070</b>	<b>0.175</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.124	0.148	.
(14) Massachusetts Credibility:	0.450	0.690	.
(15) Countrywide Pure Premium:	0.263	0.138	0.401
(16) Countrywide Indicated Relativity:	0.315	0.287	.
(17) Countrywide Credibility:	0.280	0.160	.
(18) Countrywide Lost-Time Claims:	1787.0	.	.
(19) Pure Premium Underlying Present Rate:	0.132	0.083	0.215
(20) Relativity to Underlying Present Rate:	0.159	0.163	.
(21) Credibility to Underlying Relativity:	0.270	0.150	.
(22) Industry Group Converted Pure Premium:	0.837	0.476	1.314
(23) Formula Relativity:	0.187	0.172	.
(24) Balanced Formula Relativity:	0.186	0.172	0.181

Class(es): 4512 BIOMEDICAL RESEARCH LABS-INCL OUTSIDE OPERATNS		Effective: 7/1/2018							Goods and Services		
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period (1)	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2011	8,083,552	3	112	377,585	57,286	153,554	142,245	730,669	0.054	0.037	0.090
2012	6,632,185	0	86	0	283,026	0	190,596	473,621	0.043	0.029	0.071
2013	9,156,498	0	84	0	184,360	0	104,771	289,131	0.020	0.011	0.032
2014	10,033,497	0	90	0	105,041	0	144,767	249,808	0.010	0.014	0.025
2015	12,280,563	2	116	308,326	385,261	91,676	359,735	1,144,997	0.056	0.037	0.093
<b>MA Total:</b>	<b>46,186,294</b>	<b>5</b>	<b>488</b>	<b>685,911</b>	<b>1,014,973</b>	<b>245,230</b>	<b>942,113</b>	<b>2,888,226</b>	<b>0.037</b>	<b>0.026</b>	<b>0.063</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.044	0.054	.
(14) Massachusetts Credibility:	0.380	0.620	.
(15) Countrywide Pure Premium:	0.000	0.000	0.000
(16) Countrywide Indicated Relativity:	0.062	0.076	.
(17) Countrywide Credibility:	0.000	0.000	.
(18) Countrywide Lost-Time Claims:	0.000	.	.
(19) Pure Premium Underlying Present Rate:	0.052	0.039	0.091
(20) Relativity to Underlying Present Rate:	0.063	0.077	.
(21) Credibility to Underlying Relativity:	0.620	0.380	.
(22) Industry Group Converted Pure Premium:	0.837	0.476	1.314
(23) Formula Relativity:	0.056	0.063	.
(24) Balanced Formula Relativity:	0.055	0.063	0.058

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## Calculation of Class Relativities

Class(es): 4557 INK MFG		Effective: 7/1/2018							Manufacturing		
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2011	687,635	5	94	493,535	146,852	401,620	164,541	1,206,548	0.931	0.823	1.755
2012	641,594	2	80	212,033	125,687	165,879	103,353	606,953	0.526	0.420	0.946
2013	380,076	2	53	200,418	170,165	186,300	106,372	663,254	0.975	0.770	1.745
2014	412,269	0	33	0	386,959	0	91,498	478,457	0.939	0.222	1.161
2015	832,698	1	52	123,839	264,954	54,940	177,853	621,586	0.467	0.280	0.746
<b>MA Total:</b>	<b>2,954,271</b>	<b>10</b>	<b>312</b>	<b>1,029,826</b>	<b>1,094,617</b>	<b>808,738</b>	<b>643,617</b>	<b>3,576,798</b>	<b>0.719</b>	<b>0.492</b>	<b>1.211</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.735	0.956	.
(14) Massachusetts Credibility:	0.400	0.580	.
(15) Countrywide Pure Premium:	0.824	0.437	1.261
(16) Countrywide Indicated Relativity:	0.919	0.948	.
(17) Countrywide Credibility:	0.300	0.210	.
(18) Countrywide Lost-Time Claims:	577.00	.	.
(19) Pure Premium Underlying Present Rate:	0.946	0.519	1.465
(20) Relativity to Underlying Present Rate:	1.003	0.948	.
(21) Credibility to Underlying Relativity:	0.300	0.210	.
(22) Industry Group Converted Pure Premium:	0.978	0.514	1.493
(23) Formula Relativity:	0.871	0.952	.
(24) Balanced Formula Relativity:	0.863	0.948	0.892

Class(es): 4558 PAINT MFG		Effective: 7/1/2018							Manufacturing		
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2011	75,761	0	3	0	8,427	0	33,246	41,674	0.111	0.439	0.550
2012	75,903	0	4	0	2,433	0	3,241	5,674	0.032	0.043	0.075
2013	85,298	0	8	0	11,486	0	22,064	33,550	0.135	0.259	0.393
2014	90,338	1	4	15,380	46,750	66,255	10,976	139,360	0.688	0.855	1.543
2015	78,794	1	7	47,206	225	59,184	4,056	110,671	0.602	0.803	1.405
<b>MA Total:</b>	<b>406,095</b>	<b>2</b>	<b>26</b>	<b>62,585</b>	<b>69,321</b>	<b>125,439</b>	<b>73,584</b>	<b>330,930</b>	<b>0.325</b>	<b>0.490</b>	<b>0.815</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.332	0.953	.
(14) Massachusetts Credibility:	0.150	0.230	.
(15) Countrywide Pure Premium:	0.704	0.324	1.028
(16) Countrywide Indicated Relativity:	0.785	0.704	.
(17) Countrywide Credibility:	0.430	0.390	.
(18) Countrywide Lost-Time Claims:	519.00	.	.
(19) Pure Premium Underlying Present Rate:	0.632	0.389	1.021
(20) Relativity to Underlying Present Rate:	0.669	0.710	.
(21) Credibility to Underlying Relativity:	0.420	0.380	.
(22) Industry Group Converted Pure Premium:	0.978	0.514	1.493
(23) Formula Relativity:	0.668	0.763	.
(24) Balanced Formula Relativity:	0.663	0.760	0.696

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## Calculation of Class Relativities

Class(es):		Effective: 7/1/2018							Manufacturing		
4583 FERTILIZER MFG & DRIVERS											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2011	48,205	0	0	0	0	0	0	0	0.000	0.000	0.000
2012	46,510	0	3	0	215,102	0	17,733	232,835	4.625	0.381	5.006
2013	43,040	0	0	0	0	0	0	0	0.000	0.000	0.000
2014	44,430	0	0	0	0	0	0	0	0.000	0.000	0.000
2015	53,919	0	2	0	7,313	0	11,608	18,921	0.136	0.215	0.351
<b>MA Total:</b>	<b>236,104</b>	<b>0</b>	<b>5</b>	<b>0</b>	<b>222,415</b>	<b>0</b>	<b>29,340</b>	<b>251,756</b>	<b>0.942</b>	<b>0.124</b>	<b>1.066</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.963	0.242	.
(14) Massachusetts Credibility:	0.190	0.250	.
(15) Countrywide Pure Premium:	1.788	0.960	2.748
(16) Countrywide Indicated Relativity:	1.995	2.083	.
(17) Countrywide Credibility:	0.410	0.380	.
(18) Countrywide Lost-Time Claims:	542.00	.	.
(19) Pure Premium Underlying Present Rate:	1.884	0.820	2.704
(20) Relativity to Underlying Present Rate:	1.997	1.495	.
(21) Credibility to Underlying Relativity:	0.400	0.370	.
(22) Industry Group Converted Pure Premium:	0.978	0.514	1.493
(23) Formula Relativity:	1.800	1.405	.
(24) Balanced Formula Relativity:	1.784	1.398	1.651

Class(es):		Effective: 7/1/2018							Manufacturing		
4611 DRUG MEDICINE OR PHARMACEUTICAL PREP-NO MFG OF INGREDIENTS											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2011	1,524,088	2	42	96,427	214,418	40,853	133,538	485,236	0.204	0.114	0.318
2012	1,651,920	1	35	9,317	92,598	792	44,135	146,843	0.062	0.027	0.089
2013	1,011,513	1	42	9,953	47,872	327	78,742	136,894	0.057	0.078	0.135
2014	906,497	0	28	0	219,094	0	91,530	310,624	0.242	0.101	0.343
2015	1,118,881	2	39	225,975	105,449	41,184	69,146	441,754	0.296	0.099	0.395
<b>MA Total:</b>	<b>6,212,899</b>	<b>6</b>	<b>186</b>	<b>341,673</b>	<b>679,431</b>	<b>83,156</b>	<b>417,091</b>	<b>1,521,351</b>	<b>0.164</b>	<b>0.081</b>	<b>0.245</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.168	0.157	.
(14) Massachusetts Credibility:	0.360	0.510	.
(15) Countrywide Pure Premium:	0.368	0.203	0.570
(16) Countrywide Indicated Relativity:	0.410	0.439	.
(17) Countrywide Credibility:	0.320	0.250	.
(18) Countrywide Lost-Time Claims:	2006.0	.	.
(19) Pure Premium Underlying Present Rate:	0.349	0.177	0.526
(20) Relativity to Underlying Present Rate:	0.370	0.323	.
(21) Credibility to Underlying Relativity:	0.320	0.240	.
(22) Industry Group Converted Pure Premium:	0.978	0.514	1.493
(23) Formula Relativity:	0.310	0.267	.
(24) Balanced Formula Relativity:	0.307	0.266	0.293

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## Calculation of Class Relativities

Class(es):		Effective: 7/1/2018							Manufacturing		
4635 OXYGEN OR HYDROGEN MFG & DRIVERS											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical			MA Indicated Pure Premiums		
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2011	170.287	1	34	112.300	688.374	37.452	312.422	1,150.548	4.702	2.055	6.757
2012	152.871	3	35	337.339	147.986	102.995	119.622	707.943	3.175	1.456	4.631
2013	145.252	3	28	367.474	195.923	132.507	208.978	904.882	3.879	2.351	6.230
2014	159.756	0	25	0	113.840	0	128.350	242.190	0.713	0.803	1.516
2015	96.425	1	17	254.397	395.204	63.617	307.904	1,021.122	6.737	3.853	10.590
<b>MA Total:</b>	<b>724.591</b>	<b>8</b>	<b>139</b>	<b>1,071.510</b>	<b>1,541.327</b>	<b>336.572</b>	<b>1,077.277</b>	<b>4,026.686</b>	<b>3.606</b>	<b>1.951</b>	<b>5.557</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	3.685	3.794	.
(14) Massachusetts Credibility:	0.320	0.490	.
(15) Countrywide Pure Premium:	1.278	0.587	1.866
(16) Countrywide Indicated Relativity:	1.426	1.275	.
(17) Countrywide Credibility:	0.340	0.260	.
(18) Countrywide Lost-Time Claims:	739.00	.	.
(19) Pure Premium Underlying Present Rate:	2.198	1.398	3.597
(20) Relativity to Underlying Present Rate:	2.330	2.552	.
(21) Credibility to Underlying Relativity:	0.340	0.250	.
(22) Industry Group Converted Pure Premium:	0.978	0.514	1.493
(23) Formula Relativity:	2.456	2.828	.
(24) Balanced Formula Relativity:	2.435	2.814	2.566

Class(es):		Effective: 7/1/2018							Manufacturing		
4653 GLUE MFG & DRIVERS											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical			MA Indicated Pure Premiums		
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2011	27.065	0	1	0	482	0	989	1,471	0.018	0.037	0.054
2012	17.929	0	0	0	0	0	0	0	0.000	0.000	0.000
2013	43.947	0	2	0	0	0	550	550	0.000	0.013	0.013
2014	39.196	0	0	0	0	0	0	0	0.000	0.000	0.000
2015	43.331	0	4	0	149.850	0	57.087	206.937	3.458	1.317	4.776
<b>MA Total:</b>	<b>171.469</b>	<b>0</b>	<b>7</b>	<b>0</b>	<b>150.332</b>	<b>0</b>	<b>58.626</b>	<b>208.957</b>	<b>0.877</b>	<b>0.342</b>	<b>1.219</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.896	0.665	.
(14) Massachusetts Credibility:	0.130	0.190	.
(15) Countrywide Pure Premium:	0.554	0.253	0.807
(16) Countrywide Indicated Relativity:	0.618	0.550	.
(17) Countrywide Credibility:	0.310	0.330	.
(18) Countrywide Lost-Time Claims:	64.000	.	.
(19) Pure Premium Underlying Present Rate:	1.005	0.518	1.523
(20) Relativity to Underlying Present Rate:	1.065	0.945	.
(21) Credibility to Underlying Relativity:	0.560	0.480	.
(22) Industry Group Converted Pure Premium:	0.978	0.514	1.493
(23) Formula Relativity:	0.904	0.761	.
(24) Balanced Formula Relativity:	0.897	0.757	0.849

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## Calculation of Class Relativities

Class(es):		Effective: 7/1/2018							Manufacturing		
4665 RENDERING WORKS NOC & DR											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2011	46,413	1	19	2,492	58,674	769	118,632	180,567	1,318	2,573	3,890
2012	50,236	1	14	78,720	24,022	10,232	29,823	142,796	2,045	0,797	2,842
2013	53,599	0	10	0	124,828	0	55,032	179,860	2,329	1,027	3,356
2014	51,440	2	17	372,695	410,960	258,681	220,739	1,263,075	15,234	9,320	24,554
2015	53,466	2	10	819,513	47,312	129,899	27,470	1,024,194	16,213	2,943	19,156
<b>MA Total:</b>	<b>255,153</b>	<b>6</b>	<b>70</b>	<b>1,273,420</b>	<b>665,796</b>	<b>399,581</b>	<b>451,696</b>	<b>2,790,492</b>	<b>7,600</b>	<b>3,336</b>	<b>10,937</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	7.768	6.487	.
(14) Massachusetts Credibility:	0.240	0.350	.
(15) Countrywide Pure Premium:	2.699	1.302	4.001
(16) Countrywide Indicated Relativity:	3.010	2.826	.
(17) Countrywide Credibility:	0.380	0.330	.
(18) Countrywide Lost-Time Claims:	357.00	.	.
(19) Pure Premium Underlying Present Rate:	3.060	1.728	4.787
(20) Relativity to Underlying Present Rate:	3.244	3.152	.
(21) Credibility to Underlying Relativity:	0.380	0.320	.
(22) Industry Group Converted Pure Premium:	0.978	0.514	1.493
(23) Formula Relativity:	4.240	4.212	.
(24) Balanced Formula Relativity:	4.204	4.191	4.199

Class(es):		Effective: 7/1/2018							Manufacturing		
4692 DENTAL LABORATORY											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2011	258,513	2	7	167,568	1,008	109,713	27,067	305,357	0.652	0.529	1.181
2012	274,869	0	13	0	14,163	0	22,934	37,097	0.052	0.083	0.135
2013	314,706	0	6	0	0	0	6,756	6,756	0.000	0.021	0.021
2014	274,992	0	4	0	14,315	0	16,949	31,265	0.052	0.062	0.114
2015	320,551	0	3	0	5,629	0	6,937	12,566	0.018	0.022	0.039
<b>MA Total:</b>	<b>1,443,631</b>	<b>2</b>	<b>33</b>	<b>167,568</b>	<b>35,115</b>	<b>109,713</b>	<b>80,643</b>	<b>393,039</b>	<b>0.140</b>	<b>0.132</b>	<b>0.272</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.143	0.256	.
(14) Massachusetts Credibility:	0.200	0.250	.
(15) Countrywide Pure Premium:	0.339	0.170	0.509
(16) Countrywide Indicated Relativity:	0.378	0.369	.
(17) Countrywide Credibility:	0.400	0.380	.
(18) Countrywide Lost-Time Claims:	231.00	.	.
(19) Pure Premium Underlying Present Rate:	0.332	0.135	0.468
(20) Relativity to Underlying Present Rate:	0.352	0.247	.
(21) Credibility to Underlying Relativity:	0.400	0.370	.
(22) Industry Group Converted Pure Premium:	0.978	0.514	1.493
(23) Formula Relativity:	0.321	0.295	.
(24) Balanced Formula Relativity:	0.318	0.294	0.310

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## Calculation of Class Relativities

Class(es): 4693 PHARMACEUTICAL OR SURGICAL GOODS MFG NOC									Effective: 7/1/2018			Manufacturing		
Converted Unlimited Losses														
Amount														
Claim Count				Indemnity		Medical			MA Indicated Pure Premiums					
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)			
2011	818,342	2	60	226,634	221,618	37,070	201,877	687,200	0.548	0.292	0.840			
2012	823,963	1	39	319,692	281,759	47,426	121,653	770,529	0.730	0.205	0.935			
2013	695,851	1	36	73,619	406,543	6,778	243,224	730,165	0.690	0.359	1.049			
2014	835,735	2	26	100,443	24,882	32,309	50,678	208,312	0.150	0.099	0.249			
2015	491,780	1	43	18,736	203,606	20,225	125,415	367,981	0.452	0.296	0.748			
<b>MA Total:</b>	<b>3,665,672</b>	<b>7</b>	<b>204</b>	<b>739,124</b>	<b>1,138,408</b>	<b>143,808</b>	<b>742,847</b>	<b>2,764,188</b>	<b>0.512</b>	<b>0.242</b>	<b>0.754</b>			

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.523	0.470	.
(14) Massachusetts Credibility:	0.330	0.470	.
(15) Countrywide Pure Premium:	0.376	0.207	0.583
(16) Countrywide Indicated Relativity:	0.420	0.449	.
(17) Countrywide Credibility:	0.340	0.270	.
(18) Countrywide Lost-Time Claims:	766.00	.	.
(19) Pure Premium Underlying Present Rate:	0.448	0.250	0.698
(20) Relativity to Underlying Present Rate:	0.475	0.457	.
(21) Credibility to Underlying Relativity:	0.330	0.260	.
(22) Industry Group Converted Pure Premium:	0.978	0.514	1.493
(23) Formula Relativity:	0.472	0.461	.
(24) Balanced Formula Relativity:	0.468	0.459	0.465

Class(es): 4720 SOAP OR SYNTHETIC DETERGENT MFG									Effective: 7/1/2018			Manufacturing		
Converted Unlimited Losses														
Amount														
Claim Count				Indemnity		Medical			MA Indicated Pure Premiums					
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)			
2011	172,292	2	16	149,031	122,101	61,846	161,732	494,710	1.574	1.298	2.871			
2012	174,199	1	16	9,167	16,280	375	18,095	43,918	0.146	0.106	0.252			
2013	187,957	1	26	88,485	99,017	61,728	78,293	327,523	0.998	0.745	1.743			
2014	214,134	0	24	0	97,446	0	45,101	142,547	0.455	0.211	0.666			
2015	224,362	0	12	0	384,647	0	123,545	508,192	1.714	0.551	2.265			
<b>MA Total:</b>	<b>972,945</b>	<b>4</b>	<b>94</b>	<b>246,683</b>	<b>719,491</b>	<b>123,949</b>	<b>426,767</b>	<b>1,516,890</b>	<b>0.993</b>	<b>0.566</b>	<b>1.559</b>			

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	1.015	1.101	.
(14) Massachusetts Credibility:	0.250	0.380	.
(15) Countrywide Pure Premium:	0.899	0.431	1.331
(16) Countrywide Indicated Relativity:	1.003	0.936	.
(17) Countrywide Credibility:	0.380	0.310	.
(18) Countrywide Lost-Time Claims:	500.00	.	.
(19) Pure Premium Underlying Present Rate:	0.852	0.552	1.404
(20) Relativity to Underlying Present Rate:	0.903	1.007	.
(21) Credibility to Underlying Relativity:	0.370	0.310	.
(22) Industry Group Converted Pure Premium:	0.978	0.514	1.493
(23) Formula Relativity:	0.969	1.021	.
(24) Balanced Formula Relativity:	0.961	1.015	0.980

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## Calculation of Class Relativities

Class(es):		Effective: 7/1/2018							Manufacturing		
4740 OIL REFINING - PETROLEUM & DRIVERS											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2011	12.335	0	0	0	0	0	0	0	0.000	0.000	0.000
2012	12.334	0	1	0	141.226	0	71.872	213.098	11.451	5.827	17.278
2013	19.339	0	0	0	0	0	0	0	0.000	0.000	0.000
2014	20.625	0	0	0	0	0	0	0	0.000	0.000	0.000
2015	19.582	0	0	0	0	0	0	0	0.000	0.000	0.000
<b>MA Total:</b>	<b>84.215</b>	<b>0</b>	<b>1</b>	<b>0</b>	<b>141.226</b>	<b>0</b>	<b>71.872</b>	<b>213.098</b>	<b>1.677</b>	<b>0.853</b>	<b>2.530</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	1.714	1.659	.
(14) Massachusetts Credibility:	0.080	0.110	.
(15) Countrywide Pure Premium:	0.384	0.179	0.563
(16) Countrywide Indicated Relativity:	0.428	0.389	.
(17) Countrywide Credibility:	0.460	0.450	.
(18) Countrywide Lost-Time Claims:	504.00	.	.
(19) Pure Premium Underlying Present Rate:	0.571	0.299	0.869
(20) Relativity to Underlying Present Rate:	0.605	0.545	.
(21) Credibility to Underlying Relativity:	0.460	0.440	.
(22) Industry Group Converted Pure Premium:	0.978	0.514	1.493
(23) Formula Relativity:	0.612	0.597	.
(24) Balanced Formula Relativity:	0.607	0.594	0.603

Class(es):		Effective: 7/1/2018							Manufacturing		
4741 ASPHALT OR TAR DISTILLING OR REFINING & DRIVERS											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2011	9.977	0	0	0	0	0	0	0	0.000	0.000	0.000
2012	6.605	0	0	0	0	0	0	0	0.000	0.000	0.000
2013	6.337	0	0	0	0	0	0	0	0.000	0.000	0.000
2014	3.660	0	0	0	0	0	0	0	0.000	0.000	0.000
2015	2.905	0	0	0	0	0	0	0	0.000	0.000	0.000
<b>MA Total:</b>	<b>29.484</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0.000</b>	<b>0.000</b>	<b>0.000</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.000	0.000	.
(14) Massachusetts Credibility:	0.070	0.090	.
(15) Countrywide Pure Premium:	1.518	0.577	2.096
(16) Countrywide Indicated Relativity:	1.693	1.253	.
(17) Countrywide Credibility:	0.410	0.430	.
(18) Countrywide Lost-Time Claims:	122.00	.	.
(19) Pure Premium Underlying Present Rate:	1.132	0.461	1.593
(20) Relativity to Underlying Present Rate:	1.200	0.840	.
(21) Credibility to Underlying Relativity:	0.520	0.480	.
(22) Industry Group Converted Pure Premium:	0.978	0.514	1.493
(23) Formula Relativity:	1.318	0.942	.
(24) Balanced Formula Relativity:	1.307	0.937	1.180



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## Calculation of Class Relativities

Class(es): 4771 EXPLOSIVES OR AMMUNITION MFG: NOC - & DRIVERS									Effective: 7/1/2018			Manufacturing		
Converted Unlimited Losses														
Amount														
		Claim Count		Indemnity		Medical				MA Indicated Pure Premiums				
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)			
2011	0	0	0	0	0	0	0	0	0.000	0.000	0.000			
2012	0	0	0	0	0	0	0	0	0.000	0.000	0.000			
2013	1,024	0	0	0	0	0	0	0	0.000	0.000	0.000			
2014	3,997	0	1	0	0	0	1,939	1,939	0.000	0.485	0.485			
2015	5,140	0	0	0	0	0	0	0	0.000	0.000	0.000			
<b>MA Total:</b>	<b>10,160</b>	<b>0</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>1,939</b>	<b>1,939</b>	<b>0.000</b>	<b>0.191</b>	<b>0.191</b>			

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.000	0.371	.
(14) Massachusetts Credibility:	0.080	0.070	.
(15) Countrywide Pure Premium:	0.974	0.487	1.461
(16) Countrywide Indicated Relativity:	1.086	1.057	.
(17) Countrywide Credibility:	0.460	0.470	.
(18) Countrywide Lost-Time Claims:	344.00	.	.
(19) Pure Premium Underlying Present Rate:	4.654	0.710	5.363
(20) Relativity to Underlying Present Rate:	4.933	1.295	.
(21) Credibility to Underlying Relativity:	0.460	0.460	.
(22) Industry Group Converted Pure Premium:	0.978	0.514	1.493
(23) Formula Relativity:	2.769	1.119	.
(24) Balanced Formula Relativity:	2.745	1.113	2.183

Class(es): 4825 DRUG, MEDICINE OR PHARM PREP MFG & INCIDENTAL MFG INGREDIENTS									Effective: 7/1/2018			Manufacturing		
Converted Unlimited Losses														
Amount														
		Claim Count		Indemnity		Medical				MA Indicated Pure Premiums				
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)			
2011	3,998,672	7	137	619,557	1,064,781	157,709	479,575	2,321,623	0.421	0.159	0.581			
2012	2,800,589	1	57	65,912	623,446	9,572	181,194	880,124	0.246	0.068	0.314			
2013	2,572,314	0	38	0	260,668	0	269,006	529,675	0.101	0.105	0.206			
2014	2,606,420	2	33	66,745	295,621	52,177	171,214	585,757	0.139	0.086	0.225			
2015	2,586,809	0	33	0	35,556	0	37,279	72,836	0.014	0.014	0.028			
<b>MA Total:</b>	<b>14,564,803</b>	<b>10</b>	<b>298</b>	<b>752,214</b>	<b>2,280,073</b>	<b>219,458</b>	<b>1,138,269</b>	<b>4,390,015</b>	<b>0.208</b>	<b>0.093</b>	<b>0.301</b>			

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.213	0.181	.
(14) Massachusetts Credibility:	0.490	0.740	.
(15) Countrywide Pure Premium:	0.387	0.207	0.594
(16) Countrywide Indicated Relativity:	0.431	0.450	.
(17) Countrywide Credibility:	0.260	0.130	.
(18) Countrywide Lost-Time Claims:	793.00	.	.
(19) Pure Premium Underlying Present Rate:	0.317	0.196	0.513
(20) Relativity to Underlying Present Rate:	0.337	0.358	.
(21) Credibility to Underlying Relativity:	0.250	0.130	.
(22) Industry Group Converted Pure Premium:	0.978	0.514	1.493
(23) Formula Relativity:	0.301	0.239	.
(24) Balanced Formula Relativity:	0.298	0.238	0.277

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## Calculation of Class Relativities

Class(es):		Effective: 7/1/2018							Manufacturing		
4828 CHEMICAL BLENDING OR MIXING NOC- ALL OPERS & DR											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2011	755,743	0	33	0	122,275	0	95,104	217,378	0.162	0.126	0.288
2012	780,938	1	28	109,877	512,679	20,408	155,510	798,473	0.797	0.225	1.022
2013	863,221	0	22	0	158,400	0	121,739	280,139	0.183	0.141	0.325
2014	935,225	1	21	430,282	174,338	78,825	121,496	804,941	0.646	0.214	0.861
2015	858,792	3	25	246,351	754,459	201,419	419,696	1,621,926	1.165	0.723	1.889
<b>MA Total:</b>	<b>4,193,919</b>	<b>5</b>	<b>129</b>	<b>786,510</b>	<b>1,722,150</b>	<b>300,653</b>	<b>913,544</b>	<b>3,722,857</b>	<b>0.598</b>	<b>0.290</b>	<b>0.888</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.611	0.563	.
(14) Massachusetts Credibility:	0.360	0.490	.
(15) Countrywide Pure Premium:	0.516	0.266	0.782
(16) Countrywide Indicated Relativity:	0.576	0.578	.
(17) Countrywide Credibility:	0.320	0.260	.
(18) Countrywide Lost-Time Claims:	2072.0	.	.
(19) Pure Premium Underlying Present Rate:	0.493	0.237	0.731
(20) Relativity to Underlying Present Rate:	0.523	0.433	.
(21) Credibility to Underlying Relativity:	0.320	0.250	.
(22) Industry Group Converted Pure Premium:	0.978	0.514	1.493
(23) Formula Relativity:	0.572	0.534	.
(24) Balanced Formula Relativity:	0.567	0.532	0.555

Class(es):		Effective: 7/1/2018							Construction		
5020 CEILING INSTALLATION-SUSPENDED ACOUSTICAL GRID											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2011	167,829	1	11	91,638	1,329	6,390	10,275	109,632	0.554	0.099	0.653
2012	183,861	1	14	307,350	546,744	39,873	125,492	1,019,458	4.645	0.899	5.545
2013	242,440	0	16	0	413,299	0	106,127	519,426	1.705	0.438	2.142
2014	218,297	1	17	20,478	231,531	2,904	121,175	376,088	1.154	0.568	1.723
2015	210,939	1	16	319,936	124,502	218,862	74,668	737,969	2.107	1.392	3.498
<b>MA Total:</b>	<b>1,023,365</b>	<b>4</b>	<b>74</b>	<b>739,401</b>	<b>1,317,405</b>	<b>268,029</b>	<b>437,738</b>	<b>2,762,574</b>	<b>2.010</b>	<b>0.690</b>	<b>2.699</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.766	0.583	.
(14) Massachusetts Credibility:	0.400	0.480	.
(15) Countrywide Pure Premium:	3.032	1.259	4.291
(16) Countrywide Indicated Relativity:	1.184	1.112	.
(17) Countrywide Credibility:	0.300	0.260	.
(18) Countrywide Lost-Time Claims:	303.00	.	.
(19) Pure Premium Underlying Present Rate:	2.663	0.951	3.614
(20) Relativity to Underlying Present Rate:	0.970	0.710	.
(21) Credibility to Underlying Relativity:	0.300	0.260	.
(22) Industry Group Converted Pure Premium:	2.624	1.182	3.806
(23) Formula Relativity:	0.953	0.754	.
(24) Balanced Formula Relativity:	0.958	0.754	0.895

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## Calculation of Class Relativities

Class(es): 5022 MASONRY NOC		Effective: 7/1/2018							Construction		
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2011	907,464	14	136	1,390,464	3,661,210	491,410	1,218,280	6,761,363	5,567	1,884	7,451
2012	1,073,384	10	124	1,262,976	2,122,423	728,296	1,385,591	5,499,287	3,154	1,969	5,123
2013	1,103,370	14	126	4,197,422	3,374,028	1,269,918	1,133,898	9,975,266	6,862	2,179	9,041
2014	1,169,015	13	109	3,681,453	3,345,760	1,245,432	1,386,520	9,659,164	6,011	2,251	8,263
2015	1,291,093	12	109	3,210,715	3,949,294	1,110,197	2,652,700	10,922,905	5,546	2,915	8,460
<b>MA Total:</b>	<b>5,544,326</b>	<b>63</b>	<b>604</b>	<b>13,743,029</b>	<b>16,452,715</b>	<b>4,845,253</b>	<b>7,776,988</b>	<b>42,817,985</b>	<b>5,446</b>	<b>2,277</b>	<b>7,723</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	2.076	1.926	.
(14) Massachusetts Credibility:	1.000	1.000	.
(15) Countrywide Pure Premium:	4.155	1.641	5.796
(16) Countrywide Indicated Relativity:	1.622	1.449	.
(17) Countrywide Credibility:	0.000	0.000	.
(18) Countrywide Lost-Time Claims:	5077.0	.	.
(19) Pure Premium Underlying Present Rate:	4.961	2.226	7.187
(20) Relativity to Underlying Present Rate:	1.808	1.660	.
(21) Credibility to Underlying Relativity:	0.000	0.000	.
(22) Industry Group Converted Pure Premium:	2.624	1.182	3.806
(23) Formula Relativity:	2.076	1.926	.
(24) Balanced Formula Relativity:	2.088	1.928	2.038

Class(es): 5037 PAINTING: METAL STRUCTURES-OVER 2 STORIES IN HEIGHT & DRIVERS		Effective: 7/1/2018							Construction		
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2011	51,806	0	9	0	64,965	0	62,764	127,729	1,254	1,212	2,466
2012	69,799	0	10	0	939,521	0	340,500	1,280,021	13,460	4,878	18,339
2013	95,019	2	11	515,884	817,994	102,958	194,518	1,631,353	14,038	3,131	17,169
2014	105,650	1	11	12,471	857,079	1,357	320,164	1,191,071	8,230	3,043	11,274
2015	80,013	3	7	403,655	524,679	169,925	238,364	1,336,623	11,602	5,103	16,705
<b>MA Total:</b>	<b>402,287</b>	<b>6</b>	<b>48</b>	<b>932,009</b>	<b>3,204,236</b>	<b>274,241</b>	<b>1,156,310</b>	<b>5,566,796</b>	<b>10,282</b>	<b>3,556</b>	<b>13,838</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	3.919	3.008	.
(14) Massachusetts Credibility:	0.500	0.620	.
(15) Countrywide Pure Premium:	7.469	3.099	10.567
(16) Countrywide Indicated Relativity:	2.915	2.736	.
(17) Countrywide Credibility:	0.250	0.190	.
(18) Countrywide Lost-Time Claims:	88,000	.	.
(19) Pure Premium Underlying Present Rate:	12.239	4.575	16.814
(20) Relativity to Underlying Present Rate:	4.460	3.413	.
(21) Credibility to Underlying Relativity:	0.250	0.190	.
(22) Industry Group Converted Pure Premium:	2.624	1.182	3.806
(23) Formula Relativity:	3.803	3.033	.
(24) Balanced Formula Relativity:	3.825	3.037	3.580

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## Calculation of Class Relativities

Class(es):		Effective: 7/1/2018							Construction		
5040 IRON OR STEEL: ERECTION: ERECTION-FRAME STRUCTURES											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2011	142,586	1	48	241,209	2,171,364	288,004	825,138	3,525,716	16,920	7,807	24,727
2012	142,332	3	37	994,229	1,600,149	289,075	403,732	3,287,186	18,228	4,868	23,095
2013	220,982	5	43	1,484,521	1,997,132	311,313	582,882	4,375,848	15,755	4,046	19,802
2014	282,222	5	63	1,728,150	2,096,501	682,563	868,682	5,375,897	13,552	5,497	19,048
2015	258,402	4	55	2,019,778	1,302,659	417,597	499,211	4,239,246	12,858	3,548	16,406
<b>MA Total:</b>	<b>1,046,524</b>	<b>18</b>	<b>246</b>	<b>6,467,889</b>	<b>9,167,806</b>	<b>1,988,553</b>	<b>3,179,646</b>	<b>20,803,893</b>	<b>14,941</b>	<b>4,938</b>	<b>19,879</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	5.694	4.177	.
(14) Massachusetts Credibility:	0.860	1.000	.
(15) Countrywide Pure Premium:	4.143	1.624	5.767
(16) Countrywide Indicated Relativity:	1.617	1.434	.
(17) Countrywide Credibility:	0.070	0.000	.
(18) Countrywide Lost-Time Claims:	895.00	.	.
(19) Pure Premium Underlying Present Rate:	18.074	6.576	24.650
(20) Relativity to Underlying Present Rate:	6.586	4.905	.
(21) Credibility to Underlying Relativity:	0.070	0.000	.
(22) Industry Group Converted Pure Premium:	2.624	1.182	3.806
(23) Formula Relativity:	5.471	4.177	.
(24) Balanced Formula Relativity:	5.503	4.182	5.092

Class(es):		Effective: 7/1/2018							Construction		
5057 IRON OR STEEL: ERECTION-NOC											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2011	8,755	0	0	0	0	0	0	0	0.000	0.000	0.000
2012	5,761	3	2	606,253	88,111	351,080	21,826	1,067,270	120.52	64,725	185,25
2013	7,100	0	4	0	27,000	0	10,500	37,500	3,803	1,479	5,282
2014	11,700	0	8	0	408,825	0	220,129	628,954	34,942	18,814	53,756
2015	20,211	0	2	0	122,755	0	124,083	246,838	6,074	6,139	12,213
<b>MA Total:</b>	<b>53,527</b>	<b>3</b>	<b>16</b>	<b>606,253</b>	<b>646,691</b>	<b>351,080</b>	<b>376,538</b>	<b>1,980,562</b>	<b>23,408</b>	<b>13,593</b>	<b>37,001</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	8.921	11.497	.
(14) Massachusetts Credibility:	0.230	0.310	.
(15) Countrywide Pure Premium:	2.096	0.866	2.962
(16) Countrywide Indicated Relativity:	0.818	0.765	.
(17) Countrywide Credibility:	0.390	0.350	.
(18) Countrywide Lost-Time Claims:	864.00	.	.
(19) Pure Premium Underlying Present Rate:	13.258	6.060	19.317
(20) Relativity to Underlying Present Rate:	4.831	4.520	.
(21) Credibility to Underlying Relativity:	0.380	0.340	.
(22) Industry Group Converted Pure Premium:	2.624	1.182	3.806
(23) Formula Relativity:	4.207	5.369	.
(24) Balanced Formula Relativity:	4.231	5.376	4.586

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## Calculation of Class Relativities

Class(es):		Effective: 7/1/2018							Construction		
5059 IRON OR STEEL: ERECTION: FRAME STRUCT NOT OVER 2 STRS IN HGT											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2011	73,350	1	20	103,452	119,523	47,501	57,155	327,631	3,040	1,427	4,467
2012	66,671	1	13	10,635	297,567	232,429	149,001	689,632	4,623	5,721	10,344
2013	65,252	0	9	0	928,075	0	380,603	1,308,677	14,223	5,833	20,056
2014	67,619	1	15	425,736	139,313	87,827	78,733	731,610	8,356	2,463	10,820
2015	103,546	4	13	1,406,247	775,759	506,118	554,121	3,242,245	21,073	10,239	31,312
<b>MA Total:</b>	<b>376,438</b>	<b>7</b>	<b>70</b>	<b>1,946,070</b>	<b>2,260,237</b>	<b>873,875</b>	<b>1,219,613</b>	<b>6,299,795</b>	<b>11,174</b>	<b>5,561</b>	<b>16,735</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	4.259	4.704	.
(14) Massachusetts Credibility:	0.370	0.500	.
(15) Countrywide Pure Premium:	9.146	4.458	13.604
(16) Countrywide Indicated Relativity:	3.570	3.937	.
(17) Countrywide Credibility:	0.320	0.250	.
(18) Countrywide Lost-Time Claims:	382.00	.	.
(19) Pure Premium Underlying Present Rate:	5.874	2.766	8.640
(20) Relativity to Underlying Present Rate:	2.141	2.063	.
(21) Credibility to Underlying Relativity:	0.310	0.250	.
(22) Industry Group Converted Pure Premium:	2.624	1.182	3.806
(23) Formula Relativity:	3.382	3.852	.
(24) Balanced Formula Relativity:	3.401	3.857	3.543

Class(es):		Effective: 7/1/2018							Construction		
5102 DOOR, DOOR FRAME OR SASH ERECTION - METAL OR METAL COVERED											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2011	442,066	2	60	277,554	1,314,134	208,235	555,086	2,355,009	3,601	1,727	5,327
2012	488,087	8	52	1,139,784	161,660	132,762	106,456	1,540,662	2,666	0,490	3,157
2013	534,699	6	59	839,742	1,420,398	176,823	455,254	2,892,218	4,227	1,182	5,409
2014	688,790	6	67	953,379	2,125,122	259,981	773,189	4,111,672	4,469	1,500	5,969
2015	765,350	4	93	853,569	2,568,628	216,898	753,955	4,393,049	4,471	1,269	5,740
<b>MA Total:</b>	<b>2,918,992</b>	<b>26</b>	<b>331</b>	<b>4,064,028</b>	<b>7,589,943</b>	<b>994,699</b>	<b>2,643,940</b>	<b>15,292,610</b>	<b>3,992</b>	<b>1,247</b>	<b>5,239</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	1.522	1.054	.
(14) Massachusetts Credibility:	0.660	0.820	.
(15) Countrywide Pure Premium:	2.933	1.287	4.219
(16) Countrywide Indicated Relativity:	1.145	1.136	.
(17) Countrywide Credibility:	0.170	0.090	.
(18) Countrywide Lost-Time Claims:	1681.0	.	.
(19) Pure Premium Underlying Present Rate:	3.275	1.267	4.542
(20) Relativity to Underlying Present Rate:	1.193	0.945	.
(21) Credibility to Underlying Relativity:	0.170	0.090	.
(22) Industry Group Converted Pure Premium:	2.624	1.182	3.806
(23) Formula Relativity:	1.402	1.052	.
(24) Balanced Formula Relativity:	1.410	1.053	1.299

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## Calculation of Class Relativities

Class(es):		Effective: 7/1/2018							Construction		
5146 FURNITURE OR FIXTURES INSTALLATION - PORTABLE - NOC											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2011	580.883	8	116	801.579	2,611.853	484.468	1,005.889	4,903.789	5.876	2.566	8.442
2012	657.968	7	115	1,096.527	1,438.819	280.615	685.069	3,501.031	3.853	1.468	5.321
2013	564.860	10	93	1,737.461	625.544	387.297	433.595	3,183.897	4.183	1.453	5.637
2014	611.742	6	110	1,499.382	1,253.350	307.050	598.597	3,658.379	4.500	1.480	5.980
2015	690.640	4	81	441.049	1,763.679	108.786	830.855	3,144.369	3.192	1.361	4.553
<b>MA Total:</b>	<b>3,106.094</b>	<b>35</b>	<b>515</b>	<b>5,575.998</b>	<b>7,693.245</b>	<b>1,568.216</b>	<b>3,554.006</b>	<b>18,391.464</b>	<b>4.272</b>	<b>1.649</b>	<b>5.921</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	1.628	1.395	.
(14) Massachusetts Credibility:	0.700	0.990	.
(15) Countrywide Pure Premium:	2.451	0.984	3.435
(16) Countrywide Indicated Relativity:	0.957	0.869	.
(17) Countrywide Credibility:	0.150	0.010	.
(18) Countrywide Lost-Time Claims:	1735.0	.	.
(19) Pure Premium Underlying Present Rate:	3.608	1.887	5.495
(20) Relativity to Underlying Present Rate:	1.315	1.408	.
(21) Credibility to Underlying Relativity:	0.150	0.000	.
(22) Industry Group Converted Pure Premium:	2.624	1.182	3.806
(23) Formula Relativity:	1.480	1.390	.
(24) Balanced Formula Relativity:	1.489	1.391	1.459

Class(es):		Effective: 7/1/2018							Construction		
5160 ELEVATOR ERECTION OR REPAIR											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2011	635.473	1	37	510.807	37.176	69.834	117.169	734.985	0.862	0.294	1.157
2012	720.638	6	40	1,553.685	431.130	533.823	171.804	2,690.442	2.754	0.979	3.733
2013	735.826	0	29	0	740.575	0	227.420	967.995	1.006	0.309	1.316
2014	859.239	4	34	406.096	575.644	298.313	353.717	1,633.771	1.143	0.759	1.901
2015	901.871	6	47	1,091.763	942.759	378.865	560.204	2,973.591	2.256	1.041	3.297
<b>MA Total:</b>	<b>3,853.048</b>	<b>17</b>	<b>187</b>	<b>3,562.351</b>	<b>2,727.284</b>	<b>1,280.835</b>	<b>1,430.314</b>	<b>9,000.785</b>	<b>1.632</b>	<b>0.704</b>	<b>2.336</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.622	0.595	.
(14) Massachusetts Credibility:	0.570	0.690	.
(15) Countrywide Pure Premium:	1.307	0.470	1.777
(16) Countrywide Indicated Relativity:	0.510	0.415	.
(17) Countrywide Credibility:	0.220	0.160	.
(18) Countrywide Lost-Time Claims:	509.00	.	.
(19) Pure Premium Underlying Present Rate:	1.699	0.616	2.315
(20) Relativity to Underlying Present Rate:	0.619	0.459	.
(21) Credibility to Underlying Relativity:	0.210	0.150	.
(22) Industry Group Converted Pure Premium:	2.624	1.182	3.806
(23) Formula Relativity:	0.597	0.546	.
(24) Balanced Formula Relativity:	0.600	0.547	0.584

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## Calculation of Class Relativities

Class(es):		Effective: 7/1/2018							Construction			
5183 PLUMBING NOC & DRIVERS												
		Converted Unlimited Losses										
		Amount										
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums				
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)	
2011	5,302,613	24	606	2,564,657	4,564,285	594,709	2,576,486	10,300,137	1,344	0,598	1,942	
2012	5,774,564	23	612	3,447,057	5,193,898	1,253,491	2,901,281	12,795,727	1,496	0,719	2,216	
2013	6,237,829	32	633	5,777,846	5,172,414	1,771,580	2,934,409	15,656,250	1,755	0,754	2,510	
2014	6,791,198	23	609	3,571,750	8,400,008	937,879	3,119,794	16,029,431	1,763	0,597	2,360	
2015	7,475,422	30	611	5,037,510	8,480,950	2,437,744	3,616,699	19,572,903	1,808	0,810	2,618	
<b>MA Total:</b>	<b>31,581,627</b>	<b>132</b>	<b>3,071</b>	<b>20,398,821</b>	<b>31,811,555</b>	<b>6,995,404</b>	<b>15,148,669</b>	<b>74,354,449</b>	<b>1,653</b>	<b>0,701</b>	<b>2,354</b>	

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.630	0.593	.
(14) Massachusetts Credibility:	1.000	1.000	.
(15) Countrywide Pure Premium:	1.685	0.656	2.341
(16) Countrywide Indicated Relativity:	0.658	0.579	.
(17) Countrywide Credibility:	0.000	0.000	.
(18) Countrywide Lost-Time Claims:	10755	.	.
(19) Pure Premium Underlying Present Rate:	1.784	0.773	2.557
(20) Relativity to Underlying Present Rate:	0.650	0.577	.
(21) Credibility to Underlying Relativity:	0.000	0.000	.
(22) Industry Group Converted Pure Premium:	2.624	1.182	3.806
(23) Formula Relativity:	0.630	0.593	.
(24) Balanced Formula Relativity:	0.634	0.594	0.621

Class(es):		Effective: 7/1/2018							Construction			
5188 AUTOMATIC SPRINKLER INSTALLATION & DRIVERS												
		Converted Unlimited Losses										
		Amount										
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums				
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)	
2011	647,041	2	71	53,067	599,747	50,458	190,769	894,041	1,009	0,373	1,382	
2012	713,987	8	72	1,246,190	920,873	533,698	574,492	3,275,253	3,035	1,552	4,587	
2013	805,354	4	70	774,960	1,239,595	193,640	390,340	2,598,535	2,501	0,725	3,227	
2014	877,868	7	66	1,904,575	1,177,442	882,010	377,200	4,341,226	3,511	1,434	4,945	
2015	927,756	6	68	1,171,969	1,249,386	301,464	404,092	3,126,911	2,610	0,760	3,370	
<b>MA Total:</b>	<b>3,972,007</b>	<b>27</b>	<b>347</b>	<b>5,150,760</b>	<b>5,187,043</b>	<b>1,961,270</b>	<b>1,936,893</b>	<b>14,235,966</b>	<b>2,603</b>	<b>0,981</b>	<b>3,584</b>	

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.992	0.830	.
(14) Massachusetts Credibility:	0.690	0.890	.
(15) Countrywide Pure Premium:	1.960	0.694	2.654
(16) Countrywide Indicated Relativity:	0.765	0.613	.
(17) Countrywide Credibility:	0.160	0.060	.
(18) Countrywide Lost-Time Claims:	1036.0	.	.
(19) Pure Premium Underlying Present Rate:	2.736	1.130	3.867
(20) Relativity to Underlying Present Rate:	0.997	0.843	.
(21) Credibility to Underlying Relativity:	0.150	0.050	.
(22) Industry Group Converted Pure Premium:	2.624	1.182	3.806
(23) Formula Relativity:	0.956	0.818	.
(24) Balanced Formula Relativity:	0.962	0.819	0.917

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## Calculation of Class Relativities

Class(es):		Effective: 7/1/2018							Construction		
5190 ELECTRICAL WIRING - WITHIN BUILDINGS & DRIVERS											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2011	5,958,210	16	577	1,861,592	5,050,194	1,029,020	2,782,545	10,723,351	1,160	0,640	1,800
2012	6,443,411	30	528	3,985,734	3,849,706	1,143,070	2,207,327	11,185,837	1,216	0,520	1,736
2013	6,951,294	18	594	1,534,945	5,464,066	882,804	3,022,633	10,904,448	1,007	0,562	1,569
2014	8,115,269	21	639	2,424,755	6,896,723	1,891,103	3,805,875	15,018,456	1,149	0,702	1,851
2015	8,564,677	18	610	3,211,332	7,082,567	878,481	3,830,588	15,002,968	1,202	0,550	1,752
<b>MA Total:</b>	<b>36,032,862</b>	<b>103</b>	<b>2,948</b>	<b>13,018,357</b>	<b>28,343,256</b>	<b>5,824,478</b>	<b>15,648,968</b>	<b>62,835,060</b>	<b>1,148</b>	<b>0,596</b>	<b>1,744</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.437	0.504	.
(14) Massachusetts Credibility:	1.000	1.000	.
(15) Countrywide Pure Premium:	1.449	0.619	2.068
(16) Countrywide Indicated Relativity:	0.566	0.547	.
(17) Countrywide Credibility:	0.000	0.000	.
(18) Countrywide Lost-Time Claims:	10633	.	.
(19) Pure Premium Underlying Present Rate:	1.272	0.660	1.933
(20) Relativity to Underlying Present Rate:	0.464	0.492	.
(21) Credibility to Underlying Relativity:	0.000	0.000	.
(22) Industry Group Converted Pure Premium:	2.624	1.182	3.806
(23) Formula Relativity:	0.437	0.504	.
(24) Balanced Formula Relativity:	0.440	0.505	0.460

Class(es):		Effective: 7/1/2018							Goods and Services		
5191 OFFICE MACHICE OR APPLIANCE INSTALL, INSP, ADJSTMT OR REPAIR											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period (1)	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2011	3,845,403	8	134	1,128,179	683,102	474,669	354,661	2,640,612	0,471	0,216	0,687
2012	3,636,802	8	156	697,125	235,315	408,510	287,631	1,628,580	0,256	0,191	0,448
2013	4,369,368	6	133	1,138,280	1,314,931	273,360	607,561	3,334,132	0,561	0,202	0,763
2014	4,654,885	7	156	764,474	814,109	225,505	607,342	2,411,430	0,339	0,179	0,518
2015	4,360,581	4	172	676,920	1,224,571	160,922	937,213	2,999,626	0,436	0,252	0,688
<b>MA Total:</b>	<b>20,867,039</b>	<b>33</b>	<b>751</b>	<b>4,404,979</b>	<b>4,272,028</b>	<b>1,542,967</b>	<b>2,794,407</b>	<b>13,014,381</b>	<b>0,416</b>	<b>0,208</b>	<b>0,624</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.497	0.436	.
(14) Massachusetts Credibility:	0.650	0.970	.
(15) Countrywide Pure Premium:	0.424	0.190	0.614
(16) Countrywide Indicated Relativity:	0.507	0.398	.
(17) Countrywide Credibility:	0.180	0.020	.
(18) Countrywide Lost-Time Claims:	3860.0	.	.
(19) Pure Premium Underlying Present Rate:	0.438	0.267	0.706
(20) Relativity to Underlying Present Rate:	0.529	0.525	.
(21) Credibility to Underlying Relativity:	0.170	0.010	.
(22) Industry Group Converted Pure Premium:	0.837	0.476	1.314
(23) Formula Relativity:	0.504	0.436	.
(24) Balanced Formula Relativity:	0.501	0.436	0.477



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## Calculation of Class Relativities

Class(es):		Effective: 7/1/2018							Goods and Services			
5192 VENDING OR COIN OPERTD MACHINES-INSTALL, SRVC OR RPR &SALES, DR												
Converted Unlimited Losses												
Amount												
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums				
Policy Period (1)	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)	
2011	318,658	4	70	205,760	240,760	330,116	136,761	913,397	1,401	1,465	2,866	
2012	295,012	3	52	196,487	52,730	47,363	45,621	342,201	0,845	0,315	1,160	
2013	307,852	1	50	7,010	247,910	16,735	110,556	382,211	0,828	0,413	1,242	
2014	376,378	4	50	607,963	776,706	197,437	258,680	1,840,785	3,679	1,212	4,891	
2015	391,274	0	42	0	292,982	0	259,373	552,355	0,749	0,663	1,412	
<b>MA Total:</b>	<b>1,689,174</b>	<b>12</b>	<b>264</b>	<b>1,017,220</b>	<b>1,611,088</b>	<b>591,650</b>	<b>810,991</b>	<b>4,030,950</b>	<b>1,556</b>	<b>0,830</b>	<b>2,386</b>	

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	1.858	1.743	.
(14) Massachusetts Credibility:	0.380	0.560	.
(15) Countrywide Pure Premium:	1.390	0.681	2.071
(16) Countrywide Indicated Relativity:	1.664	1.424	.
(17) Countrywide Credibility:	0.310	0.220	.
(18) Countrywide Lost-Time Claims:	1666.0	.	.
(19) Pure Premium Underlying Present Rate:	1.468	0.830	2.298
(20) Relativity to Underlying Present Rate:	1.771	1.628	.
(21) Credibility to Underlying Relativity:	0.310	0.220	.
(22) Industry Group Converted Pure Premium:	0.837	0.476	1.314
(23) Formula Relativity:	1.771	1.647	.
(24) Balanced Formula Relativity:	1.759	1.647	1.718

Class(es):		Effective: 7/1/2018							Construction			
5213 CONCRETE CONSTRUCTION-NOC												
Converted Unlimited Losses												
Amount												
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums				
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)	
2011	412,428	7	143	1,096,621	1,092,493	452,331	501,514	3,142,958	5,308	2,313	7,621	
2012	439,076	9	131	1,996,924	2,355,725	384,503	819,655	5,556,807	9,913	2,742	12,656	
2013	475,058	8	120	1,278,849	2,015,551	237,858	1,049,124	4,581,382	6,935	2,709	9,644	
2014	543,252	7	136	2,440,518	3,288,964	937,417	1,127,900	7,794,799	10,547	3,802	14,348	
2015	620,402	5	97	888,378	1,475,297	234,770	805,849	3,404,293	3,810	1,677	5,487	
<b>MA Total:</b>	<b>2,490,216</b>	<b>36</b>	<b>627</b>	<b>7,701,290</b>	<b>10,228,031</b>	<b>2,246,878</b>	<b>4,304,041</b>	<b>24,480,239</b>	<b>7,200</b>	<b>2,631</b>	<b>9,831</b>	

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	2.744	2.225	.
(14) Massachusetts Credibility:	0.880	1.000	.
(15) Countrywide Pure Premium:	3.295	1.360	4.655
(16) Countrywide Indicated Relativity:	1.286	1.201	.
(17) Countrywide Credibility:	0.060	0.000	.
(18) Countrywide Lost-Time Claims:	4503.0	.	.
(19) Pure Premium Underlying Present Rate:	7.907	3.547	11.455
(20) Relativity to Underlying Present Rate:	2.881	2.646	.
(21) Credibility to Underlying Relativity:	0.060	0.000	.
(22) Industry Group Converted Pure Premium:	2.624	1.182	3.806
(23) Formula Relativity:	2.665	2.225	.
(24) Balanced Formula Relativity:	2.680	2.228	2.540

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## Calculation of Class Relativities

Class(es):		Effective: 7/1/2018							Construction		
5215 CONCRETE WORK - INCIDENTAL TO CONSTRUCTION OF PRIVATE RES											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2011	240.434	1	24	178.044	663.795	11.453	197.190	1,050.482	3.501	0.868	4.369
2012	255.803	2	32	91.757	327.974	13.987	163.892	597.611	1.641	0.695	2.336
2013	281.377	1	28	136.746	469.941	12.476	240.178	859.341	2.156	0.898	3.054
2014	265.067	1	26	121.662	438.697	14.813	198.114	773.286	2.114	0.803	2.917
2015	318.542	1	19	17.860	374.484	7.836	80.434	480.614	1.232	0.277	1.509
<b>MA Total:</b>	<b>1,361,223</b>	<b>6</b>	<b>129</b>	<b>546,070</b>	<b>2,274,891</b>	<b>60,565</b>	<b>879,808</b>	<b>3,761,333</b>	<b>2,072</b>	<b>0,691</b>	<b>2,763</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.790	0.584	.
(14) Massachusetts Credibility:	0.460	0.620	.
(15) Countrywide Pure Premium:	3.157	1.351	4.509
(16) Countrywide Indicated Relativity:	1.232	1.193	.
(17) Countrywide Credibility:	0.270	0.190	.
(18) Countrywide Lost-Time Claims:	1540.0	.	.
(19) Pure Premium Underlying Present Rate:	2.825	1.359	4.184
(20) Relativity to Underlying Present Rate:	1.029	1.013	.
(21) Credibility to Underlying Relativity:	0.270	0.190	.
(22) Industry Group Converted Pure Premium:	2.624	1.182	3.806
(23) Formula Relativity:	0.974	0.782	.
(24) Balanced Formula Relativity:	0.980	0.783	0.918

Class(es):		Effective: 7/1/2018							Construction		
5221 CONCRETE OR CEMENT WORK-FLOORS DRIVEWAYS YRDS OR SIDEWALKS &DR											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2011	1,154.366	15	166	2,090.911	2,461.163	917.164	845.607	6,314.845	3.943	1.527	5.470
2012	1,202.598	8	157	1,482.546	2,940.476	773.923	1,137.442	6,334.387	3.678	1.589	5.267
2013	1,278.823	8	159	1,965.153	3,644.994	627.078	1,766.674	8,003.900	4.387	1.872	6.259
2014	1,523.870	18	165	4,035.237	4,863.095	1,089.599	1,403.093	11,391.023	5.839	1.636	7.475
2015	1,837.494	11	176	3,056.053	2,494.587	1,168.387	1,039.284	7,758.312	3.021	1.201	4.222
<b>MA Total:</b>	<b>6,997,150</b>	<b>60</b>	<b>823</b>	<b>12,629,899</b>	<b>16,404,315</b>	<b>4,576,151</b>	<b>6,192,101</b>	<b>39,802,466</b>	<b>4,149</b>	<b>1,539</b>	<b>5,688</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	1.581	1.302	.
(14) Massachusetts Credibility:	0.950	1.000	.
(15) Countrywide Pure Premium:	2.447	1.005	3.452
(16) Countrywide Indicated Relativity:	0.955	0.888	.
(17) Countrywide Credibility:	0.030	0.000	.
(18) Countrywide Lost-Time Claims:	7435.0	.	.
(19) Pure Premium Underlying Present Rate:	3.387	1.627	5.014
(20) Relativity to Underlying Present Rate:	1.234	1.213	.
(21) Credibility to Underlying Relativity:	0.020	0.000	.
(22) Industry Group Converted Pure Premium:	2.624	1.182	3.806
(23) Formula Relativity:	1.556	1.302	.
(24) Balanced Formula Relativity:	1.565	1.303	1.483

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## Calculation of Class Relativities

Class(es):		Effective: 7/1/2018							Construction		
5222 CONCRETE CONSTRUCTION IN CONNECTION WITH BRIDGES OR CULVERTS											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2011	330,861	6	60	667,478	1,573,755	161,264	634,245	3,036,742	6,774	2,404	9,178
2012	295,763	1	49	6,657	1,802,050	462	547,410	2,356,579	6,115	1,852	7,968
2013	241,376	2	31	766,061	831,313	294,081	316,702	2,208,157	6,618	2,530	9,148
2014	257,758	3	29	187,268	569,789	42,751	137,454	937,262	2,937	0,699	3,636
2015	325,326	4	54	756,581	585,290	127,696	210,151	1,679,717	4,125	1,038	5,163
<b>MA Total:</b>	<b>1,451,083</b>	<b>16</b>	<b>223</b>	<b>2,384,045</b>	<b>5,362,195</b>	<b>626,254</b>	<b>1,845,962</b>	<b>10,218,457</b>	<b>5,338</b>	<b>1,704</b>	<b>7,042</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	2.035	1.441	.
(14) Massachusetts Credibility:	0.620	0.830	.
(15) Countrywide Pure Premium:	4.149	1.578	5.728
(16) Countrywide Indicated Relativity:	1.620	1.394	.
(17) Countrywide Credibility:	0.190	0.090	.
(18) Countrywide Lost-Time Claims:	1102.0	.	.
(19) Pure Premium Underlying Present Rate:	5.732	2.561	8.294
(20) Relativity to Underlying Present Rate:	2.089	1.911	.
(21) Credibility to Underlying Relativity:	0.190	0.080	.
(22) Industry Group Converted Pure Premium:	2.624	1.182	3.806
(23) Formula Relativity:	1.966	1.474	.
(24) Balanced Formula Relativity:	1.977	1.476	1.822

Class(es):		Effective: 7/1/2018							Construction		
5223 SWIMMING POOL CONSTRUCTN-NOT IRON OR STEEL &DR											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2011	169,161	0	23	0	60,829	0	55,444	116,273	0,360	0,328	0,687
2012	175,421	1	34	163,859	208,540	76,725	104,204	553,328	2,123	1,031	3,154
2013	183,083	0	27	0	143,975	0	232,584	376,559	0,786	1,270	2,057
2014	199,238	1	22	447,510	167,068	72,942	147,476	834,996	3,085	1,106	4,191
2015	219,098	1	41	191,428	346,767	81,889	263,252	883,336	2,456	1,575	4,032
<b>MA Total:</b>	<b>946,001</b>	<b>3</b>	<b>147</b>	<b>802,798</b>	<b>927,179</b>	<b>231,555</b>	<b>802,960</b>	<b>2,764,493</b>	<b>1,829</b>	<b>1,094</b>	<b>2,922</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.697	0.925	.
(14) Massachusetts Credibility:	0.350	0.490	.
(15) Countrywide Pure Premium:	2.805	1.326	4.130
(16) Countrywide Indicated Relativity:	1.095	1.171	.
(17) Countrywide Credibility:	0.330	0.260	.
(18) Countrywide Lost-Time Claims:	656.00	.	.
(19) Pure Premium Underlying Present Rate:	2.123	1.061	3.183
(20) Relativity to Underlying Present Rate:	0.774	0.791	.
(21) Credibility to Underlying Relativity:	0.320	0.250	.
(22) Industry Group Converted Pure Premium:	2.624	1.182	3.806
(23) Formula Relativity:	0.853	0.955	.
(24) Balanced Formula Relativity:	0.858	0.957	0.888

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## Calculation of Class Relativities

Class(es):		Effective: 7/1/2018							Construction		
5348 STONE, MOSAIC, TERRAZZO OR CERAMIC TILE WORK - INSIDE											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2011	429,401	4	45	188,127	834,065	88,914	308,424	1,419,530	2,381	0,925	3,306
2012	521,891	6	38	459,452	423,242	51,010	194,639	1,128,343	1,691	0,471	2,162
2013	578,176	4	49	1,004,617	347,815	301,601	213,156	1,867,188	2,339	0,890	3,229
2014	731,119	6	66	904,495	984,642	348,710	335,881	2,573,729	2,584	0,936	3,520
2015	751,838	6	66	900,943	1,461,354	144,627	462,157	2,969,080	3,142	0,807	3,949
<b>MA Total:</b>	<b>3,012,425</b>	<b>26</b>	<b>264</b>	<b>3,457,633</b>	<b>4,051,118</b>	<b>934,862</b>	<b>1,514,256</b>	<b>9,957,869</b>	<b>2,493</b>	<b>0,813</b>	<b>3,306</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.950	0.688	.
(14) Massachusetts Credibility:	0.620	0.760	.
(15) Countrywide Pure Premium:	2.342	0.877	3.219
(16) Countrywide Indicated Relativity:	0.914	0.775	.
(17) Countrywide Credibility:	0.190	0.120	.
(18) Countrywide Lost-Time Claims:	1619.0	.	.
(19) Pure Premium Underlying Present Rate:	2.769	0.996	3.765
(20) Relativity to Underlying Present Rate:	1.009	0.743	.
(21) Credibility to Underlying Relativity:	0.190	0.120	.
(22) Industry Group Converted Pure Premium:	2.624	1.182	3.806
(23) Formula Relativity:	0.954	0.705	.
(24) Balanced Formula Relativity:	0.960	0.706	0.881

Class(es):		Effective: 7/1/2018							Construction		
5402 HOTHOUSE ERECTION - ALL OPERATIONS											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2011	3,467	0	2	0	762	0	4,892	5,654	0,220	1,411	1,631
2012	2,464	0	2	0	1,744	0	2,151	3,895	0,708	0,873	1,580
2013	5,485	0	1	0	0	0	2,803	2,803	0,000	0,511	0,511
2014	2,571	0	0	0	0	0	0	0	0,000	0,000	0,000
2015	4,016	0	2	0	0	0	3,910	3,910	0,000	0,974	0,974
<b>MA Total:</b>	<b>18,002</b>	<b>0</b>	<b>7</b>	<b>0</b>	<b>2,506</b>	<b>0</b>	<b>13,756</b>	<b>16,262</b>	<b>0,139</b>	<b>0,764</b>	<b>0,903</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.053	0.646	.
(14) Massachusetts Credibility:	0.090	0.130	.
(15) Countrywide Pure Premium:	1.073	0.860	1.933
(16) Countrywide Indicated Relativity:	0.419	0.760	.
(17) Countrywide Credibility:	0.190	0.200	.
(18) Countrywide Lost-Time Claims:	19,000	.	.
(19) Pure Premium Underlying Present Rate:	3.692	2.201	5.893
(20) Relativity to Underlying Present Rate:	1.345	1.642	.
(21) Credibility to Underlying Relativity:	0.720	0.670	.
(22) Industry Group Converted Pure Premium:	2.624	1.182	3.806
(23) Formula Relativity:	1.053	1.336	.
(24) Balanced Formula Relativity:	1.059	1.338	1.146

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## Calculation of Class Relativities

Class(es): 5403 CARPENTRY NOC		Effective: 7/1/2018							Construction		
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2011	961.333	8	197	1,649,673	3,429,877	478,649	1,634,501	7,192,701	5,284	2,198	7,482
2012	1,087,884	14	165	2,962,940	3,780,112	884,614	1,450,501	9,078,167	6,198	2,146	8,345
2013	1,340,770	13	201	1,864,410	4,152,305	436,585	1,822,032	8,275,333	4,488	1,685	6,172
2014	1,566,145	20	222	2,376,835	4,167,192	611,457	1,866,079	9,021,564	4,178	1,582	5,760
2015	1,781,748	12	226	1,308,846	4,286,685	298,794	1,929,870	7,824,195	3,140	1,251	4,391
<b>MA Total:</b>	<b>6,737,880</b>	<b>67</b>	<b>1,011</b>	<b>10,162,704</b>	<b>19,816,172</b>	<b>2,710,099</b>	<b>8,702,985</b>	<b>41,391,959</b>	<b>4,449</b>	<b>1,694</b>	<b>6,143</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	1.696	1.433	.
(14) Massachusetts Credibility:	1.000	1.000	.
(15) Countrywide Pure Premium:	3.364	1.541	4.904
(16) Countrywide Indicated Relativity:	1.313	1.361	.
(17) Countrywide Credibility:	0.000	0.000	.
(18) Countrywide Lost-Time Claims:	6974.0	.	.
(19) Pure Premium Underlying Present Rate:	5.768	2.386	8.153
(20) Relativity to Underlying Present Rate:	2.102	1.780	.
(21) Credibility to Underlying Relativity:	0.000	0.000	.
(22) Industry Group Converted Pure Premium:	2.624	1.182	3.806
(23) Formula Relativity:	1.696	1.433	.
(24) Balanced Formula Relativity:	1.705	1.435	1.621

Class(es): 5437 CARPENTRY-INSTALL OF CABINET WORK OR INT TRIM		Effective: 7/1/2018							Construction		
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2011	2,067,851	10	261	980,747	2,282,683	392,045	1,056,641	4,712,117	1,578	0,701	2,279
2012	2,269,587	12	249	2,432,427	3,678,795	718,844	1,712,032	8,542,098	2,693	1,071	3,764
2013	2,413,903	20	246	1,812,830	4,449,029	1,023,375	2,212,152	9,497,386	2,594	1,340	3,934
2014	2,592,365	14	241	2,132,093	4,830,282	481,540	2,008,218	9,452,132	2,686	0,960	3,646
2015	2,827,388	10	229	3,055,307	5,602,940	506,542	2,564,801	11,729,590	3,062	1,086	4,149
<b>MA Total:</b>	<b>12,171,094</b>	<b>66</b>	<b>1,226</b>	<b>10,413,405</b>	<b>20,843,729</b>	<b>3,122,346</b>	<b>9,553,844</b>	<b>43,933,323</b>	<b>2,568</b>	<b>1,041</b>	<b>3,610</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.979	0.881	.
(14) Massachusetts Credibility:	1.000	1.000	.
(15) Countrywide Pure Premium:	2.935	1.266	4.201
(16) Countrywide Indicated Relativity:	1.146	1.118	.
(17) Countrywide Credibility:	0.000	0.000	.
(18) Countrywide Lost-Time Claims:	4410.0	.	.
(19) Pure Premium Underlying Present Rate:	2.706	1.382	4.088
(20) Relativity to Underlying Present Rate:	0.986	1.031	.
(21) Credibility to Underlying Relativity:	0.000	0.000	.
(22) Industry Group Converted Pure Premium:	2.624	1.182	3.806
(23) Formula Relativity:	0.979	0.881	.
(24) Balanced Formula Relativity:	0.984	0.882	0.953

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## Calculation of Class Relativities

Class(es):		Effective: 7/1/2018							Construction		
5443 LATHING & DRIVERS											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2011	132	0	0	0	0	0	0	0	0.000	0.000	0.000
2012	718	0	0	0	0	0	0	0	0.000	0.000	0.000
2013	1,223	0	0	0	0	0	0	0	0.000	0.000	0.000
2014	977	0	0	0	0	0	0	0	0.000	0.000	0.000
2015	431	0	0	0	0	0	0	0	0.000	0.000	0.000
<b>MA Total:</b>	<b>3,480</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0.000</b>	<b>0.000</b>	<b>0.000</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.000	0.000	.
(14) Massachusetts Credibility:	0.040	0.050	.
(15) Countrywide Pure Premium:	1.755	0.841	2.596
(16) Countrywide Indicated Relativity:	0.685	0.743	.
(17) Countrywide Credibility:	0.370	0.390	.
(18) Countrywide Lost-Time Claims:	97.000	.	.
(19) Pure Premium Underlying Present Rate:	1.961	0.991	2.952
(20) Relativity to Underlying Present Rate:	0.715	0.739	.
(21) Credibility to Underlying Relativity:	0.590	0.560	.
(22) Industry Group Converted Pure Premium:	2.624	1.182	3.806
(23) Formula Relativity:	0.675	0.704	.
(24) Balanced Formula Relativity:	0.679	0.705	0.687

Class(es):		Effective: 7/1/2018							Construction		
5445 WALLBOARD INSTALLATION WITHIN BUILDINGS & DR											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2011	1,398,164	6	151	1,410,473	3,858,864	406,855	1,351,838	7,028,030	3,769	1,258	5,027
2012	1,860,075	14	185	2,644,572	4,367,004	1,042,164	1,355,321	9,409,062	3,770	1,289	5,058
2013	1,928,802	8	197	2,077,943	5,143,288	290,476	2,295,093	9,806,800	3,744	1,341	5,084
2014	2,479,771	14	227	2,985,396	6,219,564	723,780	2,443,573	12,372,313	3,712	1,277	4,989
2015	2,273,856	11	152	2,841,259	4,308,813	1,086,408	1,766,189	10,002,668	3,144	1,255	4,399
<b>MA Total:</b>	<b>9,940,667</b>	<b>53</b>	<b>912</b>	<b>11,959,643</b>	<b>23,897,534</b>	<b>3,549,684</b>	<b>9,212,013</b>	<b>48,618,874</b>	<b>3,607</b>	<b>1,284</b>	<b>4,891</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	1.375	1.086	.
(14) Massachusetts Credibility:	1.000	1.000	.
(15) Countrywide Pure Premium:	3.305	1.313	4.618
(16) Countrywide Indicated Relativity:	1.290	1.160	.
(17) Countrywide Credibility:	0.000	0.000	.
(18) Countrywide Lost-Time Claims:	4322.0	.	.
(19) Pure Premium Underlying Present Rate:	3.759	1.358	5.118
(20) Relativity to Underlying Present Rate:	1.370	1.013	.
(21) Credibility to Underlying Relativity:	0.000	0.000	.
(22) Industry Group Converted Pure Premium:	2.624	1.182	3.806
(23) Formula Relativity:	1.375	1.086	.
(24) Balanced Formula Relativity:	1.383	1.087	1.291

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## Calculation of Class Relativities

Class(es):		Effective: 7/1/2018							Construction			
5462 GLAZIER-AWAY FROM SHOP & DRIVERS												
		Converted Unlimited Losses										
		Amount										
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums				
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)	
2011	393,443	5	77	963,679	567,646	170,797	426,211	2,128,333	3,892	1,517	5,410	
2012	494,577	9	82	1,817,449	656,277	441,932	425,940	3,341,599	5,002	1,755	6,756	
2013	489,969	6	71	1,286,415	1,003,409	313,536	359,008	2,962,368	4,673	1,373	6,046	
2014	625,998	1	80	170,285	1,020,874	24,871	421,160	1,637,190	1,903	0,713	2,615	
2015	647,821	6	88	477,113	1,398,334	214,976	659,303	2,749,726	2,895	1,350	4,245	
<b>MA Total:</b>	<b>2,651,808</b>	<b>27</b>	<b>398</b>	<b>4,714,942</b>	<b>4,646,539</b>	<b>1,166,112</b>	<b>2,291,621</b>	<b>12,819,215</b>	<b>3,530</b>	<b>1,304</b>	<b>4,834</b>	

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	1.345	1.103	.
(14) Massachusetts Credibility:	0.700	0.860	.
(15) Countrywide Pure Premium:	3.756	1.460	5.216
(16) Countrywide Indicated Relativity:	1.466	1.289	.
(17) Countrywide Credibility:	0.150	0.070	.
(18) Countrywide Lost-Time Claims:	1455.0	.	.
(19) Pure Premium Underlying Present Rate:	4.144	1.566	5.709
(20) Relativity to Underlying Present Rate:	1.510	1.168	.
(21) Credibility to Underlying Relativity:	0.150	0.070	.
(22) Industry Group Converted Pure Premium:	2.624	1.182	3.806
(23) Formula Relativity:	1.388	1.120	.
(24) Balanced Formula Relativity:	1.396	1.122	1.311

Class(es):		Effective: 7/1/2018							Construction			
5472 ASBESTOS REMOVAL OP: ASBESTOS CONTR-PIPE&BOILR WORK EXCL &DR												
		Converted Unlimited Losses										
		Amount										
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums				
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)	
2011	137,258	1	29	42,548	847,551	7,159	354,031	1,251,289	6,485	2,631	9,116	
2012	132,495	3	17	695,444	423,968	273,940	173,312	1,566,665	8,449	3,376	11,824	
2013	122,203	0	19	0	959,573	0	311,264	1,270,837	7,852	2,547	10,399	
2014	144,765	2	11	179,369	118,012	73,840	52,872	424,093	2,054	0,875	2,930	
2015	158,535	2	14	243,944	631,883	66,072	202,883	1,144,781	5,525	1,697	7,221	
<b>MA Total:</b>	<b>695,256</b>	<b>8</b>	<b>90</b>	<b>1,161,305</b>	<b>2,980,987</b>	<b>421,010</b>	<b>1,094,363</b>	<b>5,657,665</b>	<b>5,958</b>	<b>2,180</b>	<b>8,138</b>	

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	2.271	1.843	.
(14) Massachusetts Credibility:	0.440	0.550	.
(15) Countrywide Pure Premium:	4.138	1.394	5.532
(16) Countrywide Indicated Relativity:	1.615	1.231	.
(17) Countrywide Credibility:	0.280	0.230	.
(18) Countrywide Lost-Time Claims:	128.00	.	.
(19) Pure Premium Underlying Present Rate:	4.925	1.948	6.873
(20) Relativity to Underlying Present Rate:	1.794	1.453	.
(21) Credibility to Underlying Relativity:	0.280	0.220	.
(22) Industry Group Converted Pure Premium:	2.624	1.182	3.806
(23) Formula Relativity:	1.954	1.617	.
(24) Balanced Formula Relativity:	1.965	1.619	1.857

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## Calculation of Class Relativities

Class(es):		Effective: 7/1/2018							Construction			
5473 ASBESTOS REMOVAL OP: ASBESTOS CONTRCTR-NOC &DR												
		Converted Unlimited Losses										
		Amount										
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums				
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)	
2011	174,494	4	16	707,091	930,535	235,283	344,563	2,217,472	9,385	3,323	12,708	
2012	204,295	3	30	834,014	202,176	631,300	182,351	1,849,841	5,072	3,983	9,055	
2013	250,155	5	32	1,053,305	462,734	600,183	275,241	2,391,462	6,060	3,500	9,560	
2014	317,963	3	28	499,128	629,402	369,067	208,053	1,705,650	3,549	1,815	5,364	
2015	329,860	9	30	2,604,490	1,483,118	1,172,994	436,819	5,697,421	12,392	4,880	17,272	
<b>MA Total:</b>	<b>1,276,768</b>	<b>24</b>	<b>136</b>	<b>5,698,028</b>	<b>3,707,965</b>	<b>3,008,827</b>	<b>1,447,027</b>	<b>13,861,846</b>	<b>7,367</b>	<b>3,490</b>	<b>10,857</b>	

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	2.808	2.952	.
(14) Massachusetts Credibility:	0.560	0.790	.
(15) Countrywide Pure Premium:	4.151	1.886	6.037
(16) Countrywide Indicated Relativity:	1.620	1.665	.
(17) Countrywide Credibility:	0.220	0.110	.
(18) Countrywide Lost-Time Claims:	521.00	.	.
(19) Pure Premium Underlying Present Rate:	4.951	2.638	7.589
(20) Relativity to Underlying Present Rate:	1.804	1.968	.
(21) Credibility to Underlying Relativity:	0.220	0.100	.
(22) Industry Group Converted Pure Premium:	2.624	1.182	3.806
(23) Formula Relativity:	2.326	2.712	.
(24) Balanced Formula Relativity:	2.339	2.715	2.456

Class(es):		Effective: 7/1/2018							Construction			
5474 PAINTING OR PAPERHANGING NOC & SHOP OPERS, DR												
		Converted Unlimited Losses										
		Amount										
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums				
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)	
2011	2,531,347	22	190	2,991,457	5,001,399	1,279,290	2,711,073	11,983,218	3,158	1,576	4,734	
2012	2,605,341	19	155	3,278,918	2,285,540	1,572,562	1,397,292	8,534,311	2,136	1,140	3,276	
2013	2,890,957	16	171	1,546,707	4,027,247	804,505	1,947,102	8,325,561	1,928	0,952	2,880	
2014	3,215,007	17	162	2,148,460	4,519,350	971,962	2,387,145	10,026,915	2,074	1,045	3,119	
2015	3,776,295	15	191	2,341,726	6,097,617	1,226,491	2,816,318	12,482,151	2,235	1,071	3,305	
<b>MA Total:</b>	<b>15,018,946</b>	<b>89</b>	<b>869</b>	<b>12,307,267</b>	<b>21,931,152</b>	<b>5,854,808</b>	<b>11,258,929</b>	<b>51,352,157</b>	<b>2,280</b>	<b>1,139</b>	<b>3,419</b>	

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.869	0.964	.
(14) Massachusetts Credibility:	1.000	1.000	.
(15) Countrywide Pure Premium:	3.045	1.373	4.418
(16) Countrywide Indicated Relativity:	1.189	1.212	.
(17) Countrywide Credibility:	0.000	0.000	.
(18) Countrywide Lost-Time Claims:	5468.0	.	.
(19) Pure Premium Underlying Present Rate:	2.732	1.456	4.188
(20) Relativity to Underlying Present Rate:	0.996	1.086	.
(21) Credibility to Underlying Relativity:	0.000	0.000	.
(22) Industry Group Converted Pure Premium:	2.624	1.182	3.806
(23) Formula Relativity:	0.869	0.964	.
(24) Balanced Formula Relativity:	0.874	0.965	0.902



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## Calculation of Class Relativities

Class(es):		Effective: 7/1/2018							Construction			
5478 CARPET, LINOLEUM, VINYL, ASPHALT OR RUBBER FLOOR TILE INSTAL												
		Converted Unlimited Losses										
		Amount										
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums				
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)	
2011	568,020	7	70	1,377,292	1,260,597	411,519	445,718	3,495,126	4,644	1,509	6,153	
2012	597,835	4	48	596,663	458,415	118,285	121,000	1,294,362	1,765	0,400	2,165	
2013	675,220	3	53	227,054	714,114	158,755	261,745	1,361,668	1,394	0,623	2,017	
2014	713,615	6	58	875,965	882,191	378,853	393,930	2,530,939	2,464	1,083	3,547	
2015	814,457	3	52	672,486	1,020,591	115,287	360,043	2,168,408	2,079	0,584	2,662	
<b>MA Total:</b>	<b>3,369,147</b>	<b>23</b>	<b>281</b>	<b>3,749,460</b>	<b>4,335,908</b>	<b>1,182,699</b>	<b>1,582,435</b>	<b>10,850,502</b>	<b>2,400</b>	<b>0,821</b>	<b>3,221</b>	

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.915	0.694	.
(14) Massachusetts Credibility:	0.690	0.860	.
(15) Countrywide Pure Premium:	2.442	0.871	3.313
(16) Countrywide Indicated Relativity:	0.953	0.769	.
(17) Countrywide Credibility:	0.160	0.070	.
(18) Countrywide Lost-Time Claims:	1198.0	.	.
(19) Pure Premium Underlying Present Rate:	3.208	1.214	4.423
(20) Relativity to Underlying Present Rate:	1.169	0.906	.
(21) Credibility to Underlying Relativity:	0.150	0.070	.
(22) Industry Group Converted Pure Premium:	2.624	1.182	3.806
(23) Formula Relativity:	0.959	0.714	.
(24) Balanced Formula Relativity:	0.964	0.715	0.887

Class(es):		Effective: 7/1/2018							Construction			
5479 INSULATION WORK NOC & DRIVERS												
		Converted Unlimited Losses										
		Amount										
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums				
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)	
2011	358,437	4	75	649,503	1,112,728	259,636	439,164	2,461,031	4,916	1,950	6,866	
2012	389,341	6	100	513,059	966,456	186,914	638,968	2,305,397	3,800	2,121	5,921	
2013	394,048	3	83	190,773	1,822,286	45,044	708,008	2,766,111	5,109	1,911	7,020	
2014	487,723	5	102	799,370	1,198,363	325,748	447,274	2,770,754	4,096	1,585	5,681	
2015	550,581	1	88	277,983	1,396,575	30,805	631,217	2,336,581	3,041	1,202	4,244	
<b>MA Total:</b>	<b>2,180,130</b>	<b>19</b>	<b>448</b>	<b>2,430,688</b>	<b>6,496,408</b>	<b>848,147</b>	<b>2,864,630</b>	<b>12,639,873</b>	<b>4,095</b>	<b>1,703</b>	<b>5,798</b>	

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	1.561	1.440	.
(14) Massachusetts Credibility:	0.640	0.960	.
(15) Countrywide Pure Premium:	2.919	1.279	4.198
(16) Countrywide Indicated Relativity:	1.139	1.129	.
(17) Countrywide Credibility:	0.180	0.020	.
(18) Countrywide Lost-Time Claims:	1418.0	.	.
(19) Pure Premium Underlying Present Rate:	4.084	2.500	6.584
(20) Relativity to Underlying Present Rate:	1.488	1.865	.
(21) Credibility to Underlying Relativity:	0.180	0.020	.
(22) Industry Group Converted Pure Premium:	2.624	1.182	3.806
(23) Formula Relativity:	1.472	1.443	.
(24) Balanced Formula Relativity:	1.480	1.445	1.469

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## Calculation of Class Relativities

Class(es):		Effective: 7/1/2018							Construction			
5480 PLASTERING NOC & DRIVERS												
		Converted Unlimited Losses										
		Amount										
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums				
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)	
2011	313,780	1	20	26,269	188,226	13,942	133,091	361,527	0.684	0.469	1.152	
2012	348,559	0	20	0	241,307	0	123,342	364,649	0.692	0.354	1.046	
2013	391,333	2	23	374,421	473,543	152,378	270,875	1,271,218	2.167	1.082	3.248	
2014	418,393	2	17	355,280	44,568	68,544	47,366	515,759	0.956	0.277	1.233	
2015	475,742	0	28	0	1,794,721	0	714,880	2,509,601	3.772	1.503	5.275	
<b>MA Total:</b>	<b>1,947,806</b>	<b>5</b>	<b>108</b>	<b>755,971</b>	<b>2,742,365</b>	<b>234,864</b>	<b>1,289,555</b>	<b>5,022,754</b>	<b>1.796</b>	<b>0.783</b>	<b>2.579</b>	

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.685	0.662	.
(14) Massachusetts Credibility:	0.500	0.630	.
(15) Countrywide Pure Premium:	3.407	1.203	4.610
(16) Countrywide Indicated Relativity:	1.330	1.062	.
(17) Countrywide Credibility:	0.250	0.190	.
(18) Countrywide Lost-Time Claims:	141.00	.	.
(19) Pure Premium Underlying Present Rate:	2.454	0.988	3.442
(20) Relativity to Underlying Present Rate:	0.894	0.737	.
(21) Credibility to Underlying Relativity:	0.250	0.180	.
(22) Industry Group Converted Pure Premium:	2.624	1.182	3.806
(23) Formula Relativity:	0.898	0.751	.
(24) Balanced Formula Relativity:	0.903	0.752	0.857

Class(es):		Effective: 7/1/2018							Construction			
5506 STREET OR ROAD CONSTRUCTION: PAVING OR REPAVING & DRIVERS												
		Converted Unlimited Losses										
		Amount										
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums				
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)	
2011	485,651	7	61	1,533,955	1,357,537	1,065,231	482,359	4,439,082	5.954	3.187	9.140	
2012	536,923	6	56	528,150	549,058	131,494	319,949	1,528,651	2.006	0.841	2.847	
2013	507,855	0	38	0	143,668	0	188,716	332,384	0.283	0.372	0.654	
2014	604,601	5	47	1,033,733	714,013	149,590	542,397	2,439,732	2.891	1.145	4.035	
2015	648,460	2	37	828,483	930,175	135,437	419,168	2,313,263	2.712	0.855	3.567	
<b>MA Total:</b>	<b>2,783,489</b>	<b>20</b>	<b>239</b>	<b>3,924,320</b>	<b>3,694,452</b>	<b>1,481,752</b>	<b>1,952,587</b>	<b>11,053,111</b>	<b>2.737</b>	<b>1.234</b>	<b>3.971</b>	

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	1.043	1.044	.
(14) Massachusetts Credibility:	0.660	0.900	.
(15) Countrywide Pure Premium:	3.230	1.384	4.614
(16) Countrywide Indicated Relativity:	1.261	1.223	.
(17) Countrywide Credibility:	0.170	0.050	.
(18) Countrywide Lost-Time Claims:	4651.0	.	.
(19) Pure Premium Underlying Present Rate:	3.412	1.663	5.075
(20) Relativity to Underlying Present Rate:	1.243	1.240	.
(21) Credibility to Underlying Relativity:	0.170	0.050	.
(22) Industry Group Converted Pure Premium:	2.624	1.182	3.806
(23) Formula Relativity:	1.114	1.062	.
(24) Balanced Formula Relativity:	1.121	1.064	1.103

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## Calculation of Class Relativities

Class(es):		Effective: 7/1/2018							Construction		
5507 STREET OR ROAD CONSTRUCTION: SUB-SURFACE WORK & DRIVERS											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2011	254,930	4	22	718,059	99,303	319,378	54,626	1,191,366	3,206	1,467	4,673
2012	211,374	5	20	1,039,837	968,987	222,542	800,711	3,032,076	9,504	4,841	14,345
2013	203,031	0	19	0	285,984	0	81,738	367,722	1,409	0,403	1,811
2014	239,317	0	19	0	484,305	0	115,555	599,860	2,024	0,483	2,507
2015	350,440	0	24	0	510,853	0	249,094	759,947	1,458	0,711	2,169
<b>MA Total:</b>	<b>1,259,093</b>	<b>9</b>	<b>104</b>	<b>1,757,896</b>	<b>2,349,432</b>	<b>541,920</b>	<b>1,301,723</b>	<b>5,950,971</b>	<b>3,262</b>	<b>1,464</b>	<b>4,726</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	1.243	1.238	.
(14) Massachusetts Credibility:	0.490	0.720	.
(15) Countrywide Pure Premium:	2.280	0.882	3.162
(16) Countrywide Indicated Relativity:	0.890	0.779	.
(17) Countrywide Credibility:	0.260	0.140	.
(18) Countrywide Lost-Time Claims:	1380.0	.	.
(19) Pure Premium Underlying Present Rate:	3.594	2.064	5.658
(20) Relativity to Underlying Present Rate:	1.309	1.540	.
(21) Credibility to Underlying Relativity:	0.250	0.140	.
(22) Industry Group Converted Pure Premium:	2.624	1.182	3.806
(23) Formula Relativity:	1.168	1.216	.
(24) Balanced Formula Relativity:	1.175	1.218	1.188

Class(es):		Effective: 7/1/2018							Construction		
5509 STREET OR ROAD MAINTENANCE BY COUNTY OR MUNICIPAL EMP & DR											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2011	86,137	0	11	0	58,173	0	35,661	93,834	0,675	0,414	1,089
2012	48,277	2	13	273,773	122,271	243,443	124,540	764,027	8,204	7,622	15,826
2013	49,458	0	12	0	8,455	0	6,863	15,318	0,171	0,139	0,310
2014	62,924	0	8	0	12,259	0	16,366	28,625	0,195	0,260	0,455
2015	62,088	0	18	0	182,779	0	172,123	354,902	2,944	2,772	5,716
<b>MA Total:</b>	<b>308,885</b>	<b>2</b>	<b>62</b>	<b>273,773</b>	<b>383,938</b>	<b>243,443</b>	<b>355,554</b>	<b>1,256,707</b>	<b>2,129</b>	<b>1,939</b>	<b>4,069</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.812	1.640	.
(14) Massachusetts Credibility:	0.210	0.300	.
(15) Countrywide Pure Premium:	2.209	1.051	3.260
(16) Countrywide Indicated Relativity:	0.862	0.928	.
(17) Countrywide Credibility:	0.400	0.350	.
(18) Countrywide Lost-Time Claims:	571.00	.	.
(19) Pure Premium Underlying Present Rate:	1.803	0.947	2.751
(20) Relativity to Underlying Present Rate:	0.657	0.707	.
(21) Credibility to Underlying Relativity:	0.390	0.350	.
(22) Industry Group Converted Pure Premium:	2.624	1.182	3.806
(23) Formula Relativity:	0.772	1.064	.
(24) Balanced Formula Relativity:	0.776	1.066	0.866

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## Calculation of Class Relativities

Class(es):		Effective: 7/1/2018							Construction			
5538 SHEET METAL WORK-SHOP & OUTSIDE-NOC & DRIVERS												
		Converted Unlimited Losses										
		Amount										
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums				
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)	
2011	1,519,463	11	250	1,035,541	1,914,368	301,571	1,221,291	4,472,771	1,941	1,002	2,944	
2012	1,797,265	6	267	615,744	3,209,604	187,816	1,215,305	5,228,470	2,128	0,781	2,909	
2013	1,969,517	16	249	1,983,126	1,500,187	712,431	966,990	5,162,735	1,769	0,853	2,621	
2014	2,229,874	15	285	3,203,967	3,099,667	1,176,586	1,910,035	9,390,255	2,827	1,384	4,211	
2015	2,512,692	7	275	1,257,085	3,052,980	235,727	1,783,028	6,328,820	1,715	0,803	2,519	
<b>MA Total:</b>	<b>10,028,811</b>	<b>55</b>	<b>1,326</b>	<b>8,095,464</b>	<b>12,776,806</b>	<b>2,614,131</b>	<b>7,096,650</b>	<b>30,583,051</b>	<b>2,081</b>	<b>0,968</b>	<b>3,050</b>	

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.793	0.819	.
(14) Massachusetts Credibility:	0.910	1.000	.
(15) Countrywide Pure Premium:	2.472	1.068	3.541
(16) Countrywide Indicated Relativity:	0.965	0.943	.
(17) Countrywide Credibility:	0.050	0.000	.
(18) Countrywide Lost-Time Claims:	292.00	.	.
(19) Pure Premium Underlying Present Rate:	2.115	1.019	3.135
(20) Relativity to Underlying Present Rate:	0.771	0.760	.
(21) Credibility to Underlying Relativity:	0.040	0.000	.
(22) Industry Group Converted Pure Premium:	2.624	1.182	3.806
(23) Formula Relativity:	0.801	0.819	.
(24) Balanced Formula Relativity:	0.805	0.820	0.810

Class(es):		Effective: 7/1/2018							Construction			
5545 ROOFING NOC & YARD EMP, DRIVERS												
		Converted Unlimited Losses										
		Amount										
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums				
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)	
2011	158,754	12	33	1,531,085	461,768	660,957	355,963	3,009,772	12,553	6,406	18,959	
2012	135,540	8	33	898,129	1,123,187	813,464	833,631	3,668,412	14,913	12,152	27,065	
2013	150,875	2	36	164,152	642,033	69,196	472,047	1,347,429	5,343	3,587	8,931	
2014	139,948	10	43	2,084,942	1,831,099	1,186,882	946,435	6,049,357	27,982	15,244	43,226	
2015	218,194	12	32	3,435,035	1,920,810	2,256,986	1,541,978	9,154,809	24,546	17,411	41,957	
<b>MA Total:</b>	<b>803,310</b>	<b>44</b>	<b>177</b>	<b>8,113,342</b>	<b>5,978,897</b>	<b>4,987,485</b>	<b>4,150,054</b>	<b>23,229,778</b>	<b>17,543</b>	<b>11,375</b>	<b>28,918</b>	

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	6.686	9.621	.
(14) Massachusetts Credibility:	0.770	1.000	.
(15) Countrywide Pure Premium:	0.000	0.000	0.000
(16) Countrywide Indicated Relativity:	6.048	7.177	.
(17) Countrywide Credibility:	0.000	0.000	.
(18) Countrywide Lost-Time Claims:	0.000	.	.
(19) Pure Premium Underlying Present Rate:	17.371	10.178	27.549
(20) Relativity to Underlying Present Rate:	6.330	7.592	.
(21) Credibility to Underlying Relativity:	0.230	0.000	.
(22) Industry Group Converted Pure Premium:	2.624	1.182	3.806
(23) Formula Relativity:	6.604	9.621	.
(24) Balanced Formula Relativity:	6.642	9.633	7.571

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## Calculation of Class Relativities

Class(es):		Effective: 7/1/2018							Construction			
5547 ROOFING-BUILT UP - YARD EMP & DRIVERS		Converted Unlimited Losses										
		Amount										
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums				
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)	
2011	519,411	7	76	2,600,602	1,950,836	1,108,281	982,380	6,642,099	8,763	4,025	12,788	
2012	488,246	4	68	432,289	1,778,975	319,514	1,281,805	3,812,583	4,529	3,280	7,809	
2013	528,152	3	68	513,068	2,058,349	103,521	1,371,325	4,046,263	4,869	2,792	7,661	
2014	639,457	11	67	1,866,334	1,367,310	1,508,472	701,528	5,443,644	5,057	3,456	8,513	
2015	642,977	6	70	821,241	2,006,606	2,082,144	898,149	5,808,140	4,398	4,635	9,033	
<b>MA Total:</b>	<b>2,818,242</b>	<b>31</b>	<b>349</b>	<b>6,233,533</b>	<b>9,162,076</b>	<b>5,121,932</b>	<b>5,235,187</b>	<b>25,752,728</b>	<b>5,463</b>	<b>3,675</b>	<b>9,138</b>	

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	2.082	3.108	.
(14) Massachusetts Credibility:	0.830	1.000	.
(15) Countrywide Pure Premium:	0.000	0.000	0.000
(16) Countrywide Indicated Relativity:	2.136	2.711	.
(17) Countrywide Credibility:	0.000	0.000	.
(18) Countrywide Lost-Time Claims:	0.000	.	.
(19) Pure Premium Underlying Present Rate:	6.135	3.845	9.980
(20) Relativity to Underlying Present Rate:	2.236	2.868	.
(21) Credibility to Underlying Relativity:	0.170	0.000	.
(22) Industry Group Converted Pure Premium:	2.624	1.182	3.806
(23) Formula Relativity:	2.108	3.108	.
(24) Balanced Formula Relativity:	2.120	3.112	2.428

Class(es):		Effective: 7/1/2018							Construction			
5606 CONTRACTOR-EXECUTIVE SUPERVISOR OR CONSTRUCT SUPERINTENDENT		Converted Unlimited Losses										
		Amount										
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums				
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)	
2011	4,958,485	10	212	2,101,663	3,445,057	734,114	1,719,345	8,000,179	1,119	0,495	1,613	
2012	5,210,325	15	211	3,286,559	2,620,922	1,099,399	1,573,911	8,580,790	1,134	0,513	1,647	
2013	5,917,190	10	163	1,517,376	2,372,832	911,964	1,485,810	6,287,981	0,657	0,405	1,063	
2014	6,458,343	9	181	1,922,872	1,916,496	766,142	1,336,587	5,942,096	0,594	0,326	0,920	
2015	7,217,138	15	175	2,613,264	1,595,615	870,698	1,297,696	6,377,272	0,583	0,300	0,884	
<b>MA Total:</b>	<b>29,761,482</b>	<b>59</b>	<b>942</b>	<b>11,441,733</b>	<b>11,950,921</b>	<b>4,382,316</b>	<b>7,413,348</b>	<b>35,188,319</b>	<b>0,786</b>	<b>0,396</b>	<b>1,182</b>	

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.300	0.335	.
(14) Massachusetts Credibility:	1.000	1.000	.
(15) Countrywide Pure Premium:	0.549	0.255	0.804
(16) Countrywide Indicated Relativity:	0.214	0.225	.
(17) Countrywide Credibility:	0.000	0.000	.
(18) Countrywide Lost-Time Claims:	3715.0	.	.
(19) Pure Premium Underlying Present Rate:	0.904	0.481	1.385
(20) Relativity to Underlying Present Rate:	0.330	0.359	.
(21) Credibility to Underlying Relativity:	0.000	0.000	.
(22) Industry Group Converted Pure Premium:	2.624	1.182	3.806
(23) Formula Relativity:	0.300	0.335	.
(24) Balanced Formula Relativity:	0.301	0.336	0.312

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## Calculation of Class Relativities

Class(es):		Effective: 7/1/2018							Construction		
5610 CLEANER - DEBRIS REMOVAL											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2011	304,354	4	28	439,966	774,384	129,651	194,030	1,538,031	3,990	1,063	5,053
2012	346,771	3	26	471,852	580,533	103,815	341,207	1,497,406	3,035	1,283	4,318
2013	365,358	2	31	330,154	801,378	34,047	303,759	1,469,339	3,097	0,925	4,022
2014	503,061	4	43	1,072,294	1,205,915	153,584	323,675	2,755,467	4,529	0,949	5,477
2015	584,488	3	45	327,551	1,744,536	42,896	456,102	2,571,085	3,545	0,854	4,399
<b>MA Total:</b>	<b>2,104,032</b>	<b>16</b>	<b>173</b>	<b>2,641,817</b>	<b>5,106,747</b>	<b>463,993</b>	<b>1,618,772</b>	<b>9,831,328</b>	<b>3,683</b>	<b>0,990</b>	<b>4,673</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	1.404	0.837	.
(14) Massachusetts Credibility:	0.630	0.780	.
(15) Countrywide Pure Premium:	2.448	1.145	3.594
(16) Countrywide Indicated Relativity:	0.956	1.011	.
(17) Countrywide Credibility:	0.190	0.110	.
(18) Countrywide Lost-Time Claims:	572.00	.	.
(19) Pure Premium Underlying Present Rate:	4.083	1.546	5.629
(20) Relativity to Underlying Present Rate:	1.488	1.153	.
(21) Credibility to Underlying Relativity:	0.180	0.110	.
(22) Industry Group Converted Pure Premium:	2.624	1.182	3.806
(23) Formula Relativity:	1.334	0.891	.
(24) Balanced Formula Relativity:	1.341	0.892	1.202

Class(es):		Effective: 7/1/2018							Construction		
5645 CARPENTRY-DETACHED ONE OR TWO FAMILY DWELLINGS											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2011	4,338,134	40	671	4,850,188	8,256,829	2,246,867	4,601,809	19,955,693	3,021	1,579	4,600
2012	4,572,090	54	658	6,937,510	10,285,162	3,984,242	6,105,460	27,312,373	3,767	2,207	5,974
2013	4,956,063	49	661	7,595,813	13,767,347	3,451,159	8,510,392	33,324,711	4,311	2,414	6,724
2014	5,442,040	49	669	7,200,667	12,215,111	3,655,545	7,398,927	30,470,251	3,568	2,031	5,599
2015	6,211,495	54	697	8,330,919	14,130,267	3,852,268	8,415,152	34,728,607	3,616	1,975	5,591
<b>MA Total:</b>	<b>25,519,822</b>	<b>246</b>	<b>3,356</b>	<b>34,915,097</b>	<b>58,654,716</b>	<b>17,190,082</b>	<b>35,031,739</b>	<b>145,791,634</b>	<b>3,667</b>	<b>2,046</b>	<b>5,713</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	1.397	1.731	.
(14) Massachusetts Credibility:	1.000	1.000	.
(15) Countrywide Pure Premium:	5.308	2.704	8.012
(16) Countrywide Indicated Relativity:	2.072	2.388	.
(17) Countrywide Credibility:	0.000	0.000	.
(18) Countrywide Lost-Time Claims:	12905	.	.
(19) Pure Premium Underlying Present Rate:	3.749	2.252	6.001
(20) Relativity to Underlying Present Rate:	1.366	1.680	.
(21) Credibility to Underlying Relativity:	0.000	0.000	.
(22) Industry Group Converted Pure Premium:	2.624	1.182	3.806
(23) Formula Relativity:	1.397	1.731	.
(24) Balanced Formula Relativity:	1.405	1.733	1.507

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## Calculation of Class Relativities

Class(es):		Effective: 7/1/2018							Construction			
5701 WRECKING: BUILDING OR STRUCTURES-NOT MARINE- ALL OPERATIONS												
		Converted Unlimited Losses										
		Amount										
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums				
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)	
2011	32,613	2	5	496,468	92,509	382,503	100,061	1,071,541	18,060	14,797	32,856	
2012	45,950	1	3	395,067	2,880	110,636	19,945	528,528	8,661	2,842	11,502	
2013	30,546	0	3	0	296,345	0	72,636	368,981	9,702	2,378	12,080	
2014	52,267	0	10	0	105,301	0	76,207	181,508	2,015	1,458	3,473	
2015	92,770	2	5	477,982	898,863	642,351	451,849	2,471,044	14,842	11,795	26,636	
<b>MA Total:</b>	<b>254,146</b>	<b>5</b>	<b>26</b>	<b>1,369,517</b>	<b>1,395,899</b>	<b>1,135,491</b>	<b>720,697</b>	<b>4,621,604</b>	<b>10,881</b>	<b>7,304</b>	<b>18,185</b>	

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	4.147	6.177	.
(14) Massachusetts Credibility:	0.400	0.650	.
(15) Countrywide Pure Premium:	0.000	0.000	0.000
(16) Countrywide Indicated Relativity:	3.690	5.753	.
(17) Countrywide Credibility:	0.000	0.000	.
(18) Countrywide Lost-Time Claims:	0.000	.	.
(19) Pure Premium Underlying Present Rate:	10.600	8.158	18.758
(20) Relativity to Underlying Present Rate:	3.862	6.085	.
(21) Credibility to Underlying Relativity:	0.600	0.350	.
(22) Industry Group Converted Pure Premium:	2.624	1.182	3.806
(23) Formula Relativity:	3.976	6.145	.
(24) Balanced Formula Relativity:	3.999	6.153	4.668

Class(es):		Effective: 7/1/2018							Construction			
5703 BUILDING RAISING OR MOVING & DRIVERS												
		Converted Unlimited Losses										
		Amount										
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums				
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)	
2011	11,802	0	1	0	0	0	1,605	1,605	0.000	0.136	0.136	
2012	7,351	0	1	0	4,684	0	2,959	7,643	0.637	0.403	1,040	
2013	8,169	0	1	0	78,455	0	34,083	112,538	9,604	4,172	13,777	
2014	12,331	0	1	0	0	0	1,507	1,507	0.000	0.122	0.122	
2015	11,512	0	0	0	0	0	0	0	0.000	0.000	0.000	
<b>MA Total:</b>	<b>51,165</b>	<b>0</b>	<b>4</b>	<b>0</b>	<b>83,139</b>	<b>0</b>	<b>40,154</b>	<b>123,293</b>	<b>1,625</b>	<b>0,785</b>	<b>2,410</b>	

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.619	0.664	.
(14) Massachusetts Credibility:	0.180	0.230	.
(15) Countrywide Pure Premium:	7.445	3.821	11.266
(16) Countrywide Indicated Relativity:	2.906	3.374	.
(17) Countrywide Credibility:	0.280	0.300	.
(18) Countrywide Lost-Time Claims:	49.000	.	.
(19) Pure Premium Underlying Present Rate:	7.702	2.941	10.643
(20) Relativity to Underlying Present Rate:	2.807	2.193	.
(21) Credibility to Underlying Relativity:	0.540	0.470	.
(22) Industry Group Converted Pure Premium:	2.624	1.182	3.806
(23) Formula Relativity:	2.441	2.196	.
(24) Balanced Formula Relativity:	2.455	2.199	2.375

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## Calculation of Class Relativities

Class(es):		Effective: 7/1/2018							Construction		
5705 SALVAGE OPERATION - NO WRECKING OR ANY STRUCTURAL OPERATIONS											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2011	87	0	0	0	0	0	0	0	0.000	0.000	0.000
2012	821	0	0	0	0	0	0	0	0.000	0.000	0.000
2013	248	0	0	0	0	0	0	0	0.000	0.000	0.000
2014	242	0	0	0	0	0	0	0	0.000	0.000	0.000
2015	1,927	0	0	0	0	0	0	0	0.000	0.000	0.000
<b>MA Total:</b>	<b>3,325</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0.000</b>	<b>0.000</b>	<b>0.000</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.000	0.000	.
(14) Massachusetts Credibility:	0.060	0.080	.
(15) Countrywide Pure Premium:	10.498	5.421	15.920
(16) Countrywide Indicated Relativity:	4.098	4.787	.
(17) Countrywide Credibility:	0.230	0.250	.
(18) Countrywide Lost-Time Claims:	30.000	.	.
(19) Pure Premium Underlying Present Rate:	6.850	3.141	9.991
(20) Relativity to Underlying Present Rate:	2.496	2.343	.
(21) Credibility to Underlying Relativity:	0.710	0.670	.
(22) Industry Group Converted Pure Premium:	2.624	1.182	3.806
(23) Formula Relativity:	2.715	2.767	.
(24) Balanced Formula Relativity:	2.730	2.770	2.743

Class(es):		Effective: 7/1/2018							Construction		
6003 PILE DRIVING & DRIVERS											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2011	51,651	0	14	0	659,407	0	120,839	780,246	12,767	2,340	15,106
2012	48,725	1	6	85,363	159,242	29,897	60,244	334,745	5,020	1,850	6,870
2013	70,991	0	5	0	735,223	0	255,345	990,568	10,357	3,597	13,953
2014	67,315	0	10	0	338,552	0	64,212	402,764	5,029	0,954	5,983
2015	105,118	0	5	0	329,843	0	322,524	652,367	3,138	3,068	6,206
<b>MA Total:</b>	<b>343,800</b>	<b>1</b>	<b>40</b>	<b>85,363</b>	<b>2,222,266</b>	<b>29,897</b>	<b>823,165</b>	<b>3,160,690</b>	<b>6,712</b>	<b>2,481</b>	<b>9,193</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	2.558	2.099	.
(14) Massachusetts Credibility:	0.350	0.430	.
(15) Countrywide Pure Premium:	3.718	1.431	5.149
(16) Countrywide Indicated Relativity:	1.451	1.263	.
(17) Countrywide Credibility:	0.330	0.290	.
(18) Countrywide Lost-Time Claims:	134.00	.	.
(19) Pure Premium Underlying Present Rate:	5.649	2.110	7.759
(20) Relativity to Underlying Present Rate:	2.058	1.574	.
(21) Credibility to Underlying Relativity:	0.320	0.280	.
(22) Industry Group Converted Pure Premium:	2.624	1.182	3.806
(23) Formula Relativity:	2.033	1.710	.
(24) Balanced Formula Relativity:	2.045	1.712	1.941



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## Calculation of Class Relativities

Class(es):		Effective: 7/1/2018							Construction		
6204 DRILLING NOC & DRIVERS											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2011	127,019	1	17	4,153	146,815	625	89,970	241,564	1,189	0,713	1,902
2012	123,520	2	8	256,650	234,617	56,635	82,078	629,980	3,977	1,123	5,100
2013	126,747	0	14	0	30,566	0	27,484	58,050	0,241	0,217	0,458
2014	139,839	1	16	7,114	107,022	11,529	69,032	194,698	0,816	0,576	1,392
2015	192,032	1	22	40,179	985,209	66,392	414,451	1,506,232	5,340	2,504	7,844
<b>MA Total:</b>	<b>709,157</b>	<b>5</b>	<b>77</b>	<b>308,096</b>	<b>1,504,230</b>	<b>135,182</b>	<b>683,016</b>	<b>2,630,524</b>	<b>2,556</b>	<b>1,154</b>	<b>3,709</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.974	0.976	.
(14) Massachusetts Credibility:	0.390	0.500	.
(15) Countrywide Pure Premium:	4.162	1.620	5.782
(16) Countrywide Indicated Relativity:	1.624	1.431	.
(17) Countrywide Credibility:	0.310	0.250	.
(18) Countrywide Lost-Time Claims:	1051.0	.	.
(19) Pure Premium Underlying Present Rate:	3.707	1.463	5.170
(20) Relativity to Underlying Present Rate:	1.351	1.091	.
(21) Credibility to Underlying Relativity:	0.300	0.250	.
(22) Industry Group Converted Pure Premium:	2.624	1.182	3.806
(23) Formula Relativity:	1.289	1.118	.
(24) Balanced Formula Relativity:	1.296	1.120	1.241

Class(es):		Effective: 7/1/2018							Construction		
6217 EXCAVATION & DRIVERS											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2011	2,914,712	22	255	3,701,795	4,475,826	1,573,437	2,455,527	12,206,585	2,806	1,382	4,188
2012	2,970,870	13	211	817,035	4,720,675	327,669	1,970,974	7,836,353	1,864	0,774	2,638
2013	3,226,563	15	257	2,778,567	4,194,966	1,004,941	2,504,340	10,482,814	2,161	1,088	3,249
2014	3,609,976	23	258	3,658,680	4,161,302	1,281,962	2,315,971	11,417,914	2,166	0,997	3,163
2015	4,118,483	18	261	4,060,080	4,894,831	1,311,184	2,390,623	12,656,719	2,174	0,899	3,073
<b>MA Total:</b>	<b>16,840,604</b>	<b>91</b>	<b>1,242</b>	<b>15,016,157</b>	<b>22,447,601</b>	<b>5,499,194</b>	<b>11,637,434</b>	<b>54,600,386</b>	<b>2,225</b>	<b>1,018</b>	<b>3,242</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.848	0.861	.
(14) Massachusetts Credibility:	1.000	1.000	.
(15) Countrywide Pure Premium:	2.431	1.015	3.445
(16) Countrywide Indicated Relativity:	0.949	0.896	.
(17) Countrywide Credibility:	0.000	0.000	.
(18) Countrywide Lost-Time Claims:	6379.0	.	.
(19) Pure Premium Underlying Present Rate:	2.208	1.147	3.355
(20) Relativity to Underlying Present Rate:	0.804	0.856	.
(21) Credibility to Underlying Relativity:	0.000	0.000	.
(22) Industry Group Converted Pure Premium:	2.624	1.182	3.806
(23) Formula Relativity:	0.848	0.861	.
(24) Balanced Formula Relativity:	0.853	0.862	0.856

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## Calculation of Class Relativities

Class(es):		Effective: 7/1/2018							Construction			
6229 IRRIGATION OR DRAINAGE SYSTEM CONSTRUCTION &DR												
		Converted Unlimited Losses										
		Amount										
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums				
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)	
2011	302,266	1	36	292,611	857,337	99,847	235,859	1,485,653	3,804	1,111	4,915	
2012	328,181	0	25	0	223,071	0	113,160	336,231	0,680	0,345	1,025	
2013	347,669	3	30	241,287	370,792	202,477	118,296	932,852	1,761	0,923	2,683	
2014	339,587	4	22	500,733	388,960	165,444	217,193	1,272,331	2,620	1,127	3,747	
2015	390,971	0	20	0	512,829	0	141,322	654,151	1,312	0,361	1,673	
<b>MA Total:</b>	<b>1,708,675</b>	<b>8</b>	<b>133</b>	<b>1,034,631</b>	<b>2,352,989</b>	<b>467,769</b>	<b>825,830</b>	<b>4,681,218</b>	<b>1,983</b>	<b>0,757</b>	<b>2,740</b>	

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.756	0.640	.
(14) Massachusetts Credibility:	0.460	0.630	.
(15) Countrywide Pure Premium:	2.358	1.167	3.525
(16) Countrywide Indicated Relativity:	0.921	1.030	.
(17) Countrywide Credibility:	0.270	0.190	.
(18) Countrywide Lost-Time Claims:	660.00	.	.
(19) Pure Premium Underlying Present Rate:	2.278	1.101	3.379
(20) Relativity to Underlying Present Rate:	0.830	0.821	.
(21) Credibility to Underlying Relativity:	0.270	0.180	.
(22) Industry Group Converted Pure Premium:	2.624	1.182	3.806
(23) Formula Relativity:	0.820	0.747	.
(24) Balanced Formula Relativity:	0.825	0.748	0.801

Class(es):		Effective: 7/1/2018							Construction			
6233 OIL OR GAS PIPELINE CONSTRUCTION & DRIVERS												
		Converted Unlimited Losses										
		Amount										
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums				
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)	
2011	14,231	0	0	0	0	0	0	0	0,000	0,000	0,000	
2012	9,896	0	1	0	0	0	988	988	0,000	0,100	0,100	
2013	11,870	0	1	0	0	0	876	876	0,000	0,074	0,074	
2014	13,405	0	0	0	0	0	0	0	0,000	0,000	0,000	
2015	45,365	0	0	0	0	0	0	0	0,000	0,000	0,000	
<b>MA Total:</b>	<b>94,767</b>	<b>0</b>	<b>2</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>1,865</b>	<b>1,865</b>	<b>0,000</b>	<b>0,020</b>	<b>0,020</b>	

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.000	0.017	.
(14) Massachusetts Credibility:	0.150	0.170	.
(15) Countrywide Pure Premium:	1.316	0.538	1.854
(16) Countrywide Indicated Relativity:	0.514	0.475	.
(17) Countrywide Credibility:	0.430	0.420	.
(18) Countrywide Lost-Time Claims:	591.00	.	.
(19) Pure Premium Underlying Present Rate:	2.373	0.763	3.136
(20) Relativity to Underlying Present Rate:	0.865	0.569	.
(21) Credibility to Underlying Relativity:	0.420	0.410	.
(22) Industry Group Converted Pure Premium:	2.624	1.182	3.806
(23) Formula Relativity:	0.584	0.436	.
(24) Balanced Formula Relativity:	0.588	0.436	0.541

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## Calculation of Class Relativities

Class(es):		Effective: 7/1/2018							Construction		
6251 TUNNELING - NOT PNEUMATIC - ALL OPERATIONS											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2011	0	0	0	0	0	0	0	0	0.000	0.000	0.000
2012	2,882	0	1	0	0	0	2,564	2,564	0.000	0.890	0.890
2013	0	0	0	0	0	0	0	0	0.000	0.000	0.000
2014	0	0	0	0	0	0	0	0	0.000	0.000	0.000
2015	0	0	0	0	0	0	0	0	0.000	0.000	0.000
<b>MA Total:</b>	<b>2,882</b>	<b>0</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>2,564</b>	<b>2,564</b>	<b>0.000</b>	<b>0.890</b>	<b>0.890</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.000	0.752	.
(14) Massachusetts Credibility:	0.040	0.050	.
(15) Countrywide Pure Premium:	3.008	0.933	3.941
(16) Countrywide Indicated Relativity:	1.174	0.824	.
(17) Countrywide Credibility:	0.280	0.300	.
(18) Countrywide Lost-Time Claims:	48.000	.	.
(19) Pure Premium Underlying Present Rate:	3.820	0.898	4.718
(20) Relativity to Underlying Present Rate:	1.392	0.670	.
(21) Credibility to Underlying Relativity:	0.680	0.650	.
(22) Industry Group Converted Pure Premium:	2.624	1.182	3.806
(23) Formula Relativity:	1.275	0.720	.
(24) Balanced Formula Relativity:	1.283	0.721	1.108

Class(es):		Effective: 7/1/2018							Construction		
6252 SHAFT SINKING - ALL OPERATIONS											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2011	42,672	3	5	750,900	272,727	216,370	127,852	1,367,850	23,988	8,067	32,055
2012	22,218	0	2	0	756	0	31,892	32,648	0,034	1,435	1,469
2013	21,227	0	1	0	0	0	321	321	0,000	0,015	0,015
2014	34,212	0	2	0	0	0	3,470	3,470	0,000	0,101	0,101
2015	32,930	0	1	0	0	0	15,316	15,316	0,000	0,465	0,465
<b>MA Total:</b>	<b>153,259</b>	<b>3</b>	<b>11</b>	<b>750,900</b>	<b>273,483</b>	<b>216,370</b>	<b>178,852</b>	<b>1,419,606</b>	<b>6,684</b>	<b>2,579</b>	<b>9,263</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	2.547	2.181	.
(14) Massachusetts Credibility:	0.240	0.330	.
(15) Countrywide Pure Premium:	3.195	0.972	4.167
(16) Countrywide Indicated Relativity:	1.247	0.859	.
(17) Countrywide Credibility:	0.370	0.340	.
(18) Countrywide Lost-Time Claims:	93.000	.	.
(19) Pure Premium Underlying Present Rate:	5.157	2.493	7.650
(20) Relativity to Underlying Present Rate:	1.879	1.860	.
(21) Credibility to Underlying Relativity:	0.390	0.330	.
(22) Industry Group Converted Pure Premium:	2.624	1.182	3.806
(23) Formula Relativity:	1.806	1.625	.
(24) Balanced Formula Relativity:	1.816	1.627	1.757

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## Calculation of Class Relativities

Class(es):		Effective: 7/1/2018							Construction		
6306 SEWER CONSTRUCTION - ALL OPERATIONS & DRIVERS											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2011	206,132	2	27	358,433	669,688	67,796	241,495	1,337,411	4,988	1,500	6,488
2012	196,673	3	25	628,287	1,079,240	73,908	427,777	2,209,212	8,682	2,551	11,233
2013	222,989	3	22	731,825	138,964	433,195	140,430	1,444,414	3,905	2,572	6,478
2014	248,200	3	29	772,927	626,505	398,686	203,753	2,001,871	5,638	2,427	8,066
2015	262,556	2	26	379,149	569,319	71,790	198,020	1,218,278	3,612	1,028	4,640
<b>MA Total:</b>	<b>1,136,550</b>	<b>13</b>	<b>129</b>	<b>2,870,621</b>	<b>3,083,715</b>	<b>1,045,375</b>	<b>1,211,475</b>	<b>8,211,186</b>	<b>5,239</b>	<b>1,986</b>	<b>7,225</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	1.997	1.679	.
(14) Massachusetts Credibility:	0.540	0.710	.
(15) Countrywide Pure Premium:	2.779	1.166	3.945
(16) Countrywide Indicated Relativity:	1.085	1.029	.
(17) Countrywide Credibility:	0.230	0.150	.
(18) Countrywide Lost-Time Claims:	1272.0	.	.
(19) Pure Premium Underlying Present Rate:	5.237	2.273	7.510
(20) Relativity to Underlying Present Rate:	1.908	1.696	.
(21) Credibility to Underlying Relativity:	0.230	0.140	.
(22) Industry Group Converted Pure Premium:	2.624	1.182	3.806
(23) Formula Relativity:	1.767	1.584	.
(24) Balanced Formula Relativity:	1.777	1.586	1.718

Class(es):		Effective: 7/1/2018							Construction		
6319 GAS MAIN OR CONNECTION CONSTRUCTION & DRIVERS											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2011	517,858	1	56	9,794	1,073,656	6,356	435,565	1,525,372	2,092	0,853	2,946
2012	566,589	4	32	1,116,261	1,154,994	243,457	846,049	3,360,762	4,009	1,923	5,932
2013	637,794	1	29	115,961	267,556	30,112	276,564	690,192	0,601	0,481	1,082
2014	707,483	3	30	318,998	519,806	120,245	224,213	1,183,261	1,186	0,487	1,672
2015	823,864	2	34	79,643	1,473,750	286,340	628,427	2,468,160	1,885	1,110	2,996
<b>MA Total:</b>	<b>3,253,588</b>	<b>11</b>	<b>181</b>	<b>1,640,657</b>	<b>4,489,761</b>	<b>686,509</b>	<b>2,410,818</b>	<b>9,227,746</b>	<b>1,884</b>	<b>0,952</b>	<b>2,836</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.718	0.805	.
(14) Massachusetts Credibility:	0.570	0.850	.
(15) Countrywide Pure Premium:	1.828	0.789	2.618
(16) Countrywide Indicated Relativity:	0.714	0.697	.
(17) Countrywide Credibility:	0.220	0.080	.
(18) Countrywide Lost-Time Claims:	1297.0	.	.
(19) Pure Premium Underlying Present Rate:	2.095	1.219	3.314
(20) Relativity to Underlying Present Rate:	0.764	0.909	.
(21) Credibility to Underlying Relativity:	0.210	0.070	.
(22) Industry Group Converted Pure Premium:	2.624	1.182	3.806
(23) Formula Relativity:	0.727	0.804	.
(24) Balanced Formula Relativity:	0.731	0.805	0.754

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## Calculation of Class Relativities

Class(es):		Effective: 7/1/2018							Construction		
6325 CONDUIT CONSTRUCTION - FOR CABLES OR WIRES & DR											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2011	199,587	2	8	156,524	23,439	46,152	19,936	246,051	0.902	0.331	1.233
2012	200,232	1	10	139,668	79,236	35,901	79,286	334,090	1.093	0.575	1.669
2013	224,228	1	7	215,884	2,832	124,588	11,070	354,374	0.975	0.605	1.580
2014	245,517	2	14	423,884	380,212	75,753	203,929	1,083,778	3.275	1.139	4.414
2015	263,205	0	10	0	201,327	0	130,362	331,689	0.765	0.495	1.260
<b>MA Total:</b>	<b>1,132,770</b>	<b>6</b>	<b>49</b>	<b>935,960</b>	<b>687,046</b>	<b>282,394</b>	<b>444,583</b>	<b>2,349,983</b>	<b>1.433</b>	<b>0.642</b>	<b>2.075</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.546	0.543	.
(14) Massachusetts Credibility:	0.400	0.550	.
(15) Countrywide Pure Premium:	2.287	0.869	3.156
(16) Countrywide Indicated Relativity:	0.893	0.767	.
(17) Countrywide Credibility:	0.300	0.230	.
(18) Countrywide Lost-Time Claims:	1376.0	.	.
(19) Pure Premium Underlying Present Rate:	2.358	1.187	3.545
(20) Relativity to Underlying Present Rate:	0.859	0.885	.
(21) Credibility to Underlying Relativity:	0.300	0.220	.
(22) Industry Group Converted Pure Premium:	2.624	1.182	3.806
(23) Formula Relativity:	0.744	0.670	.
(24) Balanced Formula Relativity:	0.748	0.671	0.724

Class(es):		Effective: 7/1/2018							Construction		
6400 FENCE ERECTION - ALL TYPES											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2011	281,649	6	57	558,195	390,815	393,552	223,844	1,566,406	3.369	2.192	5.562
2012	296,702	1	63	425,278	254,711	67,285	174,975	922,249	2.292	0.817	3.108
2013	319,322	3	35	192,402	289,518	86,343	112,188	680,451	1.509	0.622	2.131
2014	314,443	1	40	123,939	266,934	126,943	116,655	634,471	1.243	0.775	2.018
2015	355,853	3	40	340,952	553,264	235,230	275,574	1,405,020	2.513	1.435	3.948
<b>MA Total:</b>	<b>1,567,969</b>	<b>14</b>	<b>235</b>	<b>1,640,766</b>	<b>1,755,243</b>	<b>909,354</b>	<b>903,236</b>	<b>5,208,598</b>	<b>2.166</b>	<b>1.156</b>	<b>3.322</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.825	0.978	.
(14) Massachusetts Credibility:	0.490	0.680	.
(15) Countrywide Pure Premium:	3.010	1.343	4.353
(16) Countrywide Indicated Relativity:	1.175	1.186	.
(17) Countrywide Credibility:	0.260	0.160	.
(18) Countrywide Lost-Time Claims:	954.00	.	.
(19) Pure Premium Underlying Present Rate:	2.968	1.473	4.441
(20) Relativity to Underlying Present Rate:	1.082	1.099	.
(21) Credibility to Underlying Relativity:	0.250	0.160	.
(22) Industry Group Converted Pure Premium:	2.624	1.182	3.806
(23) Formula Relativity:	0.980	1.030	.
(24) Balanced Formula Relativity:	0.986	1.032	1.000

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## Calculation of Class Relativities

Class(es):		Effective: 7/1/2018							Miscellaneous		
6834 BOAT BUILDING OR REPAIRING & DRIVERS: MA ACT											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2011	149,943	0	14	0	2,270	0	15,853	18,123	0.015	0.106	0.121
2012	165,688	0	22	0	20,352	0	140,093	160,445	0.123	0.846	0.968
2013	196,116	0	22	0	65,126	0	84,043	149,168	0.332	0.429	0.761
2014	219,221	0	20	0	169,878	0	96,622	266,500	0.775	0.441	1.216
2015	245,363	0	27	0	72,936	0	102,959	175,895	0.297	0.420	0.717
<b>MA Total:</b>	<b>976,331</b>	<b>0</b>	<b>105</b>	<b>0</b>	<b>330,562</b>	<b>0</b>	<b>439,570</b>	<b>770,132</b>	<b>0.339</b>	<b>0.450</b>	<b>0.789</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.141	0.377	.
(14) Massachusetts Credibility:	0.280	0.420	.
(15) Countrywide Pure Premium:	1.513	0.883	2.396
(16) Countrywide Indicated Relativity:	0.701	0.830	.
(17) Countrywide Credibility:	0.360	0.290	.
(18) Countrywide Lost-Time Claims:	1032.0	.	.
(19) Pure Premium Underlying Present Rate:	1.197	0.708	1.905
(20) Relativity to Underlying Present Rate:	0.491	0.537	.
(21) Credibility to Underlying Relativity:	0.360	0.290	.
(22) Industry Group Converted Pure Premium:	2.400	1.195	3.595
(23) Formula Relativity:	0.469	0.555	.
(24) Balanced Formula Relativity:	0.467	0.558	0.497

Class(es):		Effective: 7/1/2018							Miscellaneous		
6836 MARINA & DRIVERS: MA ACT											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2011	415,469	1	57	14,309	186,457	33,811	157,099	391,675	0.483	0.460	0.943
2012	421,495	1	80	76,396	639,425	11,456	588,407	1,315,684	1.698	1.423	3.121
2013	441,967	3	71	349,955	1,403,883	132,386	914,303	2,800,526	3.968	2.368	6.337
2014	449,884	3	46	484,190	300,793	368,344	347,617	1,500,943	1.745	1.591	3.336
2015	478,705	0	56	0	855,740	0	434,561	1,290,301	1.788	0.908	2.695
<b>MA Total:</b>	<b>2,207,521</b>	<b>8</b>	<b>310</b>	<b>924,850</b>	<b>3,386,297</b>	<b>545,996</b>	<b>2,441,986</b>	<b>7,299,130</b>	<b>1.953</b>	<b>1.354</b>	<b>3.306</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.814	1.133	.
(14) Massachusetts Credibility:	0.480	0.730	.
(15) Countrywide Pure Premium:	1.636	0.997	2.633
(16) Countrywide Indicated Relativity:	0.758	0.937	.
(17) Countrywide Credibility:	0.260	0.140	.
(18) Countrywide Lost-Time Claims:	636.00	.	.
(19) Pure Premium Underlying Present Rate:	1.922	1.257	3.179
(20) Relativity to Underlying Present Rate:	0.789	0.952	.
(21) Credibility to Underlying Relativity:	0.260	0.130	.
(22) Industry Group Converted Pure Premium:	2.400	1.195	3.595
(23) Formula Relativity:	0.793	1.082	.
(24) Balanced Formula Relativity:	0.789	1.089	0.889

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## Calculation of Class Relativities

Class(es):		Effective: 7/1/2018							Miscellaneous		
7219 TRUCKING: NOC - ALL EMP & DRIVERS											
Converted Unlimited Losses											
Amount											
		Claim Count		Indemnity		Medical			MA Indicated Pure Premiums		
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2011	2,517,188	30	445	4,016,643	6,897,125	1,125,287	2,844,527	14,883,582	4,336	1,577	5,913
2012	2,492,571	43	424	4,897,361	5,199,327	2,125,418	2,756,460	14,978,566	4,051	1,959	6,009
2013	2,846,663	51	506	5,785,526	10,793,379	2,277,723	4,966,120	23,822,748	5,824	2,545	8,369
2014	2,842,205	35	462	5,055,604	8,709,612	1,613,432	4,126,330	19,504,978	4,843	2,019	6,863
2015	3,112,986	39	410	7,330,653	10,235,334	2,304,136	4,348,829	24,218,952	5,643	2,137	7,780
<b>MA Total:</b>	<b>13,811,612</b>	<b>198</b>	<b>2,247</b>	<b>27,085,787</b>	<b>41,834,777</b>	<b>9,445,995</b>	<b>19,042,267</b>	<b>97,408,826</b>	<b>4,990</b>	<b>2,063</b>	<b>7,053</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	2.079	1.726	.
(14) Massachusetts Credibility:	1.000	1.000	.
(15) Countrywide Pure Premium:	3.946	1.554	5.500
(16) Countrywide Indicated Relativity:	1.829	1.461	.
(17) Countrywide Credibility:	0.000	0.000	.
(18) Countrywide Lost-Time Claims:	11454	.	.
(19) Pure Premium Underlying Present Rate:	5.127	2.382	7.509
(20) Relativity to Underlying Present Rate:	2.103	1.805	.
(21) Credibility to Underlying Relativity:	0.000	0.000	.
(22) Industry Group Converted Pure Premium:	2.400	1.195	3.595
(23) Formula Relativity:	2.079	1.726	.
(24) Balanced Formula Relativity:	2.070	1.738	1.960

Class(es):		Effective: 7/1/2018							Miscellaneous		
7230 TRUCKING: PARCEL OR PACKAGE DELIVERY- ALL EMP & DRIVERS											
Converted Unlimited Losses											
Amount											
		Claim Count		Indemnity		Medical			MA Indicated Pure Premiums		
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2011	33,108	1	8	125,231	33,093	52,252	14,654	225,231	4,782	2,021	6,803
2012	38,270	4	6	262,980	58,377	75,781	27,139	424,276	8,397	2,689	11,087
2013	63,371	2	16	240,244	176,731	264,037	60,456	741,468	6,580	5,121	11,700
2014	53,922	1	10	84,270	113,567	19,063	35,105	252,004	3,669	1,005	4,674
2015	52,121	2	10	129,779	275,925	50,619	91,119	547,443	7,784	2,719	10,503
<b>MA Total:</b>	<b>240,791</b>	<b>10</b>	<b>50</b>	<b>842,504</b>	<b>657,693</b>	<b>461,752</b>	<b>228,473</b>	<b>2,190,421</b>	<b>6,230</b>	<b>2,866</b>	<b>9,097</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	2.596	2.399	.
(14) Massachusetts Credibility:	0.290	0.410	.
(15) Countrywide Pure Premium:	4.088	1.967	6.055
(16) Countrywide Indicated Relativity:	1.895	1.849	.
(17) Countrywide Credibility:	0.360	0.300	.
(18) Countrywide Lost-Time Claims:	463.00	.	.
(19) Pure Premium Underlying Present Rate:	5.124	2.647	7.770
(20) Relativity to Underlying Present Rate:	2.102	2.005	.
(21) Credibility to Underlying Relativity:	0.350	0.290	.
(22) Industry Group Converted Pure Premium:	2.400	1.195	3.595
(23) Formula Relativity:	2.171	2.120	.
(24) Balanced Formula Relativity:	2.162	2.134	2.153

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## Calculation of Class Relativities

Class(es):		Effective: 7/1/2018							Miscellaneous		
7231 TRUCKING: MAIL, PARCEL OR PACKAGE DELIVERY-ALL EMP & DRIVERS											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2011	429,381	15	79	1,969,420	1,466,213	613,229	672,092	4,720,955	8,001	2,993	10,995
2012	398,429	8	66	1,271,657	1,583,170	252,176	644,711	3,751,713	7,165	2,251	9,416
2013	452,583	12	90	877,178	1,297,377	516,588	621,080	3,312,223	4,805	2,514	7,318
2014	484,082	18	95	1,110,753	838,876	478,278	573,460	3,001,367	4,027	2,173	6,200
2015	554,280	14	124	1,509,623	2,257,749	956,331	1,097,517	5,821,219	6,797	3,705	10,502
<b>MA Total:</b>	<b>2,318,755</b>	<b>67</b>	<b>454</b>	<b>6,738,631</b>	<b>7,443,385</b>	<b>2,816,602</b>	<b>3,608,859</b>	<b>20,607,477</b>	<b>6,116</b>	<b>2,771</b>	<b>8,887</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	2.548	2.319	.
(14) Massachusetts Credibility:	0.720	0.980	.
(15) Countrywide Pure Premium:	4.545	1.949	6.494
(16) Countrywide Indicated Relativity:	2.107	1.833	.
(17) Countrywide Credibility:	0.140	0.010	.
(18) Countrywide Lost-Time Claims:	4538.0	.	.
(19) Pure Premium Underlying Present Rate:	5.174	2.432	7.606
(20) Relativity to Underlying Present Rate:	2.123	1.842	.
(21) Credibility to Underlying Relativity:	0.140	0.010	.
(22) Industry Group Converted Pure Premium:	2.400	1.195	3.595
(23) Formula Relativity:	2.427	2.309	.
(24) Balanced Formula Relativity:	2.417	2.325	2.386

Class(es):		Effective: 7/1/2018							Miscellaneous		
7360 FREIGHT HANDLING NOC: MA ACT											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2011	93,269	2	23	268,403	230,000	70,450	171,845	740,699	5,344	2,598	7,942
2012	96,257	0	16	0	112,034	0	107,669	219,703	1,164	1,119	2,282
2013	92,377	1	8	196,281	253,776	17,248	179,972	647,277	4,872	2,135	7,007
2014	103,693	0	20	0	35,914	0	42,407	78,322	0,346	0,409	0,755
2015	114,817	0	12	0	34,046	0	13,834	47,880	0,297	0,120	0,417
<b>MA Total:</b>	<b>500,413</b>	<b>3</b>	<b>79</b>	<b>464,684</b>	<b>665,770</b>	<b>87,698</b>	<b>515,727</b>	<b>1,733,879</b>	<b>2,259</b>	<b>1,206</b>	<b>3,465</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.941	1.009	.
(14) Massachusetts Credibility:	0.300	0.440	.
(15) Countrywide Pure Premium:	1.972	1.082	3.054
(16) Countrywide Indicated Relativity:	0.914	1.017	.
(17) Countrywide Credibility:	0.350	0.280	.
(18) Countrywide Lost-Time Claims:	1382.0	.	.
(19) Pure Premium Underlying Present Rate:	2.716	1.574	4.290
(20) Relativity to Underlying Present Rate:	1.115	1.192	.
(21) Credibility to Underlying Relativity:	0.350	0.280	.
(22) Industry Group Converted Pure Premium:	2.400	1.195	3.595
(23) Formula Relativity:	0.992	1.063	.
(24) Balanced Formula Relativity:	0.988	1.070	1.015



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## Calculation of Class Relativities

Class(es):		Effective: 7/1/2018							Miscellaneous		
7370 TAXICAB CO: ALL OTHER EMP & DRIVERS											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical			MA Indicated Pure Premiums		
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2011	1,222,697	13	423	967,538	1,030,449	332,338	1,042,238	3,372,563	1,634	1,124	2,758
2012	1,332,332	15	445	676,123	1,055,847	345,501	1,100,059	3,177,530	1,300	1,085	2,385
2013	1,210,842	13	317	896,788	947,627	320,928	854,957	3,020,300	1,523	0,971	2,494
2014	1,346,353	14	383	329,518	1,165,076	330,863	1,106,067	2,931,525	1,110	1,067	2,177
2015	1,397,906	13	285	435,338	1,545,783	263,592	1,152,931	3,397,645	1,417	1,013	2,431
<b>MA Total:</b>	<b>6,510,131</b>	<b>68</b>	<b>1,853</b>	<b>3,305,306</b>	<b>5,744,783</b>	<b>1,593,222</b>	<b>5,256,252</b>	<b>15,899,563</b>	<b>1,390</b>	<b>1,052</b>	<b>2,442</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.579	0.880	.
(14) Massachusetts Credibility:	0.720	1.000	.
(15) Countrywide Pure Premium:	2.068	1.194	3.262
(16) Countrywide Indicated Relativity:	0.958	1.122	.
(17) Countrywide Credibility:	0.140	0.000	.
(18) Countrywide Lost-Time Claims:	2239.0	.	.
(19) Pure Premium Underlying Present Rate:	1.848	1.157	3.004
(20) Relativity to Underlying Present Rate:	0.758	0.876	.
(21) Credibility to Underlying Relativity:	0.140	0.000	.
(22) Industry Group Converted Pure Premium:	2.400	1.195	3.595
(23) Formula Relativity:	0.657	0.880	.
(24) Balanced Formula Relativity:	0.655	0.886	0.732

Class(es):		Effective: 7/1/2018							Miscellaneous		
7380 DRIVERS, CHAUFFEURS AND HELPERS-NOC-COMMERCIAL											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical			MA Indicated Pure Premiums		
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2011	3,326,250	57	784	5,015,741	5,308,844	2,430,594	3,047,474	15,802,653	3,104	1,647	4,751
2012	3,414,347	56	680	4,873,803	4,208,838	2,195,927	2,464,699	13,743,268	2,660	1,365	4,025
2013	4,171,713	68	820	7,282,011	8,109,372	2,313,505	4,809,090	22,513,978	3,689	1,707	5,397
2014	3,936,272	52	817	5,994,549	8,192,377	1,611,009	4,035,765	19,833,701	3,604	1,435	5,039
2015	4,154,743	54	761	6,361,391	9,015,470	2,247,196	5,467,242	23,091,300	3,701	1,857	5,558
<b>MA Total:</b>	<b>19,003,326</b>	<b>287</b>	<b>3,862</b>	<b>29,527,496</b>	<b>34,834,901</b>	<b>10,798,232</b>	<b>19,824,270</b>	<b>94,984,899</b>	<b>3,387</b>	<b>1,611</b>	<b>4,998</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	1.411	1.349	.
(14) Massachusetts Credibility:	1.000	1.000	.
(15) Countrywide Pure Premium:	2.509	1.203	3.712
(16) Countrywide Indicated Relativity:	1.163	1.131	.
(17) Countrywide Credibility:	0.000	0.000	.
(18) Countrywide Lost-Time Claims:	26564	.	.
(19) Pure Premium Underlying Present Rate:	3.089	1.580	4.670
(20) Relativity to Underlying Present Rate:	1.267	1.197	.
(21) Credibility to Underlying Relativity:	0.000	0.000	.
(22) Industry Group Converted Pure Premium:	2.400	1.195	3.595
(23) Formula Relativity:	1.411	1.349	.
(24) Balanced Formula Relativity:	1.405	1.358	1.389

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## Calculation of Class Relativities

Class(es):		Effective: 7/1/2018							Miscellaneous		
7382 BUS CO: ALL OTHER EMPLOYEES & DRIVERS											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2011	2,907,601	51	625	2,256,013	2,855,474	1,109,194	1,549,939	7,770,621	1,758	0,915	2,673
2012	3,000,470	48	632	1,882,635	2,471,489	967,732	1,598,132	6,919,987	1,451	0,855	2,306
2013	3,226,618	54	637	2,697,638	3,623,680	1,121,999	2,260,058	9,703,375	1,959	1,048	3,007
2014	3,264,238	45	650	2,730,363	3,525,632	1,710,864	2,182,744	10,149,603	1,917	1,193	3,109
2015	3,563,943	34	624	3,362,992	3,708,207	1,044,651	2,501,039	10,616,889	1,984	0,995	2,979
<b>MA Total:</b>	<b>15,962,869</b>	<b>232</b>	<b>3,168</b>	<b>12,929,641</b>	<b>16,184,482</b>	<b>5,954,441</b>	<b>10,091,911</b>	<b>45,160,476</b>	<b>1,824</b>	<b>1,005</b>	<b>2,829</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.760	0.841	.
(14) Massachusetts Credibility:	1.000	1.000	.
(15) Countrywide Pure Premium:	1.841	1.083	2.923
(16) Countrywide Indicated Relativity:	0.853	1.018	.
(17) Countrywide Credibility:	0.000	0.000	.
(18) Countrywide Lost-Time Claims:	7229.0	.	.
(19) Pure Premium Underlying Present Rate:	1.723	1.129	2.852
(20) Relativity to Underlying Present Rate:	0.707	0.855	.
(21) Credibility to Underlying Relativity:	0.000	0.000	.
(22) Industry Group Converted Pure Premium:	2.400	1.195	3.595
(23) Formula Relativity:	0.760	0.841	.
(24) Balanced Formula Relativity:	0.757	0.847	0.787

Class(es):		Effective: 7/1/2018							Miscellaneous		
7403 AIRCRAFT OR HELICOP OP: AIR CARRIER-SCHD/ SUPPL: A/O EMP & DR											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2011	1,271,902	13	356	1,184,006	1,741,820	470,729	1,230,692	4,627,247	2,300	1,338	3,638
2012	1,317,993	14	366	1,572,325	1,810,667	609,017	1,208,766	5,200,775	2,567	1,379	3,946
2013	1,226,142	13	296	1,666,247	2,800,585	367,051	1,629,070	6,462,952	3,643	1,628	5,271
2014	1,314,032	11	246	1,177,392	1,792,876	715,363	1,287,542	4,973,174	2,260	1,524	3,785
2015	1,829,046	14	341	1,003,504	2,735,016	530,286	1,761,869	6,030,675	2,044	1,253	3,297
<b>MA Total:</b>	<b>6,959,116</b>	<b>65</b>	<b>1,605</b>	<b>6,603,474</b>	<b>10,880,964</b>	<b>2,692,446</b>	<b>7,117,939</b>	<b>27,294,823</b>	<b>2,512</b>	<b>1,410</b>	<b>3,922</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	1.047	1.180	.
(14) Massachusetts Credibility:	0.810	1.000	.
(15) Countrywide Pure Premium:	1.917	0.999	2.916
(16) Countrywide Indicated Relativity:	0.889	0.939	.
(17) Countrywide Credibility:	0.100	0.000	.
(18) Countrywide Lost-Time Claims:	16664	.	.
(19) Pure Premium Underlying Present Rate:	2.297	1.731	4.028
(20) Relativity to Underlying Present Rate:	0.943	1.311	.
(21) Credibility to Underlying Relativity:	0.090	0.000	.
(22) Industry Group Converted Pure Premium:	2.400	1.195	3.595
(23) Formula Relativity:	1.022	1.180	.
(24) Balanced Formula Relativity:	1.017	1.188	1.074

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## Calculation of Class Relativities

Class(es):									Effective: 7/1/2018			Miscellaneous		
7405 AIRCRAFT OR HELICOP OP: AIR CARRIER-SCHD/ SUPPL: FLYING CREW														
Converted Unlimited Losses														
Amount														
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums						
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)			
2011	1,455,711	7	77	423,484	313,859	141,743	339,193	1,218,279	0.507	0.330	0.837			
2012	1,538,596	4	76	482,672	463,627	162,807	306,148	1,415,254	0.615	0.305	0.920			
2013	1,618,054	4	76	292,437	841,028	148,028	276,581	1,558,075	0.701	0.262	0.963			
2014	2,062,734	6	68	62,586	1,207,539	40,827	430,344	1,741,296	0.616	0.228	0.844			
2015	3,120,307	8	102	749,017	737,884	353,485	514,189	2,354,576	0.477	0.278	0.755			
<b>MA Total:</b>	<b>9,795,402</b>	<b>29</b>	<b>399</b>	<b>2,010,196</b>	<b>3,563,938</b>	<b>846,890</b>	<b>1,866,455</b>	<b>8,287,479</b>	<b>0.569</b>	<b>0.277</b>	<b>0.846</b>			

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.237	0.232	.
(14) Massachusetts Credibility:	0.590	0.860	.
(15) Countrywide Pure Premium:	0.678	0.285	0.963
(16) Countrywide Indicated Relativity:	0.314	0.268	.
(17) Countrywide Credibility:	0.210	0.070	.
(18) Countrywide Lost-Time Claims:	4950.0	.	.
(19) Pure Premium Underlying Present Rate:	0.735	0.420	1.155
(20) Relativity to Underlying Present Rate:	0.302	0.318	.
(21) Credibility to Underlying Relativity:	0.200	0.070	.
(22) Industry Group Converted Pure Premium:	2.400	1.195	3.595
(23) Formula Relativity:	0.266	0.240	.
(24) Balanced Formula Relativity:	0.265	0.242	0.257

Class(es):									Effective: 7/1/2018			Miscellaneous		
7420 AIRCRAFT OR HELICOP OP: PUBLIC EXHIB STUNT FLYING: FLY CREW														
Converted Unlimited Losses														
Amount														
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums						
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)			
2011	3,515	0	0	0	0	0	0	0	0.000	0.000	0.000			
2012	3,364	0	0	0	0	0	0	0	0.000	0.000	0.000			
2013	5,081	0	0	0	0	0	0	0	0.000	0.000	0.000			
2014	3,164	0	0	0	0	0	0	0	0.000	0.000	0.000			
2015	4,438	0	1	0	4,287	0	7,798	12,084	0.966	1.757	2.723			
<b>MA Total:</b>	<b>19,562</b>	<b>0</b>	<b>1</b>	<b>0</b>	<b>4,287</b>	<b>0</b>	<b>7,798</b>	<b>12,084</b>	<b>0.219</b>	<b>0.399</b>	<b>0.618</b>			

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.091	0.334	.
(14) Massachusetts Credibility:	0.110	0.110	.
(15) Countrywide Pure Premium:	3.793	0.996	4.789
(16) Countrywide Indicated Relativity:	1.758	0.936	.
(17) Countrywide Credibility:	0.210	0.220	.
(18) Countrywide Lost-Time Claims:	24.000	.	.
(19) Pure Premium Underlying Present Rate:	5.123	1.170	6.292
(20) Relativity to Underlying Present Rate:	2.102	0.886	.
(21) Credibility to Underlying Relativity:	0.680	0.670	.
(22) Industry Group Converted Pure Premium:	2.400	1.195	3.595
(23) Formula Relativity:	1.808	0.837	.
(24) Balanced Formula Relativity:	1.801	0.842	1.482

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## Calculation of Class Relativities

Class(es):									Effective: 7/1/2018			Miscellaneous	
7421 AIRCRAFT OR HELICOP OP: TRANSPORT PERS IN EMPLR BUS: FLY CRW													
Converted Unlimited Losses													
Amount													
		Claim Count		Indemnity		Medical		Total	MA Indicated Pure Premiums				
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	(9)	Indemnity (10)	Medical (11)	Total (12)		
2011	233,925	0	7	0	5,106	0	25,908	31,014	0.022	0.111	0.133		
2012	255,660	0	6	0	69,225	0	53,018	122,242	0.271	0.207	0.478		
2013	265,053	0	9	0	596,675	0	298,376	895,051	2.251	1.126	3.377		
2014	271,060	0	3	0	0	0	4,334	4,334	0.000	0.016	0.016		
2015	339,776	1	1	7,921	8,355	6,824	909	24,009	0.048	0.023	0.071		
<b>MA Total:</b>	<b>1,365,474</b>	<b>1</b>	<b>26</b>	<b>7,921</b>	<b>679,360</b>	<b>6,824</b>	<b>382,545</b>	<b>1,076,650</b>	<b>0.503</b>	<b>0.285</b>	<b>0.788</b>		

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.210	0.239	.
(14) Massachusetts Credibility:	0.290	0.360	.
(15) Countrywide Pure Premium:	0.672	0.198	0.870
(16) Countrywide Indicated Relativity:	0.311	0.186	.
(17) Countrywide Credibility:	0.360	0.320	.
(18) Countrywide Lost-Time Claims:	420.00	.	.
(19) Pure Premium Underlying Present Rate:	0.930	0.330	1.261
(20) Relativity to Underlying Present Rate:	0.382	0.250	.
(21) Credibility to Underlying Relativity:	0.350	0.320	.
(22) Industry Group Converted Pure Premium:	2.400	1.195	3.595
(23) Formula Relativity:	0.306	0.226	.
(24) Balanced Formula Relativity:	0.305	0.227	0.279

Class(es):									Effective: 7/1/2018			Miscellaneous	
7425 AIRCRAFT OR HELICOP OP: NOC- HELICOPTERS: FLYING CREW													
Converted Unlimited Losses													
Amount													
		Claim Count		Indemnity		Medical		Total	MA Indicated Pure Premiums				
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	(9)	Indemnity (10)	Medical (11)	Total (12)		
2011	66,164	0	0	0	0	0	0	0	0.000	0.000	0.000		
2012	65,394	0	5	0	0	0	4,583	4,583	0.000	0.070	0.070		
2013	68,665	0	4	0	663	0	4,026	4,689	0.010	0.059	0.068		
2014	70,934	0	2	0	2,562	0	2,979	5,542	0.036	0.042	0.078		
2015	75,417	0	6	0	277,480	0	173,602	451,082	3.679	2.302	5.981		
<b>MA Total:</b>	<b>346,574</b>	<b>0</b>	<b>17</b>	<b>0</b>	<b>280,706</b>	<b>0</b>	<b>185,191</b>	<b>465,896</b>	<b>0.810</b>	<b>0.534</b>	<b>1.344</b>		

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.337	0.447	.
(14) Massachusetts Credibility:	0.210	0.220	.
(15) Countrywide Pure Premium:	1.690	0.333	2.023
(16) Countrywide Indicated Relativity:	0.783	0.313	.
(17) Countrywide Credibility:	0.400	0.390	.
(18) Countrywide Lost-Time Claims:	160.00	.	.
(19) Pure Premium Underlying Present Rate:	1.645	0.407	2.052
(20) Relativity to Underlying Present Rate:	0.675	0.308	.
(21) Credibility to Underlying Relativity:	0.390	0.390	.
(22) Industry Group Converted Pure Premium:	2.400	1.195	3.595
(23) Formula Relativity:	0.647	0.341	.
(24) Balanced Formula Relativity:	0.645	0.343	0.544

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## Calculation of Class Relativities

Class(es):									Effective: 7/1/2018			Miscellaneous	
7502 GAS COMPANY: GAS CO-NATURAL GAS-LOCAL DISTRIBUTION & DR													
Converted Unlimited Losses													
									Amount				
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums					
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)		
2011	197,405	1	30	4,940	31,823	4,451	69,093	110,306	0.186	0.373	0.559		
2012	108,406	0	10	0	50,941	0	34,418	85,359	0.470	0.317	0.787		
2013	129,354	0	13	0	15,855	0	20,116	35,971	0.123	0.156	0.278		
2014	262,467	0	11	0	139,126	0	61,824	200,950	0.530	0.236	0.766		
2015	219,283	1	8	94,517	26,868	50,970	22,302	194,658	0.554	0.334	0.888		
<b>MA Total:</b>	<b>916,914</b>	<b>2</b>	<b>72</b>	<b>99,456</b>	<b>264,612</b>	<b>55,421</b>	<b>207,754</b>	<b>627,243</b>	<b>0.397</b>	<b>0.287</b>	<b>0.684</b>		

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.165	0.240	.
(14) Massachusetts Credibility:	0.270	0.380	.
(15) Countrywide Pure Premium:	0.938	0.473	1.411
(16) Countrywide Indicated Relativity:	0.435	0.445	.
(17) Countrywide Credibility:	0.370	0.310	.
(18) Countrywide Lost-Time Claims:	469.00	.	.
(19) Pure Premium Underlying Present Rate:	1.090	0.578	1.668
(20) Relativity to Underlying Present Rate:	0.447	0.438	.
(21) Credibility to Underlying Relativity:	0.360	0.310	.
(22) Industry Group Converted Pure Premium:	2.400	1.195	3.595
(23) Formula Relativity:	0.366	0.365	.
(24) Balanced Formula Relativity:	0.365	0.367	0.366

Class(es):									Effective: 7/1/2018			Miscellaneous	
7515 OIL OR GAS PIPELINE OPERATION & DRIVERS													
Converted Unlimited Losses													
									Amount				
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums					
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)		
2011	13,382	0	0	0	0	0	0	0	0.000	0.000	0.000		
2012	12,749	0	1	0	5,512	0	5,126	10,637	0.432	0.402	0.834		
2013	12,168	0	0	0	0	0	0	0	0.000	0.000	0.000		
2014	7,723	2	11	256,108	33,466	289,663	48,676	627,913	37.495	43.809	81.304		
2015	8,561	0	0	0	0	0	0	0	0.000	0.000	0.000		
<b>MA Total:</b>	<b>54,583</b>	<b>2</b>	<b>12</b>	<b>256,108</b>	<b>38,977</b>	<b>289,663</b>	<b>53,801</b>	<b>638,550</b>	<b>5.406</b>	<b>6.293</b>	<b>11.699</b>		

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	2.252	5.266	.
(14) Massachusetts Credibility:	0.080	0.140	.
(15) Countrywide Pure Premium:	0.579	0.270	0.849
(16) Countrywide Indicated Relativity:	0.269	0.253	.
(17) Countrywide Credibility:	0.460	0.430	.
(18) Countrywide Lost-Time Claims:	387.00	.	.
(19) Pure Premium Underlying Present Rate:	0.822	0.841	1.663
(20) Relativity to Underlying Present Rate:	0.337	0.637	.
(21) Credibility to Underlying Relativity:	0.460	0.430	.
(22) Industry Group Converted Pure Premium:	2.400	1.195	3.595
(23) Formula Relativity:	0.459	1.120	.
(24) Balanced Formula Relativity:	0.457	1.128	0.680

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## Calculation of Class Relativities

Class(es):		Effective: 7/1/2018							Miscellaneous			
7520 WATERWORKS OPERATION & DRIVERS												
		Converted Unlimited Losses										
		Amount										
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums				
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)	
2011	220,200	3	38	149,974	443,022	32,534	223,490	849,020	2,693	1,163	3,856	
2012	233,939	1	37	81,980	173,445	10,966	95,188	361,579	1,092	0,454	1,546	
2013	260,963	0	49	0	94,288	0	137,991	232,279	0,361	0,529	0,890	
2014	193,082	1	25	3,817	32,441	10,728	52,941	99,926	0,188	0,330	0,518	
2015	241,367	1	33	369,778	187,577	47,876	181,193	786,425	2,309	0,949	3,258	
<b>MA Total:</b>	<b>1,149,549</b>	<b>6</b>	<b>182</b>	<b>605,549</b>	<b>930,773</b>	<b>102,104</b>	<b>690,804</b>	<b>2,329,230</b>	<b>1,336</b>	<b>0,690</b>	<b>2,026</b>	

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.557	0.577	.
(14) Massachusetts Credibility:	0.340	0.480	.
(15) Countrywide Pure Premium:	1.604	0.795	2.399
(16) Countrywide Indicated Relativity:	0.743	0.748	.
(17) Countrywide Credibility:	0.330	0.260	.
(18) Countrywide Lost-Time Claims:	2101.0	.	.
(19) Pure Premium Underlying Present Rate:	1.604	0.821	2.425
(20) Relativity to Underlying Present Rate:	0.658	0.622	.
(21) Credibility to Underlying Relativity:	0.330	0.260	.
(22) Industry Group Converted Pure Premium:	2.400	1.195	3.595
(23) Formula Relativity:	0.652	0.633	.
(24) Balanced Formula Relativity:	0.649	0.638	0.645

Class(es):		Effective: 7/1/2018							Construction			
7538 ELECTRIC LIGHT OR POWER LINE CONSTRUCTION & DRIVERS												
		Converted Unlimited Losses										
		Amount										
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums				
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)	
2011	165,799	1	9	73,254	298,813	51,470	110,655	534,193	2,244	0,978	3,222	
2012	263,385	0	9	0	76,793	0	86,168	162,961	0,292	0,327	0,619	
2013	184,275	0	22	0	1,424,859	0	609,530	2,034,389	7,732	3,308	11,040	
2014	91,964	0	14	0	609,057	0	301,003	910,060	6,623	3,273	9,896	
2015	127,358	1	14	129,499	708,420	66,081	308,294	1,212,295	6,579	2,940	9,519	
<b>MA Total:</b>	<b>832,781</b>	<b>2</b>	<b>68</b>	<b>202,753</b>	<b>3,117,942</b>	<b>117,552</b>	<b>1,415,650</b>	<b>4,853,897</b>	<b>3,987</b>	<b>1,841</b>	<b>5,829</b>	

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	1.520	1.557	.
(14) Massachusetts Credibility:	0.390	0.500	.
(15) Countrywide Pure Premium:	2.798	1.307	4.105
(16) Countrywide Indicated Relativity:	1.092	1.154	.
(17) Countrywide Credibility:	0.310	0.250	.
(18) Countrywide Lost-Time Claims:	1104.0	.	.
(19) Pure Premium Underlying Present Rate:	3.176	1.272	4.448
(20) Relativity to Underlying Present Rate:	1.157	0.949	.
(21) Credibility to Underlying Relativity:	0.300	0.250	.
(22) Industry Group Converted Pure Premium:	2.624	1.182	3.806
(23) Formula Relativity:	1.278	1.304	.
(24) Balanced Formula Relativity:	1.286	1.306	1.292

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## Calculation of Class Relativities

Class(es):									Effective: 7/1/2018			Miscellaneous		
7539 ELECTRIC LIGHT OR POWER CO NOC-ALL EMP & DRIVERS														
Converted Unlimited Losses														
Amount														
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums						
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)			
2011	766.913	2	37	273.076	250.425	58.381	159.975	741.857	0.683	0.285	0.967			
2012	1,129.266	0	31	0	148.918	0	91.035	239.953	0.132	0.081	0.212			
2013	1,012.938	1	20	436.754	108.342	301.180	51.053	897.329	0.538	0.348	0.886			
2014	1,003.814	0	29	0	137.448	0	152.231	289.679	0.137	0.152	0.289			
2015	1,128.567	2	42	667.722	528.659	303.451	270.404	1,770.237	1.060	0.508	1.569			
<b>MA Total:</b>	<b>5,041.498</b>	<b>5</b>	<b>159</b>	<b>1,377.552</b>	<b>1,173.792</b>	<b>663.012</b>	<b>724.697</b>	<b>3,939.054</b>	<b>0.506</b>	<b>0.275</b>	<b>0.781</b>			

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.211	0.230	.
(14) Massachusetts Credibility:	0.440	0.580	.
(15) Countrywide Pure Premium:	0.744	0.377	1.121
(16) Countrywide Indicated Relativity:	0.345	0.355	.
(17) Countrywide Credibility:	0.280	0.210	.
(18) Countrywide Lost-Time Claims:	1395.0	.	.
(19) Pure Premium Underlying Present Rate:	0.674	0.311	0.985
(20) Relativity to Underlying Present Rate:	0.276	0.236	.
(21) Credibility to Underlying Relativity:	0.280	0.210	.
(22) Industry Group Converted Pure Premium:	2.400	1.195	3.595
(23) Formula Relativity:	0.267	0.258	.
(24) Balanced Formula Relativity:	0.266	0.259	0.264

Class(es):									Effective: 7/1/2018			Miscellaneous		
7580 SEWAGE DISPOSAL PLANT OPERATION & DRIVERS														
Converted Unlimited Losses														
Amount														
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums						
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)			
2011	395.495	4	35	1,116.218	467.977	284.688	280.842	2,149.725	4.006	1.430	5.436			
2012	417.711	5	38	587.018	334.583	224.439	157.004	1,303.044	2.206	0.913	3.119			
2013	341.832	1	24	286.692	104.071	33.010	158.813	582.587	1.143	0.561	1.704			
2014	296.448	4	23	347.808	97.696	72.437	55.661	573.602	1.503	0.432	1.935			
2015	276.182	1	30	399.351	542.466	63.678	145.746	1,151.240	3.410	0.758	4.168			
<b>MA Total:</b>	<b>1,727.667</b>	<b>15</b>	<b>150</b>	<b>2,737.086</b>	<b>1,546.793</b>	<b>678.252</b>	<b>798.067</b>	<b>5,760.199</b>	<b>2.480</b>	<b>0.855</b>	<b>3.334</b>			

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	1.033	0.715	.
(14) Massachusetts Credibility:	0.390	0.620	.
(15) Countrywide Pure Premium:	1.012	0.585	1.598
(16) Countrywide Indicated Relativity:	0.469	0.551	.
(17) Countrywide Credibility:	0.310	0.190	.
(18) Countrywide Lost-Time Claims:	705.00	.	.
(19) Pure Premium Underlying Present Rate:	1.542	1.036	2.577
(20) Relativity to Underlying Present Rate:	0.632	0.785	.
(21) Credibility to Underlying Relativity:	0.300	0.190	.
(22) Industry Group Converted Pure Premium:	2.400	1.195	3.595
(23) Formula Relativity:	0.738	0.697	.
(24) Balanced Formula Relativity:	0.735	0.702	0.724

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## Calculation of Class Relativities

Class(es):		Effective: 7/1/2018							Miscellaneous		
7590 GARBAGE WORKS											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2011	22,429	0	1	0	50,309	0	17,314	67,623	2,243	0,772	3,015
2012	27,563	0	1	0	0	0	1,796	1,796	0,000	0,065	0,065
2013	23,882	1	7	9,052	29,447	493	8,528	47,519	1,612	0,378	1,990
2014	29,485	1	8	31,148	29,858	8,801	18,375	88,181	2,069	0,922	2,991
2015	27,464	0	19	0	244,018	0	84,343	328,361	8,885	3,071	11,956
<b>MA Total:</b>	<b>130,824</b>	<b>2</b>	<b>36</b>	<b>40,199</b>	<b>353,632</b>	<b>9,293</b>	<b>130,356</b>	<b>533,481</b>	<b>3,010</b>	<b>1,067</b>	<b>4,078</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	1.254	0.893	.
(14) Massachusetts Credibility:	0.150	0.210	.
(15) Countrywide Pure Premium:	1.585	0.852	2.437
(16) Countrywide Indicated Relativity:	0.734	0.802	.
(17) Countrywide Credibility:	0.430	0.400	.
(18) Countrywide Lost-Time Claims:	418.00	.	.
(19) Pure Premium Underlying Present Rate:	1.885	0.942	2.826
(20) Relativity to Underlying Present Rate:	0.773	0.713	.
(21) Credibility to Underlying Relativity:	0.420	0.390	.
(22) Industry Group Converted Pure Premium:	2.400	1.195	3.595
(23) Formula Relativity:	0.829	0.786	.
(24) Balanced Formula Relativity:	0.825	0.792	0.814

Class(es):		Effective: 7/1/2018							Miscellaneous		
7600 TELEPHONE OR TELEGRAPH CO: ALL OTHER EMP & DR											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2011	3,568,603	20	339	2,245,306	3,698,862	841,431	1,932,255	8,717,855	1,666	0,777	2,443
2012	3,379,626	19	256	2,535,032	3,718,866	687,464	1,649,429	8,590,792	1,850	0,691	2,542
2013	3,682,689	34	285	5,483,304	3,721,034	1,620,979	1,664,231	12,489,548	2,499	0,892	3,391
2014	3,550,287	8	126	1,693,837	1,339,056	593,892	850,697	4,477,481	0,854	0,407	1,261
2015	3,068,634	13	164	1,782,701	4,457,743	535,466	1,790,796	8,566,707	2,034	0,758	2,792
<b>MA Total:</b>	<b>17,249,839</b>	<b>94</b>	<b>1,170</b>	<b>13,740,180</b>	<b>16,935,561</b>	<b>4,279,233</b>	<b>7,887,408</b>	<b>42,842,382</b>	<b>1,778</b>	<b>0,705</b>	<b>2,484</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.741	0.590	.
(14) Massachusetts Credibility:	1.000	1.000	.
(15) Countrywide Pure Premium:	2.181	1.008	3.188
(16) Countrywide Indicated Relativity:	1.011	0.948	.
(17) Countrywide Credibility:	0.000	0.000	.
(18) Countrywide Lost-Time Claims:	12013	.	.
(19) Pure Premium Underlying Present Rate:	2.137	0.915	3.053
(20) Relativity to Underlying Present Rate:	0.877	0.694	.
(21) Credibility to Underlying Relativity:	0.000	0.000	.
(22) Industry Group Converted Pure Premium:	2.400	1.195	3.595
(23) Formula Relativity:	0.741	0.590	.
(24) Balanced Formula Relativity:	0.738	0.594	0.690



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## Calculation of Class Relativities

Class(es):		Effective: 7/1/2018							Construction			
7601 TELEPHONE, TELEGRAPH OR FIRE ALARM LINE CONSTRUCTION & DR												
		Converted Unlimited Losses										
		Amount										
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums				
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)	
2011	187,329	0	27	0	64,858	0	72,472	137,331	0.346	0.387	0.733	
2012	255,263	2	38	377,122	254,215	70,369	248,696	950,402	2.473	1.250	3.723	
2013	259,744	1	29	71,451	413,120	101,892	163,640	750,102	1.866	1.022	2.888	
2014	271,376	0	22	0	417,064	0	148,884	565,949	1.537	0.549	2.085	
2015	236,429	5	26	1,291,761	20,265	1,165,177	49,174	2,526,378	5.549	5.136	10.686	
<b>MA Total:</b>	<b>1,210,142</b>	<b>8</b>	<b>142</b>	<b>1,740,333</b>	<b>1,169,523</b>	<b>1,337,438</b>	<b>682,866</b>	<b>4,930,160</b>	<b>2.405</b>	<b>1.669</b>	<b>4.074</b>	

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.916	1.412	.
(14) Massachusetts Credibility:	0.420	0.610	.
(15) Countrywide Pure Premium:	6.472	3.463	9.934
(16) Countrywide Indicated Relativity:	2.526	3.058	.
(17) Countrywide Credibility:	0.240	0.200	.
(18) Countrywide Lost-Time Claims:	32.000	.	.
(19) Pure Premium Underlying Present Rate:	2.562	1.420	3.982
(20) Relativity to Underlying Present Rate:	0.934	1.059	.
(21) Credibility to Underlying Relativity:	0.340	0.190	.
(22) Industry Group Converted Pure Premium:	2.624	1.182	3.806
(23) Formula Relativity:	1.309	1.674	.
(24) Balanced Formula Relativity:	1.316	1.676	1.428

Class(es):		Effective: 7/1/2018							Office and Clerical			
7610 RADIO OR TV BROADCAST STATION-ALL EMP & CL, DR												
		Converted Unlimited Losses										
		Amount										
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums				
Policy Period (1)	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)	
2011	4,704,321	9	125	2,014,714	764,036	315,620	371,847	3,466,217	0.591	0.146	0.737	
2012	4,652,946	4	60	493,803	327,655	81,064	199,643	1,102,165	0.177	0.060	0.237	
2013	4,443,777	3	56	53,581	512,496	8,025	255,523	829,626	0.127	0.059	0.187	
2014	4,075,551	3	73	319,822	301,198	133,535	266,219	1,020,775	0.152	0.098	0.250	
2015	3,750,575	5	56	1,098,848	1,728,056	259,375	522,234	3,608,511	0.754	0.208	0.962	
<b>MA Total:</b>	<b>21,627,171</b>	<b>24</b>	<b>370</b>	<b>3,980,769</b>	<b>3,633,440</b>	<b>797,619</b>	<b>1,615,466</b>	<b>10,027,294</b>	<b>0.352</b>	<b>0.112</b>	<b>0.464</b>	

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	4.935	2.558	.
(14) Massachusetts Credibility:	0.510	0.680	.
(15) Countrywide Pure Premium:	0.149	0.085	0.234
(16) Countrywide Indicated Relativity:	2.448	2.203	.
(17) Countrywide Credibility:	0.250	0.160	.
(18) Countrywide Lost-Time Claims:	1851.0	.	.
(19) Pure Premium Underlying Present Rate:	0.231	0.107	0.338
(20) Relativity to Underlying Present Rate:	3.168	2.214	.
(21) Credibility to Underlying Relativity:	0.240	0.160	.
(22) Industry Group Converted Pure Premium:	0.071	0.044	0.115
(23) Formula Relativity:	3.889	2.446	.
(24) Balanced Formula Relativity:	3.915	2.453	3.360

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## Calculation of Class Relativities

Class(es):		Effective: 7/1/2018							Miscellaneous		
7704 FIREFIGHTERS & DRIVERS											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2011	12,606	0	2	0	0	0	465	465	0.000	0.037	0.037
2012	15,913	0	1	0	3,868	0	1,892	5,760	0.243	0.119	0.362
2013	17,642	0	0	0	0	0	0	0	0.000	0.000	0.000
2014	15,028	0	4	0	3,639	0	7,375	11,014	0.242	0.491	0.733
2015	15,131	0	3	0	192,104	0	80,070	272,174	12.696	5.292	17.988
<b>MA Total:</b>	<b>76,320</b>	<b>0</b>	<b>10</b>	<b>0</b>	<b>199,611</b>	<b>0</b>	<b>89,802</b>	<b>289,413</b>	<b>2.615</b>	<b>1.177</b>	<b>3.792</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	1.090	0.985	.
(14) Massachusetts Credibility:	0.130	0.200	.
(15) Countrywide Pure Premium:	1.763	1.246	3.009
(16) Countrywide Indicated Relativity:	0.817	1.172	.
(17) Countrywide Credibility:	0.440	0.400	.
(18) Countrywide Lost-Time Claims:	851.00	.	.
(19) Pure Premium Underlying Present Rate:	2.101	1.422	3.523
(20) Relativity to Underlying Present Rate:	0.862	1.077	.
(21) Credibility to Underlying Relativity:	0.430	0.400	.
(22) Industry Group Converted Pure Premium:	2.400	1.195	3.595
(23) Formula Relativity:	0.872	1.097	.
(24) Balanced Formula Relativity:	0.868	1.104	0.947

Class(es):		Effective: 7/1/2018							Miscellaneous		
7720 POLICE OFFICERS & DRIVERS											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2011	1,869,927	4	136	766,562	534,381	464,274	491,997	2,257,214	0.696	0.511	1.207
2012	1,841,806	5	121	150,245	538,063	36,630	416,436	1,141,374	0.374	0.246	0.620
2013	1,678,734	4	105	342,274	852,015	379,507	447,206	2,021,003	0.711	0.492	1.204
2014	1,668,982	4	130	165,260	471,360	122,960	280,423	1,040,004	0.381	0.242	0.623
2015	1,819,810	8	107	561,792	271,452	221,011	261,734	1,315,989	0.458	0.265	0.723
<b>MA Total:</b>	<b>8,879,260</b>	<b>25</b>	<b>599</b>	<b>1,986,133</b>	<b>2,667,271</b>	<b>1,224,383</b>	<b>1,897,796</b>	<b>7,775,584</b>	<b>0.524</b>	<b>0.352</b>	<b>0.876</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.218	0.294	.
(14) Massachusetts Credibility:	0.600	0.860	.
(15) Countrywide Pure Premium:	1.163	0.695	1.858
(16) Countrywide Indicated Relativity:	0.539	0.654	.
(17) Countrywide Credibility:	0.200	0.070	.
(18) Countrywide Lost-Time Claims:	12167	.	.
(19) Pure Premium Underlying Present Rate:	0.847	0.469	1.316
(20) Relativity to Underlying Present Rate:	0.347	0.355	.
(21) Credibility to Underlying Relativity:	0.200	0.070	.
(22) Industry Group Converted Pure Premium:	2.400	1.195	3.595
(23) Formula Relativity:	0.308	0.324	.
(24) Balanced Formula Relativity:	0.307	0.326	0.313

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## Calculation of Class Relativities

Class(es):		Effective: 7/1/2018							Construction		
7855 RAILROAD CONSTR: LAYING/RELAYING TRACK OR MAINT BY CONTR &DR											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2011	20,444	0	1	0	1,264	0	2,422	3,686	0.062	0.118	0.180
2012	14,570	0	6	0	217,013	0	71,498	288,511	14.894	4.907	19.801
2013	13,133	0	1	0	6,087	0	4,883	10,970	0.463	0.372	0.835
2014	19,919	0	1	0	4,523	0	1,580	6,103	0.227	0.079	0.306
2015	60,790	0	4	0	69,990	0	33,394	103,384	1.151	0.549	1.701
<b>MA Total:</b>	<b>128,857</b>	<b>0</b>	<b>13</b>	<b>0</b>	<b>298,877</b>	<b>0</b>	<b>113,777</b>	<b>412,654</b>	<b>2.319</b>	<b>0.883</b>	<b>3.202</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.884	0.747	.
(14) Massachusetts Credibility:	0.180	0.220	.
(15) Countrywide Pure Premium:	2.251	0.984	3.235
(16) Countrywide Indicated Relativity:	0.879	0.869	.
(17) Countrywide Credibility:	0.410	0.390	.
(18) Countrywide Lost-Time Claims:	314.00	.	.
(19) Pure Premium Underlying Present Rate:	2.752	1.087	3.839
(20) Relativity to Underlying Present Rate:	1.003	0.811	.
(21) Credibility to Underlying Relativity:	0.410	0.390	.
(22) Industry Group Converted Pure Premium:	2.624	1.182	3.806
(23) Formula Relativity:	0.930	0.819	.
(24) Balanced Formula Relativity:	0.936	0.820	0.900

Class(es):		Effective: 7/1/2018							Goods and Services		
8001 STORE: FLORISTS & DRIVERS											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period (1)	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2011	619,691	2	64	2,728	450,138	4,839	170,169	627,873	0.731	0.282	1.013
2012	598,695	3	65	358,902	293,804	334,862	304,776	1,292,343	1.090	1.068	2.159
2013	619,868	3	79	179,881	197,009	39,310	268,837	685,037	0.608	0.497	1.105
2014	624,565	6	50	483,262	281,541	399,496	110,348	1,274,647	1.225	0.816	2.041
2015	634,706	6	51	230,717	115,079	180,834	126,661	653,290	0.545	0.484	1.029
<b>MA Total:</b>	<b>3,097,525</b>	<b>20</b>	<b>309</b>	<b>1,255,490</b>	<b>1,337,571</b>	<b>959,340</b>	<b>980,790</b>	<b>4,533,191</b>	<b>0.837</b>	<b>0.626</b>	<b>1.463</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	1.000	1.315	.
(14) Massachusetts Credibility:	0.380	0.640	.
(15) Countrywide Pure Premium:	0.875	0.584	1.459
(16) Countrywide Indicated Relativity:	1.048	1.221	.
(17) Countrywide Credibility:	0.310	0.180	.
(18) Countrywide Lost-Time Claims:	1229.0	.	.
(19) Pure Premium Underlying Present Rate:	0.797	0.629	1.426
(20) Relativity to Underlying Present Rate:	0.961	1.234	.
(21) Credibility to Underlying Relativity:	0.310	0.180	.
(22) Industry Group Converted Pure Premium:	0.837	0.476	1.314
(23) Formula Relativity:	1.003	1.283	.
(24) Balanced Formula Relativity:	0.996	1.283	1.100

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## Calculation of Class Relativities

Class(es):		Effective: 7/1/2018							Goods and Services			
8002 AUTOMOBILE RENTAL CO: ALL OTHER EMP & COUNTER PERSONNEL, DR												
		Converted Unlimited Losses										
		Amount										
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums				
Policy Period (1)	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)	
2011	185,420	0	32	0	71,399	0	60,403	131,802	0.385	0.326	0.711	
2012	183,915	1	30	19,396	133,181	794	46,002	199,373	0.830	0.254	1.084	
2013	81,323	0	5	0	12,210	0	11,241	23,450	0.150	0.138	0.288	
2014	98,640	0	26	0	47,652	0	133,695	181,348	0.483	1.355	1.838	
2015	81,206	1	16	56,933	38,646	44,215	16,776	156,569	1.177	0.751	1.928	
<b>MA Total:</b>	<b>630,503</b>	<b>2</b>	<b>109</b>	<b>76,329</b>	<b>303,088</b>	<b>45,009</b>	<b>268,116</b>	<b>692,541</b>	<b>0.602</b>	<b>0.497</b>	<b>1.098</b>	

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.719	1.042	.
(14) Massachusetts Credibility:	0.190	0.310	.
(15) Countrywide Pure Premium:	0.672	0.525	1.197
(16) Countrywide Indicated Relativity:	0.805	1.097	.
(17) Countrywide Credibility:	0.410	0.350	.
(18) Countrywide Lost-Time Claims:	1682.0	.	.
(19) Pure Premium Underlying Present Rate:	0.680	0.498	1.178
(20) Relativity to Underlying Present Rate:	0.820	0.977	.
(21) Credibility to Underlying Relativity:	0.400	0.340	.
(22) Industry Group Converted Pure Premium:	0.837	0.476	1.314
(23) Formula Relativity:	0.795	1.039	.
(24) Balanced Formula Relativity:	0.789	1.039	0.880

Class(es):		Effective: 7/1/2018							Goods and Services			
8006 STORE: GROCERY STORES-RETAIL-NO HANDLING OF FRESH MEATS												
		Converted Unlimited Losses										
		Amount										
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums				
Policy Period (1)	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)	
2011	2,373,422	10	250	557,655	252,379	220,195	332,388	1,362,617	0.341	0.233	0.574	
2012	2,480,707	4	314	236,848	828,060	56,059	765,638	1,886,606	0.429	0.331	0.761	
2013	2,643,382	9	317	648,851	883,229	576,513	778,315	2,886,908	0.580	0.513	1.092	
2014	2,795,130	5	300	308,258	1,004,501	525,457	1,087,287	2,925,503	0.470	0.577	1.047	
2015	3,031,397	8	260	405,155	1,230,413	167,256	1,099,157	2,901,982	0.540	0.418	0.957	
<b>MA Total:</b>	<b>13,324,037</b>	<b>36</b>	<b>1,441</b>	<b>2,156,768</b>	<b>4,198,582</b>	<b>1,545,480</b>	<b>4,062,785</b>	<b>11,963,615</b>	<b>0.477</b>	<b>0.421</b>	<b>0.898</b>	

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.570	0.883	.
(14) Massachusetts Credibility:	0.630	1.000	.
(15) Countrywide Pure Premium:	0.882	0.533	1.415
(16) Countrywide Indicated Relativity:	1.057	1.113	.
(17) Countrywide Credibility:	0.190	0.000	.
(18) Countrywide Lost-Time Claims:	11500	.	.
(19) Pure Premium Underlying Present Rate:	0.656	0.445	1.101
(20) Relativity to Underlying Present Rate:	0.791	0.874	.
(21) Credibility to Underlying Relativity:	0.180	0.000	.
(22) Industry Group Converted Pure Premium:	0.837	0.476	1.314
(23) Formula Relativity:	0.702	0.883	.
(24) Balanced Formula Relativity:	0.697	0.883	0.765

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## Calculation of Class Relativities

Class(es):		Effective: 7/1/2018							Goods and Services		
8008 STORE: CLOTHING, WEARING APPAREL OR DRY GOODS - RETAIL											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period (1)	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2011	3,259,823	5	257	324,330	772,627	64,078	675,131	1,836,166	0.337	0.227	0.563
2012	3,318,329	6	255	222,183	1,144,279	160,715	756,839	2,284,016	0.412	0.277	0.688
2013	3,493,509	4	247	161,272	716,879	51,281	354,357	1,283,789	0.251	0.116	0.367
2014	3,474,094	13	225	631,340	863,284	455,531	495,153	2,445,309	0.430	0.274	0.704
2015	3,401,290	5	199	213,591	1,003,683	273,803	525,879	2,016,955	0.358	0.235	0.593
<b>MA Total:</b>	<b>16,947,044</b>	<b>33</b>	<b>1,183</b>	<b>1,552,716</b>	<b>4,500,752</b>	<b>1,005,408</b>	<b>2,807,359</b>	<b>9,866,235</b>	<b>0.357</b>	<b>0.225</b>	<b>0.582</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.427	0.472	.
(14) Massachusetts Credibility:	0.570	0.840	.
(15) Countrywide Pure Premium:	0.426	0.286	0.712
(16) Countrywide Indicated Relativity:	0.510	0.598	.
(17) Countrywide Credibility:	0.220	0.080	.
(18) Countrywide Lost-Time Claims:	9124.0	.	.
(19) Pure Premium Underlying Present Rate:	0.391	0.230	0.620
(20) Relativity to Underlying Present Rate:	0.471	0.451	.
(21) Credibility to Underlying Relativity:	0.210	0.080	.
(22) Industry Group Converted Pure Premium:	0.837	0.476	1.314
(23) Formula Relativity:	0.454	0.481	.
(24) Balanced Formula Relativity:	0.451	0.480	0.462

Class(es):		Effective: 7/1/2018							Goods and Services		
8010 STORE: HARDWARE											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period (1)	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2011	2,038,636	9	252	408,173	1,000,120	319,618	746,727	2,474,638	0.691	0.523	1.214
2012	1,843,982	7	244	274,143	1,284,575	230,380	842,833	2,631,931	0.845	0.582	1.427
2013	1,889,931	2	195	286,280	881,128	47,760	669,170	1,884,338	0.618	0.379	0.997
2014	1,940,971	7	176	1,326,431	1,114,193	600,650	666,274	3,707,549	1.257	0.653	1.910
2015	1,989,390	2	175	100,632	1,314,261	93,392	1,055,663	2,563,948	0.711	0.578	1.289
<b>MA Total:</b>	<b>9,702,911</b>	<b>27</b>	<b>1,042</b>	<b>2,395,659</b>	<b>5,594,278</b>	<b>1,291,800</b>	<b>3,980,668</b>	<b>13,262,405</b>	<b>0.823</b>	<b>0.543</b>	<b>1.367</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.983	1.141	.
(14) Massachusetts Credibility:	0.560	0.860	.
(15) Countrywide Pure Premium:	0.678	0.425	1.103
(16) Countrywide Indicated Relativity:	0.812	0.888	.
(17) Countrywide Credibility:	0.220	0.070	.
(18) Countrywide Lost-Time Claims:	5387.0	.	.
(19) Pure Premium Underlying Present Rate:	0.665	0.430	1.094
(20) Relativity to Underlying Present Rate:	0.802	0.843	.
(21) Credibility to Underlying Relativity:	0.220	0.070	.
(22) Industry Group Converted Pure Premium:	0.837	0.476	1.314
(23) Formula Relativity:	0.906	1.102	.
(24) Balanced Formula Relativity:	0.900	1.102	0.973

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## Calculation of Class Relativities

Class(es):		Effective: 7/1/2018							Goods and Services		
8013 STORE: JEWELRY STORES											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period (1)	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2011	1,389,588	0	30	0	389,850	0	243,953	633,802	0.281	0.176	0.456
2012	1,392,669	1	27	27,608	47,277	7,377	90,864	173,126	0.054	0.071	0.124
2013	1,395,293	1	22	56,947	147,163	22,444	88,523	315,078	0.146	0.080	0.226
2014	1,389,400	1	30	21,411	252,392	49,633	121,712	445,149	0.197	0.123	0.320
2015	1,426,023	0	9	0	1,420	0	5,224	6,644	0.001	0.004	0.005
<b>MA Total:</b>	<b>6,992,974</b>	<b>3</b>	<b>118</b>	<b>105,966</b>	<b>838,103</b>	<b>79,454</b>	<b>550,276</b>	<b>1,573,799</b>	<b>0.135</b>	<b>0.090</b>	<b>0.225</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.161	0.189	.
(14) Massachusetts Credibility:	0.300	0.470	.
(15) Countrywide Pure Premium:	0.190	0.093	0.283
(16) Countrywide Indicated Relativity:	0.228	0.193	.
(17) Countrywide Credibility:	0.350	0.270	.
(18) Countrywide Lost-Time Claims:	780.00	.	.
(19) Pure Premium Underlying Present Rate:	0.188	0.130	0.317
(20) Relativity to Underlying Present Rate:	0.226	0.254	.
(21) Credibility to Underlying Relativity:	0.350	0.260	.
(22) Industry Group Converted Pure Premium:	0.837	0.476	1.314
(23) Formula Relativity:	0.207	0.207	.
(24) Balanced Formula Relativity:	0.206	0.207	0.206

Class(es):		Effective: 7/1/2018							Goods and Services		
8017 STORE: RETAIL NOC											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period (1)	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2011	13,167,432	28	1,315	2,036,036	4,666,666	1,101,419	2,669,541	10,473,662	0.509	0.286	0.795
2012	13,120,197	35	1,223	1,810,930	4,421,090	1,028,161	3,020,051	10,280,232	0.475	0.309	0.784
2013	12,433,955	33	1,102	2,860,060	3,073,699	834,435	3,001,084	9,769,277	0.477	0.308	0.786
2014	13,405,385	35	1,128	2,213,048	3,846,511	1,235,465	3,152,381	10,447,405	0.452	0.327	0.779
2015	14,169,162	32	1,139	1,776,503	3,916,345	986,880	2,718,822	9,398,550	0.402	0.262	0.663
<b>MA Total:</b>	<b>66,296,130</b>	<b>163</b>	<b>5,907</b>	<b>10,696,576</b>	<b>19,924,310</b>	<b>5,186,361</b>	<b>14,561,879</b>	<b>50,369,126</b>	<b>0.462</b>	<b>0.298</b>	<b>0.760</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.552	0.625	.
(14) Massachusetts Credibility:	1.000	1.000	.
(15) Countrywide Pure Premium:	0.528	0.357	0.885
(16) Countrywide Indicated Relativity:	0.633	0.746	.
(17) Countrywide Credibility:	0.000	0.000	.
(18) Countrywide Lost-Time Claims:	35550	.	.
(19) Pure Premium Underlying Present Rate:	0.487	0.335	0.822
(20) Relativity to Underlying Present Rate:	0.588	0.657	.
(21) Credibility to Underlying Relativity:	0.000	0.000	.
(22) Industry Group Converted Pure Premium:	0.837	0.476	1.314
(23) Formula Relativity:	0.552	0.625	.
(24) Balanced Formula Relativity:	0.548	0.625	0.576

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## Calculation of Class Relativities

Class(es): 8018 STORE: WHOLESALE NOC		Effective: 7/1/2018							Goods and Services		
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period (1)	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2011	2,999,100	22	667	1,783,747	2,598,529	752,910	1,672,449	6,807,635	1,461	0,809	2,270
2012	3,074,910	16	574	1,522,055	2,748,755	422,926	1,850,751	6,544,487	1,389	0,739	2,128
2013	3,423,941	27	717	3,078,537	3,911,246	1,170,172	2,207,780	10,367,734	2,041	0,987	3,028
2014	3,354,346	17	670	1,795,466	5,075,678	627,609	2,906,588	10,405,342	2,048	1,054	3,102
2015	3,673,358	20	602	2,197,999	3,489,441	632,890	1,907,060	8,227,389	1,548	0,691	2,240
<b>MA Total:</b>	<b>16,525,655</b>	<b>102</b>	<b>3,230</b>	<b>10,377,804</b>	<b>17,823,649</b>	<b>3,606,507</b>	<b>10,544,628</b>	<b>42,352,588</b>	<b>1,707</b>	<b>0,856</b>	<b>2,563</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	2.038	1.797	.
(14) Massachusetts Credibility:	0.970	1.000	.
(15) Countrywide Pure Premium:	1.194	0.630	1.824
(16) Countrywide Indicated Relativity:	1.430	1.316	.
(17) Countrywide Credibility:	0.020	0.000	.
(18) Countrywide Lost-Time Claims:	21755	.	.
(19) Pure Premium Underlying Present Rate:	1.507	0.816	2.323
(20) Relativity to Underlying Present Rate:	1.818	1.600	.
(21) Credibility to Underlying Relativity:	0.010	0.000	.
(22) Industry Group Converted Pure Premium:	0.837	0.476	1.314
(23) Formula Relativity:	2.024	1.797	.
(24) Balanced Formula Relativity:	2.010	1.797	1.933

Class(es): 8021 STORE: MEAT, FISH OR POULTRY DEALER- WHOLESALE		Effective: 7/1/2018							Goods and Services		
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period (1)	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2011	706,228	4	130	109,091	1,653,293	26,600	642,769	2,431,753	2,495	0,948	3,443
2012	740,086	3	108	648,006	695,786	173,666	366,683	1,884,141	1,816	0,730	2,546
2013	821,450	6	91	549,378	1,123,202	149,633	665,247	2,487,459	2,036	0,992	3,028
2014	909,778	8	126	470,916	1,248,111	54,804	519,455	2,293,286	1,890	0,631	2,521
2015	963,675	6	139	498,408	1,394,696	183,304	602,857	2,679,264	1,964	0,816	2,780
<b>MA Total:</b>	<b>4,141,216</b>	<b>27</b>	<b>594</b>	<b>2,275,800</b>	<b>6,115,087</b>	<b>588,007</b>	<b>2,797,010</b>	<b>11,775,904</b>	<b>2,026</b>	<b>0,817</b>	<b>2,844</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	2.420	1.716	.
(14) Massachusetts Credibility:	0.540	0.810	.
(15) Countrywide Pure Premium:	1.239	0.793	2.032
(16) Countrywide Indicated Relativity:	1.484	1.657	.
(17) Countrywide Credibility:	0.230	0.100	.
(18) Countrywide Lost-Time Claims:	3134.0	.	.
(19) Pure Premium Underlying Present Rate:	1.418	0.862	2.280
(20) Relativity to Underlying Present Rate:	1.710	1.691	.
(21) Credibility to Underlying Relativity:	0.230	0.090	.
(22) Industry Group Converted Pure Premium:	0.837	0.476	1.314
(23) Formula Relativity:	2.041	1.708	.
(24) Balanced Formula Relativity:	2.028	1.707	1.911

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## Calculation of Class Relativities

Class(es):		Effective: 7/1/2018							Goods and Services			
8031 STORE: MEAT, FISH OR POULTRY - RETAIL												
		Converted Unlimited Losses										
		Amount										
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums				
Policy Period (1)	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)	
2011	224,708	0	37	0	266,320	0	55,893	322,214	1,185	0,249	1,434	
2012	215,394	0	26	0	3,005	0	25,449	28,454	0,014	0,118	0,132	
2013	196,932	2	20	387,511	69,562	170,768	57,661	685,502	2,321	1,160	3,481	
2014	199,290	0	23	0	31,680	0	50,249	81,929	0,159	0,252	0,411	
2015	206,820	1	16	6,840	48,257	36,034	49,345	140,476	0,266	0,413	0,679	
<b>MA Total:</b>	<b>1,043,144</b>	<b>3</b>	<b>122</b>	<b>394,351</b>	<b>418,825</b>	<b>206,802</b>	<b>238,597</b>	<b>1,258,575</b>	<b>0.780</b>	<b>0.427</b>	<b>1.207</b>	

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.931	0.896	.
(14) Massachusetts Credibility:	0.280	0.390	.
(15) Countrywide Pure Premium:	1.020	0.567	1.587
(16) Countrywide Indicated Relativity:	1.222	1.184	.
(17) Countrywide Credibility:	0.360	0.310	.
(18) Countrywide Lost-Time Claims:	626.00	.	.
(19) Pure Premium Underlying Present Rate:	1.072	0.554	1.625
(20) Relativity to Underlying Present Rate:	1.292	1.086	.
(21) Credibility to Underlying Relativity:	0.360	0.300	.
(22) Industry Group Converted Pure Premium:	0.837	0.476	1.314
(23) Formula Relativity:	1.166	1.042	.
(24) Balanced Formula Relativity:	1.158	1.042	1.116

Class(es):		Effective: 7/1/2018							Goods and Services			
8032 STORE: CLOTHING, WEARING APPAREL OR DRY GOODS - WHOLESALE												
		Converted Unlimited Losses										
		Amount										
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums				
Policy Period (1)	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)	
2011	284,815	0	44	0	139,047	0	56,649	195,695	0,488	0,199	0,687	
2012	280,256	0	41	0	354,802	0	87,653	442,455	1,266	0,313	1,579	
2013	294,095	0	31	0	10,149	0	27,338	37,487	0,035	0,093	0,127	
2014	322,133	0	27	0	93,914	0	111,123	205,037	0,292	0,345	0,636	
2015	256,092	0	29	0	27,586	0	42,583	70,169	0,108	0,166	0,274	
<b>MA Total:</b>	<b>1,437,391</b>	<b>0</b>	<b>172</b>	<b>0</b>	<b>625,498</b>	<b>0</b>	<b>325,345</b>	<b>950,843</b>	<b>0.435</b>	<b>0.226</b>	<b>0.662</b>	

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.520	0.475	.
(14) Massachusetts Credibility:	0.280	0.400	.
(15) Countrywide Pure Premium:	0.884	0.502	1.385
(16) Countrywide Indicated Relativity:	1.058	1.048	.
(17) Countrywide Credibility:	0.360	0.300	.
(18) Countrywide Lost-Time Claims:	1400.0	.	.
(19) Pure Premium Underlying Present Rate:	0.762	0.429	1.191
(20) Relativity to Underlying Present Rate:	0.919	0.842	.
(21) Credibility to Underlying Relativity:	0.360	0.300	.
(22) Industry Group Converted Pure Premium:	0.837	0.476	1.314
(23) Formula Relativity:	0.857	0.757	.
(24) Balanced Formula Relativity:	0.852	0.757	0.817



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## Calculation of Class Relativities

Class(es):		Effective: 7/1/2018							Goods and Services		
8033 STORE: MEAT, GROCERY & PROVISION COMBINED RETAIL-NOC											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period (1)	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2011	809,521	3	123	242,768	359,998	424,444	311,903	1,339,113	0.745	0.910	1.654
2012	607,789	1	66	27,373	314,980	1,750	326,617	670,719	0.563	0.540	1.104
2013	621,958	3	55	302,941	61,831	85,692	99,563	550,026	0.586	0.298	0.884
2014	893,772	2	120	128,481	975,055	48,589	417,810	1,569,935	1.235	0.522	1.757
2015	885,239	1	69	127,453	520,854	25,111	284,386	957,804	0.732	0.350	1.082
<b>MA Total:</b>	<b>3,818,280</b>	<b>10</b>	<b>433</b>	<b>829,015</b>	<b>2,232,719</b>	<b>585,585</b>	<b>1,440,279</b>	<b>5,087,597</b>	<b>0.802</b>	<b>0.531</b>	<b>1.332</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.958	1.114	.
(14) Massachusetts Credibility:	0.430	0.690	.
(15) Countrywide Pure Premium:	0.840	0.521	1.360
(16) Countrywide Indicated Relativity:	1.006	1.088	.
(17) Countrywide Credibility:	0.290	0.160	.
(18) Countrywide Lost-Time Claims:	21844	.	.
(19) Pure Premium Underlying Present Rate:	0.851	0.632	1.483
(20) Relativity to Underlying Present Rate:	1.026	1.240	.
(21) Credibility to Underlying Relativity:	0.280	0.150	.
(22) Industry Group Converted Pure Premium:	0.837	0.476	1.314
(23) Formula Relativity:	0.991	1.128	.
(24) Balanced Formula Relativity:	0.984	1.128	1.036

Class(es):		Effective: 7/1/2018							Goods and Services		
8034 STORE: GROCERY STORES - WHOLESALE											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period (1)	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2011	515,388	7	79	244,964	1,091,349	60,472	445,418	1,842,204	2.593	0.982	3.574
2012	498,154	4	76	391,503	517,827	162,061	186,178	1,257,568	1.825	0.699	2.524
2013	621,782	1	76	95,648	453,077	11,866	238,755	799,346	0.883	0.403	1.286
2014	648,976	4	97	317,158	1,069,480	28,226	427,219	1,842,084	2.137	0.702	2.838
2015	535,193	9	58	1,584,471	940,354	462,696	788,687	3,776,208	4.718	2.338	7.056
<b>MA Total:</b>	<b>2,819,493</b>	<b>25</b>	<b>386</b>	<b>2,633,743</b>	<b>4,072,087</b>	<b>725,322</b>	<b>2,086,258</b>	<b>9,517,410</b>	<b>2.378</b>	<b>0.997</b>	<b>3.376</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	2.840	2.093	.
(14) Massachusetts Credibility:	0.490	0.690	.
(15) Countrywide Pure Premium:	1.122	0.467	1.589
(16) Countrywide Indicated Relativity:	1.343	0.976	.
(17) Countrywide Credibility:	0.260	0.160	.
(18) Countrywide Lost-Time Claims:	219.00	.	.
(19) Pure Premium Underlying Present Rate:	1.622	0.839	2.461
(20) Relativity to Underlying Present Rate:	1.956	1.646	.
(21) Credibility to Underlying Relativity:	0.250	0.150	.
(22) Industry Group Converted Pure Premium:	0.837	0.476	1.314
(23) Formula Relativity:	2.230	1.847	.
(24) Balanced Formula Relativity:	2.215	1.846	2.081

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## Calculation of Class Relativities

Class(es): 8039 STORE: DEPARTMENT - RETAIL		Effective: 7/1/2018							Goods and Services		
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period (1)	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2011	675,090	4	104	282,871	49,554	92,159	118,656	543,239	0.492	0.312	0.805
2012	663,284	4	72	35,350	366,143	40,016	214,195	655,705	0.605	0.383	0.989
2013	620,608	4	98	75,809	108,103	111,810	117,238	412,961	0.296	0.369	0.665
2014	612,113	2	80	156,191	206,107	35,599	241,977	639,874	0.592	0.453	1.045
2015	617,977	4	70	320,338	67,915	224,961	130,950	744,164	0.628	0.576	1.204
<b>MA Total:</b>	<b>3,189,072</b>	<b>18</b>	<b>424</b>	<b>870,560</b>	<b>797,823</b>	<b>504,544</b>	<b>823,016</b>	<b>2,995,943</b>	<b>0.523</b>	<b>0.416</b>	<b>0.939</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.625	0.874	.
(14) Massachusetts Credibility:	0.320	0.540	.
(15) Countrywide Pure Premium:	0.573	0.441	1.014
(16) Countrywide Indicated Relativity:	0.686	0.922	.
(17) Countrywide Credibility:	0.340	0.230	.
(18) Countrywide Lost-Time Claims:	5105.0	.	.
(19) Pure Premium Underlying Present Rate:	0.512	0.397	0.909
(20) Relativity to Underlying Present Rate:	0.617	0.779	.
(21) Credibility to Underlying Relativity:	0.340	0.230	.
(22) Industry Group Converted Pure Premium:	0.837	0.476	1.314
(23) Formula Relativity:	0.643	0.863	.
(24) Balanced Formula Relativity:	0.639	0.863	0.720

Class(es): 8044 STORE: FURNITURE & DRIVERS		Effective: 7/1/2018							Goods and Services		
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period (1)	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2011	680,264	10	104	677,074	632,032	336,220	341,527	1,986,854	1.924	0.996	2.921
2012	652,819	1	92	58,021	357,949	21,362	295,798	733,131	0.637	0.486	1.123
2013	704,134	9	84	406,813	517,063	102,800	298,396	1,325,072	1.312	0.570	1.882
2014	847,739	9	103	715,104	847,961	244,136	585,593	2,392,794	1.844	0.979	2.823
2015	880,861	6	124	767,688	742,168	367,138	623,553	2,500,547	1.714	1.125	2.839
<b>MA Total:</b>	<b>3,765,816</b>	<b>35</b>	<b>507</b>	<b>2,624,700</b>	<b>3,097,173</b>	<b>1,071,657</b>	<b>2,144,867</b>	<b>8,938,398</b>	<b>1.519</b>	<b>0.854</b>	<b>2.374</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	1.814	1.793	.
(14) Massachusetts Credibility:	0.550	0.950	.
(15) Countrywide Pure Premium:	1.358	0.716	2.074
(16) Countrywide Indicated Relativity:	1.626	1.495	.
(17) Countrywide Credibility:	0.230	0.030	.
(18) Countrywide Lost-Time Claims:	7174.0	.	.
(19) Pure Premium Underlying Present Rate:	1.657	1.389	3.046
(20) Relativity to Underlying Present Rate:	1.999	2.725	.
(21) Credibility to Underlying Relativity:	0.220	0.020	.
(22) Industry Group Converted Pure Premium:	0.837	0.476	1.314
(23) Formula Relativity:	1.812	1.802	.
(24) Balanced Formula Relativity:	1.800	1.802	1.800

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## Calculation of Class Relativities

Class(es):		Effective: 7/1/2018							Goods and Services			
8046 STORE: AUTOMOBILE ACCESSORIES-RETAIL-NOC & DR												
		Converted Unlimited Losses										
		Amount										
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums				
Policy Period (1)	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)	
2011	621.996	5	79	311.760	232.070	107.995	192.841	844.665	0.874	0.484	1.358	
2012	453.279	2	64	69.234	114.579	60.741	118.195	362.749	0.406	0.395	0.800	
2013	475.001	4	38	314.268	20.367	172.579	43.293	550.507	0.704	0.454	1.159	
2014	312.083	3	33	315.390	225.515	138.965	164.416	844.286	1.733	0.972	2.705	
2015	293.969	4	33	188.661	85.628	52.940	105.135	432.365	0.933	0.538	1.471	
<b>MA Total:</b>	<b>2,156,328</b>	<b>18</b>	<b>247</b>	<b>1,199,313</b>	<b>678,158</b>	<b>533,220</b>	<b>623,881</b>	<b>3,034,572</b>	<b>0.871</b>	<b>0.537</b>	<b>1.407</b>	

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	1.040	1.126	.
(14) Massachusetts Credibility:	0.350	0.560	.
(15) Countrywide Pure Premium:	0.893	0.578	1.471
(16) Countrywide Indicated Relativity:	1.069	1.208	.
(17) Countrywide Credibility:	0.330	0.220	.
(18) Countrywide Lost-Time Claims:	5633.0	.	.
(19) Pure Premium Underlying Present Rate:	0.911	0.649	1.559
(20) Relativity to Underlying Present Rate:	1.098	1.273	.
(21) Credibility to Underlying Relativity:	0.320	0.220	.
(22) Industry Group Converted Pure Premium:	0.837	0.476	1.314
(23) Formula Relativity:	1.068	1.177	.
(24) Balanced Formula Relativity:	1.061	1.176	1.103

Class(es):		Effective: 7/1/2018							Goods and Services			
8048 STORE: FRUIT OR VEGETABLE -WHOLESALE												
		Converted Unlimited Losses										
		Amount										
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums				
Policy Period (1)	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)	
2011	309.175	2	38	103.625	105.156	21.186	123.521	353.487	0.675	0.468	1.143	
2012	344.071	4	37	179.404	136.821	30.256	62.572	409.054	0.919	0.270	1.189	
2013	296.936	2	35	321.620	428.807	58.878	198.599	1,007.904	2.527	0.867	3.394	
2014	362.325	2	48	68.756	55.224	44.744	46.330	215.054	0.342	0.251	0.594	
2015	417.111	2	45	241.070	1,237.177	93.384	373.417	1,945.048	3.544	1.119	4.663	
<b>MA Total:</b>	<b>1,729,618</b>	<b>12</b>	<b>203</b>	<b>914,476</b>	<b>1,963,184</b>	<b>248,448</b>	<b>804,439</b>	<b>3,930,548</b>	<b>1.664</b>	<b>0.609</b>	<b>2.272</b>	

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	1.987	1.278	.
(14) Massachusetts Credibility:	0.380	0.530	.
(15) Countrywide Pure Premium:	1.361	0.890	2.251
(16) Countrywide Indicated Relativity:	1.630	1.859	.
(17) Countrywide Credibility:	0.290	0.240	.
(18) Countrywide Lost-Time Claims:	52.000	.	.
(19) Pure Premium Underlying Present Rate:	1.391	0.694	2.085
(20) Relativity to Underlying Present Rate:	1.677	1.361	.
(21) Credibility to Underlying Relativity:	0.330	0.230	.
(22) Industry Group Converted Pure Premium:	0.837	0.476	1.314
(23) Formula Relativity:	1.781	1.436	.
(24) Balanced Formula Relativity:	1.769	1.436	1.648

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## Calculation of Class Relativities

Class(es):		Effective: 7/1/2018							Goods and Services			
8058 BUILDING MATERIAL DEALER-NEW MATERIALS ONLY-STORE EMP												
Converted Unlimited Losses												
Amount												
		Claim Count		Indemnity		Medical			MA Indicated Pure Premiums			
Policy Period (1)	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)	
2011	292,056	1	56	256,105	140,220	50,949	162,016	609,290	1,357	0,729	2,086	
2012	279,210	3	44	347,707	511,724	89,858	266,570	1,215,859	3,078	1,277	4,355	
2013	311,495	0	49	0	159,459	0	116,853	276,312	0,512	0,375	0,887	
2014	312,387	4	52	260,211	99,428	172,161	107,554	639,355	1,151	0,895	2,047	
2015	310,392	0	40	0	346,774	0	294,872	641,646	1,117	0,950	2,067	
<b>MA Total:</b>	<b>1,505,539</b>	<b>8</b>	<b>241</b>	<b>864,024</b>	<b>1,257,605</b>	<b>312,969</b>	<b>947,865</b>	<b>3,382,463</b>	<b>1,409</b>	<b>0,837</b>	<b>2,247</b>	

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	1.683	1.758	.
(14) Massachusetts Credibility:	0.320	0.540	.
(15) Countrywide Pure Premium:	0.847	0.650	1.498
(16) Countrywide Indicated Relativity:	1.015	1.359	.
(17) Countrywide Credibility:	0.340	0.230	.
(18) Countrywide Lost-Time Claims:	5010.0	.	.
(19) Pure Premium Underlying Present Rate:	1.036	0.841	1.877
(20) Relativity to Underlying Present Rate:	1.249	1.650	.
(21) Credibility to Underlying Relativity:	0.340	0.230	.
(22) Industry Group Converted Pure Premium:	0.837	0.476	1.314
(23) Formula Relativity:	1.308	1.641	.
(24) Balanced Formula Relativity:	1.299	1.641	1.423

Class(es):		Effective: 7/1/2018							Goods and Services			
8103 WOOL MERCHANT												
Converted Unlimited Losses												
Amount												
		Claim Count		Indemnity		Medical			MA Indicated Pure Premiums			
Policy Period (1)	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)	
2011	2,381	0	1	0	39,379	0	10,905	50,285	16,541	4,581	21,121	
2012	602	0	0	0	0	0	0	0	0,000	0,000	0,000	
2013	0	0	0	0	0	0	0	0	0,000	0,000	0,000	
2014	0	0	0	0	0	0	0	0	0,000	0,000	0,000	
2015	991	0	0	0	0	0	0	0	0,000	0,000	0,000	
<b>MA Total:</b>	<b>3,974</b>	<b>0</b>	<b>1</b>	<b>0</b>	<b>39,379</b>	<b>0</b>	<b>10,905</b>	<b>50,285</b>	<b>9,910</b>	<b>2,744</b>	<b>12,654</b>	

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	11.834	5.760	.
(14) Massachusetts Credibility:	0.030	0.050	.
(15) Countrywide Pure Premium:	0.721	0.750	1.471
(16) Countrywide Indicated Relativity:	0.863	1.567	.
(17) Countrywide Credibility:	0.210	0.220	.
(18) Countrywide Lost-Time Claims:	24,000	.	.
(19) Pure Premium Underlying Present Rate:	1.342	0.731	2.073
(20) Relativity to Underlying Present Rate:	1.619	1.433	.
(21) Credibility to Underlying Relativity:	0.760	0.730	.
(22) Industry Group Converted Pure Premium:	0.837	0.476	1.314
(23) Formula Relativity:	1.767	1.679	.
(24) Balanced Formula Relativity:	1.755	1.678	1.727

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## Calculation of Class Relativities

Class(es):		Effective: 7/1/2018							Goods and Services			
8105 STORE: HIDE OR LEATHER DEALERS OR STORES												
		Converted Unlimited Losses										
		Amount										
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums				
Policy Period (1)	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)	
2011	7.906	2	1	103.362	26.387	42.526	867	173.142	16.411	5.489	21.900	
2012	10.055	0	1	0	101.051	0	61.531	162.582	10.050	6.120	16.170	
2013	9.887	2	1	397.039	172.782	88.103	72.758	730.682	57.634	16.270	73.904	
2014	7.022	1	3	138.815	228.657	38.648	75.969	482.090	52.332	16.323	68.655	
2015	7.057	0	1	0	194	0	166	360	0.028	0.024	0.051	
<b>MA Total:</b>	<b>41,927</b>	<b>5</b>	<b>7</b>	<b>639,216</b>	<b>529,072</b>	<b>169,277</b>	<b>211,291</b>	<b>1,548,857</b>	<b>27,865</b>	<b>9,077</b>	<b>36,942</b>	

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	33.276	19.052	.
(14) Massachusetts Credibility:	0.130	0.170	.
(15) Countrywide Pure Premium:	1.663	0.306	1.969
(16) Countrywide Indicated Relativity:	1.991	0.639	.
(17) Countrywide Credibility:	0.060	0.060	.
(18) Countrywide Lost-Time Claims:	1.000	.	.
(19) Pure Premium Underlying Present Rate:	3.600	1.778	5.378
(20) Relativity to Underlying Present Rate:	4.342	3.488	.
(21) Credibility to Underlying Relativity:	0.810	0.770	.
(22) Industry Group Converted Pure Premium:	0.837	0.476	1.314
(23) Formula Relativity:	7.962	5.963	.
(24) Balanced Formula Relativity:	7.909	5.961	7.203

Class(es):		Effective: 7/1/2018							Goods and Services			
8106 IRON OR STEEL MERCHANT & DRIVERS												
		Converted Unlimited Losses										
		Amount										
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums				
Policy Period (1)	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)	
2011	137.965	3	21	183.093	17.717	74.876	48.940	324.626	1.456	0.897	2.353	
2012	144.360	1	32	428.497	403.700	163.632	292.470	1,288.299	5.765	3.159	8.924	
2013	147.634	1	38	70	260.483	938	144.624	406.114	1.765	0.986	2.751	
2014	168.963	3	44	747.326	225.785	97.781	186.566	1,257.458	5.759	1.683	7.442	
2015	153.954	1	43	38.041	506.215	27.221	408.428	979.905	3.535	2.830	6.365	
<b>MA Total:</b>	<b>752,875</b>	<b>9</b>	<b>178</b>	<b>1,397,027</b>	<b>1,413,900</b>	<b>364,446</b>	<b>1,081,029</b>	<b>4,256,402</b>	<b>3,734</b>	<b>1,920</b>	<b>5,654</b>	

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	4.459	4.030	.
(14) Massachusetts Credibility:	0.370	0.560	.
(15) Countrywide Pure Premium:	2.088	1.145	3.234
(16) Countrywide Indicated Relativity:	2.501	2.393	.
(17) Countrywide Credibility:	0.320	0.220	.
(18) Countrywide Lost-Time Claims:	2645.0	.	.
(19) Pure Premium Underlying Present Rate:	2.939	1.894	4.833
(20) Relativity to Underlying Present Rate:	3.545	3.717	.
(21) Credibility to Underlying Relativity:	0.310	0.220	.
(22) Industry Group Converted Pure Premium:	0.837	0.476	1.314
(23) Formula Relativity:	3.549	3.601	.
(24) Balanced Formula Relativity:	3.525	3.599	3.552

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## Calculation of Class Relativities

Class(es):		Effective: 7/1/2018							Goods and Services		
8107 MACHINERY DEALER- NOC- STORE OR YARD & DRIVERS											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period (1)	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2011	559,450	1	87	113,284	123,066	27,277	180,386	444,012	0.422	0.371	0.794
2012	586,261	5	71	913,010	214,277	384,518	162,169	1,673,974	1.923	0.932	2.855
2013	579,063	2	58	104,962	114,784	38,172	260,626	518,544	0.379	0.516	0.895
2014	732,873	2	98	300,953	1,449,545	35,841	706,968	2,493,308	2.389	1.014	3.402
2015	826,110	0	114	0	1,011,481	0	883,147	1,894,629	1.224	1.069	2.293
<b>MA Total:</b>	<b>3,283,757</b>	<b>10</b>	<b>428</b>	<b>1,432,209</b>	<b>2,913,153</b>	<b>485,808</b>	<b>2,193,297</b>	<b>7,024,467</b>	<b>1.323</b>	<b>0.816</b>	<b>2.139</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	1.580	1.712	.
(14) Massachusetts Credibility:	0.470	0.710	.
(15) Countrywide Pure Premium:	1.299	0.639	1.939
(16) Countrywide Indicated Relativity:	1.556	1.336	.
(17) Countrywide Credibility:	0.270	0.150	.
(18) Countrywide Lost-Time Claims:	5926.0	.	.
(19) Pure Premium Underlying Present Rate:	1.245	0.768	2.013
(20) Relativity to Underlying Present Rate:	1.501	1.508	.
(21) Credibility to Underlying Relativity:	0.260	0.140	.
(22) Industry Group Converted Pure Premium:	0.837	0.476	1.314
(23) Formula Relativity:	1.553	1.627	.
(24) Balanced Formula Relativity:	1.543	1.627	1.573

Class(es):		Effective: 7/1/2018							Goods and Services		
8111 PLUMBERS SUPPLIES DEALERS & DRIVERS											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period (1)	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2011	682,615	7	85	671,009	194,734	120,816	238,701	1,225,261	1.268	0.527	1.795
2012	698,560	2	87	128,092	621,064	123,127	440,729	1,313,013	1.072	0.807	1.880
2013	742,338	7	86	847,891	353,670	374,320	233,919	1,809,800	1.619	0.819	2.438
2014	739,162	5	110	400,713	750,460	172,506	560,414	1,884,093	1.557	0.992	2.549
2015	812,411	6	118	702,235	721,436	413,227	621,799	2,458,697	1.752	1.274	3.026
<b>MA Total:</b>	<b>3,675,086</b>	<b>27</b>	<b>486</b>	<b>2,749,941</b>	<b>2,641,365</b>	<b>1,203,996</b>	<b>2,095,561</b>	<b>8,690,863</b>	<b>1.467</b>	<b>0.898</b>	<b>2.365</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	1.752	1.884	.
(14) Massachusetts Credibility:	0.500	0.730	.
(15) Countrywide Pure Premium:	1.083	0.497	1.580
(16) Countrywide Indicated Relativity:	1.297	1.039	.
(17) Countrywide Credibility:	0.250	0.140	.
(18) Countrywide Lost-Time Claims:	1258.0	.	.
(19) Pure Premium Underlying Present Rate:	1.288	0.749	2.037
(20) Relativity to Underlying Present Rate:	1.553	1.470	.
(21) Credibility to Underlying Relativity:	0.250	0.130	.
(22) Industry Group Converted Pure Premium:	0.837	0.476	1.314
(23) Formula Relativity:	1.588	1.712	.
(24) Balanced Formula Relativity:	1.578	1.712	1.626

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## Calculation of Class Relativities

Class(es): 8203 ICE DEALER & DRIVERS		Effective: 7/1/2018							Goods and Services		
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period (1)	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2011	38,315	1	7	48,381	43,365	45,076	16,605	153,427	2,395	1,610	4,004
2012	39,450	1	8	34,575	102,017	5,122	53,518	195,232	3,462	1,486	4,949
2013	39,043	1	12	3,162	77,409	2,026	41,522	124,119	2,064	1,115	3,179
2014	39,245	0	13	0	286,130	0	168,421	454,551	7,291	4,291	11,582
2015	42,651	1	10	65,211	105,653	17,249	45,237	233,350	4,006	1,465	5,471
<b>MA Total:</b>	<b>198,704</b>	<b>4</b>	<b>50</b>	<b>151,329</b>	<b>614,573</b>	<b>69,474</b>	<b>325,303</b>	<b>1,160,679</b>	<b>3,854</b>	<b>1,987</b>	<b>5,841</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	4.603	4.170	.
(14) Massachusetts Credibility:	0.220	0.330	.
(15) Countrywide Pure Premium:	2.704	1.183	3.887
(16) Countrywide Indicated Relativity:	3.238	2.472	.
(17) Countrywide Credibility:	0.390	0.340	.
(18) Countrywide Lost-Time Claims:	342.00	.	.
(19) Pure Premium Underlying Present Rate:	2.954	1.960	4.913
(20) Relativity to Underlying Present Rate:	3.562	3.845	.
(21) Credibility to Underlying Relativity:	0.390	0.330	.
(22) Industry Group Converted Pure Premium:	0.837	0.476	1.314
(23) Formula Relativity:	3.665	3.486	.
(24) Balanced Formula Relativity:	3.640	3.484	3.584

Class(es): 8204 BUILDING MATERIAL YARD & LOCAL MANAGERS, DRIVERS		Effective: 7/1/2018							Goods and Services		
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period (1)	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2011	15,434	0	1	0	2,747	0	6,338	9,085	0,178	0,411	0,589
2012	19,705	0	2	0	1,759	0	4,004	5,762	0,089	0,203	0,292
2013	21,928	0	4	0	397	0	23,524	23,922	0,018	1,073	1,091
2014	28,215	0	2	0	829	0	17,305	18,134	0,029	0,613	0,643
2015	55,285	4	8	376,371	103,522	557,487	68,882	1,106,262	8,680	11,330	20,010
<b>MA Total:</b>	<b>140,568</b>	<b>4</b>	<b>17</b>	<b>376,371</b>	<b>109,255</b>	<b>557,487</b>	<b>120,053</b>	<b>1,163,166</b>	<b>3,455</b>	<b>4,820</b>	<b>8,275</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	4.126	10.117	.
(14) Massachusetts Credibility:	0.150	0.220	.
(15) Countrywide Pure Premium:	1.724	1.144	2.868
(16) Countrywide Indicated Relativity:	2.065	2.390	.
(17) Countrywide Credibility:	0.430	0.390	.
(18) Countrywide Lost-Time Claims:	195.00	.	.
(19) Pure Premium Underlying Present Rate:	1.791	1.009	2.800
(20) Relativity to Underlying Present Rate:	2.159	1.980	.
(21) Credibility to Underlying Relativity:	0.420	0.390	.
(22) Industry Group Converted Pure Premium:	0.837	0.476	1.314
(23) Formula Relativity:	2.414	3.930	.
(24) Balanced Formula Relativity:	2.398	3.928	2.953

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## Calculation of Class Relativities

Class(es):		Effective: 7/1/2018							Goods and Services			
8215 HAY, GRAIN OR FEED DEALER & LOCAL MANAGERS, DR												
		Converted Unlimited Losses										
		Amount										
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums				
Policy Period (1)	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)	
2011	55,991	0	10	0	29,092	0	13,929	43,021	0.520	0.249	0.768	
2012	55,113	0	9	0	23,737	0	68,929	92,666	0.431	1.251	1.681	
2013	60,322	2	9	280,849	70,325	170,045	15,933	537,152	5.822	3.083	8.905	
2014	71,516	0	11	0	15,368	0	30,835	46,204	0.215	0.431	0.646	
2015	77,113	0	6	0	69,631	0	88,532	158,163	0.903	1.148	2.051	
<b>MA Total:</b>	<b>320,055</b>	<b>2</b>	<b>45</b>	<b>280,849</b>	<b>208,153</b>	<b>170,045</b>	<b>218,159</b>	<b>877,205</b>	<b>1.528</b>	<b>1.213</b>	<b>2.741</b>	

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	1.825	2.546	.
(14) Massachusetts Credibility:	0.220	0.350	.
(15) Countrywide Pure Premium:	1.674	0.907	2.581
(16) Countrywide Indicated Relativity:	2.005	1.894	.
(17) Countrywide Credibility:	0.390	0.330	.
(18) Countrywide Lost-Time Claims:	1797.0	.	.
(19) Pure Premium Underlying Present Rate:	1.946	1.323	3.268
(20) Relativity to Underlying Present Rate:	2.346	2.595	.
(21) Credibility to Underlying Relativity:	0.390	0.320	.
(22) Industry Group Converted Pure Premium:	0.837	0.476	1.314
(23) Formula Relativity:	2.098	2.346	.
(24) Balanced Formula Relativity:	2.085	2.346	2.179

Class(es):		Effective: 7/1/2018							Construction			
8227 CONTRACTORS PERMANENT YARD												
		Converted Unlimited Losses										
		Amount										
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums				
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)	
2011	923,759	5	70	1,173,269	610,826	417,257	507,976	2,709,327	1.931	1.002	2.933	
2012	937,187	5	74	1,151,529	2,314,521	308,735	1,158,866	4,933,652	3.698	1.566	5.264	
2013	981,997	2	84	506,486	2,380,567	195,798	1,433,737	4,516,588	2,940	1,659	4,599	
2014	1,080,149	6	94	1,566,490	751,459	664,037	581,785	3,563,770	2,146	1,153	3,299	
2015	1,210,143	8	67	2,074,711	1,470,287	672,303	509,423	4,726,724	2,929	0,977	3,906	
<b>MA Total:</b>	<b>5,133,235</b>	<b>26</b>	<b>389</b>	<b>6,472,485</b>	<b>7,527,660</b>	<b>2,258,131</b>	<b>4,191,786</b>	<b>20,450,061</b>	<b>2.727</b>	<b>1.257</b>	<b>3.984</b>	

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	1.039	1.063	.
(14) Massachusetts Credibility:	0.730	1.000	.
(15) Countrywide Pure Premium:	2.139	0.930	3.068
(16) Countrywide Indicated Relativity:	0.835	0.821	.
(17) Countrywide Credibility:	0.140	0.000	.
(18) Countrywide Lost-Time Claims:	3125.0	.	.
(19) Pure Premium Underlying Present Rate:	2.394	1.450	3.844
(20) Relativity to Underlying Present Rate:	0.872	1.081	.
(21) Credibility to Underlying Relativity:	0.130	0.000	.
(22) Industry Group Converted Pure Premium:	2.624	1.182	3.806
(23) Formula Relativity:	0.989	1.063	.
(24) Balanced Formula Relativity:	0.995	1.064	1.016



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## Calculation of Class Relativities

Class(es):		Effective: 7/1/2018							Goods and Services		
8232 LUMBER YARD-NEW MATERIALS ONLY: A/O EMP INCL YRD & WHSE & DR											
Converted Unlimited Losses											
Amount											
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period (1)	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2011	975,041	10	210	1,899,961	1,053,467	802,883	763,609	4,519,921	3,029	1,607	4,636
2012	1,019,854	14	203	1,731,346	2,418,110	823,763	1,230,639	6,203,857	4,069	2,014	6,083
2013	1,179,878	13	248	2,931,923	2,168,573	1,193,069	1,279,476	7,573,041	4,323	2,096	6,418
2014	1,292,996	13	221	1,637,118	2,187,947	594,132	1,425,365	5,844,562	2,958	1,562	4,520
2015	1,350,638	17	225	1,664,576	1,674,683	1,152,069	1,096,279	5,587,608	2,472	1,665	4,137
<b>MA Total:</b>	<b>5,818,407</b>	<b>67</b>	<b>1,107</b>	<b>9,864,925</b>	<b>9,502,780</b>	<b>4,565,916</b>	<b>5,795,368</b>	<b>29,728,989</b>	<b>3,329</b>	<b>1,781</b>	<b>5,109</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	3.975	3.738	.
(14) Massachusetts Credibility:	0.850	1.000	.
(15) Countrywide Pure Premium:	2.125	1.123	3.248
(16) Countrywide Indicated Relativity:	2.545	2.347	.
(17) Countrywide Credibility:	0.080	0.000	.
(18) Countrywide Lost-Time Claims:	9286.0	.	.
(19) Pure Premium Underlying Present Rate:	3.091	1.987	5.078
(20) Relativity to Underlying Present Rate:	3.727	3.899	.
(21) Credibility to Underlying Relativity:	0.070	0.000	.
(22) Industry Group Converted Pure Premium:	0.837	0.476	1.314
(23) Formula Relativity:	3.843	3.738	.
(24) Balanced Formula Relativity:	3.818	3.736	3.788

Class(es):		Effective: 7/1/2018							Goods and Services		
8233 COAL MERCHANT & LOCAL MANAGERS & DRIVERS											
Converted Unlimited Losses											
Amount											
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period (1)	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2011	292,826	2	44	596,604	396,843	121,539	241,384	1,356,370	3,393	1,239	4,632
2012	266,384	1	40	409,243	1,371,245	45,502	566,629	2,392,618	6,684	2,298	8,982
2013	274,051	2	36	11,070	547,173	15,882	457,587	1,031,711	2,037	1,728	3,765
2014	275,466	2	18	867,370	24,652	252,713	39,691	1,184,425	3,238	1,061	4,300
2015	273,834	5	24	664,702	706,318	578,842	316,129	2,265,990	5,007	3,268	8,275
<b>MA Total:</b>	<b>1,382,560</b>	<b>12</b>	<b>162</b>	<b>2,548,987</b>	<b>3,046,230</b>	<b>1,014,477</b>	<b>1,621,420</b>	<b>8,231,114</b>	<b>4,047</b>	<b>1,907</b>	<b>5,954</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	4.833	4.002	.
(14) Massachusetts Credibility:	0.460	0.710	.
(15) Countrywide Pure Premium:	2.733	1.424	4.157
(16) Countrywide Indicated Relativity:	3.273	2.975	.
(17) Countrywide Credibility:	0.270	0.150	.
(18) Countrywide Lost-Time Claims:	2352.0	.	.
(19) Pure Premium Underlying Present Rate:	2.872	1.854	4.726
(20) Relativity to Underlying Present Rate:	3.463	3.638	.
(21) Credibility to Underlying Relativity:	0.270	0.140	.
(22) Industry Group Converted Pure Premium:	0.837	0.476	1.314
(23) Formula Relativity:	4.042	3.797	.
(24) Balanced Formula Relativity:	4.015	3.795	3.935

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## Calculation of Class Relativities

Class(es):		Effective: 7/1/2018							Goods and Services		
8235 SASH, DOOR OR ASSEMBLED MILLWORK DEALER & DR											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period (1)	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2011	138,881	2	35	249,493	317,215	24,380	239,397	830,485	4,081	1,899	5,980
2012	131,973	0	25	0	250,243	0	126,386	376,629	1,896	0,958	2,854
2013	133,917	0	21	0	18,983	0	26,798	45,781	0,142	0,200	0,342
2014	140,195	0	26	0	292,492	0	116,578	409,070	2,086	0,832	2,918
2015	115,249	0	29	0	220,664	0	163,592	384,255	1,915	1,419	3,334
<b>MA Total:</b>	<b>660,215</b>	<b>2</b>	<b>136</b>	<b>249,493</b>	<b>1,099,596</b>	<b>24,380</b>	<b>672,751</b>	<b>2,046,220</b>	<b>2,043</b>	<b>1,056</b>	<b>3,099</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	2.440	2.216	.
(14) Massachusetts Credibility:	0.300	0.450	.
(15) Countrywide Pure Premium:	2.414	1.155	3.569
(16) Countrywide Indicated Relativity:	2.891	2.413	.
(17) Countrywide Credibility:	0.350	0.280	.
(18) Countrywide Lost-Time Claims:	604.00	.	.
(19) Pure Premium Underlying Present Rate:	2.063	1.268	3.331
(20) Relativity to Underlying Present Rate:	2.488	2.487	.
(21) Credibility to Underlying Relativity:	0.350	0.270	.
(22) Industry Group Converted Pure Premium:	0.837	0.476	1.314
(23) Formula Relativity:	2.615	2.344	.
(24) Balanced Formula Relativity:	2.598	2.344	2.505

Class(es):		Effective: 7/1/2018							Goods and Services		
8263 JUNK DEALERS & DRIVERS											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period (1)	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2011	81,547	1	11	9,168	30,586	5,868	58,633	104,255	0,487	0,791	1,278
2012	81,201	0	10	0	35,788	0	33,207	68,995	0,441	0,409	0,850
2013	85,748	0	19	0	19,294	0	57,635	76,930	0,225	0,672	0,897
2014	93,772	1	23	59,648	234,499	12,744	137,048	443,939	3,137	1,597	4,734
2015	94,041	0	24	0	320,927	0	173,570	494,496	3,413	1,846	5,258
<b>MA Total:</b>	<b>436,309</b>	<b>2</b>	<b>87</b>	<b>68,815</b>	<b>641,094</b>	<b>18,611</b>	<b>460,093</b>	<b>1,188,614</b>	<b>1,627</b>	<b>1,097</b>	<b>2,724</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	1.943	2.303	.
(14) Massachusetts Credibility:	0.250	0.400	.
(15) Countrywide Pure Premium:	1.823	1.678	3.500
(16) Countrywide Indicated Relativity:	2.183	3.505	.
(17) Countrywide Credibility:	0.380	0.300	.
(18) Countrywide Lost-Time Claims:	183.00	.	.
(19) Pure Premium Underlying Present Rate:	1.960	1.423	3.383
(20) Relativity to Underlying Present Rate:	2.364	2.793	.
(21) Credibility to Underlying Relativity:	0.370	0.300	.
(22) Industry Group Converted Pure Premium:	0.837	0.476	1.314
(23) Formula Relativity:	2.190	2.810	.
(24) Balanced Formula Relativity:	2.175	2.809	2.405

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## Calculation of Class Relativities

Class(es):		Effective: 7/1/2018							Goods and Services		
8264 BOTTLE DEALER-USED & DRIVERS											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period (1)	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2011	273,838	5	60	358,536	204,815	81,645	229,847	874,844	2,057	1,138	3,195
2012	314,334	2	68	16,488	481,857	3,234	248,636	750,214	1,585	0,801	2,387
2013	285,175	2	52	166,344	998,390	16,616	648,602	1,829,953	4,084	2,333	6,417
2014	271,367	4	45	342,967	282,440	327,218	231,048	1,183,673	2,305	2,057	4,362
2015	317,668	3	51	242,781	477,849	81,799	302,292	1,104,722	2,269	1,209	3,478
<b>MA Total:</b>	<b>1,462,382</b>	<b>16</b>	<b>276</b>	<b>1,127,116</b>	<b>2,445,351</b>	<b>510,512</b>	<b>1,660,425</b>	<b>5,743,405</b>	<b>2,443</b>	<b>1,485</b>	<b>3,927</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	2.917	3.116	.
(14) Massachusetts Credibility:	0.470	0.680	.
(15) Countrywide Pure Premium:	2.231	1.345	3.576
(16) Countrywide Indicated Relativity:	2.672	2.810	.
(17) Countrywide Credibility:	0.270	0.160	.
(18) Countrywide Lost-Time Claims:	1377.0	.	.
(19) Pure Premium Underlying Present Rate:	2.880	1.553	4.433
(20) Relativity to Underlying Present Rate:	3.473	3.047	.
(21) Credibility to Underlying Relativity:	0.260	0.160	.
(22) Industry Group Converted Pure Premium:	0.837	0.476	1.314
(23) Formula Relativity:	2.996	3.056	.
(24) Balanced Formula Relativity:	2.976	3.055	3.004

Class(es):		Effective: 7/1/2018							Goods and Services		
8279 STABLE OR BREEDING FARM & DRIVERS											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period (1)	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2011	159,264	0	31	0	274,663	0	167,564	442,227	1,725	1,052	2,777
2012	165,442	3	23	380,229	19,539	125,471	64,805	590,044	2,416	1,150	3,566
2013	166,624	1	21	41,657	77,266	2,889	224,052	345,863	0,714	1,362	2,076
2014	170,964	1	15	53,178	156,315	17,264	128,657	355,414	1,225	0,854	2,079
2015	167,476	3	22	242,914	80,004	44,843	82,662	450,423	1,928	0,761	2,689
<b>MA Total:</b>	<b>829,771</b>	<b>8</b>	<b>112</b>	<b>717,977</b>	<b>607,787</b>	<b>190,467</b>	<b>667,739</b>	<b>2,183,971</b>	<b>1,598</b>	<b>1,034</b>	<b>2,632</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	1.908	2.171	.
(14) Massachusetts Credibility:	0.350	0.580	.
(15) Countrywide Pure Premium:	2.725	1.982	4.706
(16) Countrywide Indicated Relativity:	3.263	4.141	.
(17) Countrywide Credibility:	0.330	0.210	.
(18) Countrywide Lost-Time Claims:	990.00	.	.
(19) Pure Premium Underlying Present Rate:	2.365	1.887	4.253
(20) Relativity to Underlying Present Rate:	2.852	3.703	.
(21) Credibility to Underlying Relativity:	0.320	0.210	.
(22) Industry Group Converted Pure Premium:	0.837	0.476	1.314
(23) Formula Relativity:	2.657	2.906	.
(24) Balanced Formula Relativity:	2.640	2.905	2.736

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## Calculation of Class Relativities

Class(es): 8291 STORAGE WAREHOUSE-COLD		Effective: 7/1/2018							Goods and Services		
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period (1)	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2011	134,689	2	31	106,994	501,310	38,643	229,621	876,569	4,516	1,992	6,508
2012	119,643	0	20	0	30,393	0	24,426	54,820	0,254	0,204	0,458
2013	120,802	1	32	110,615	263,348	53,290	161,735	588,988	3,096	1,780	4,876
2014	156,632	0	27	0	34,815	0	67,896	102,711	0,222	0,433	0,656
2015	156,003	1	28	65,105	119,007	13,375	136,939	334,426	1,180	0,964	2,144
<b>MA Total:</b>	<b>687,770</b>	<b>4</b>	<b>138</b>	<b>282,715</b>	<b>948,875</b>	<b>105,307</b>	<b>620,617</b>	<b>1,957,514</b>	<b>1,791</b>	<b>1,055</b>	<b>2,846</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	2.138	2.215	.
(14) Massachusetts Credibility:	0.300	0.450	.
(15) Countrywide Pure Premium:	1.622	0.922	2.544
(16) Countrywide Indicated Relativity:	1.943	1.926	.
(17) Countrywide Credibility:	0.350	0.280	.
(18) Countrywide Lost-Time Claims:	1084.0	.	.
(19) Pure Premium Underlying Present Rate:	2.010	1.189	3.199
(20) Relativity to Underlying Present Rate:	2.424	2.332	.
(21) Credibility to Underlying Relativity:	0.350	0.270	.
(22) Industry Group Converted Pure Premium:	0.837	0.476	1.314
(23) Formula Relativity:	2.170	2.166	.
(24) Balanced Formula Relativity:	2.156	2.165	2.159

Class(es): 8292 STORAGE WAREHOUSE NOC		Effective: 7/1/2018							Goods and Services		
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period (1)	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2011	505,705	1	106	159,341	180,783	19,799	247,764	607,688	0,673	0,529	1,202
2012	544,164	4	103	243,851	507,050	130,277	282,327	1,163,505	1,380	0,758	2,138
2013	598,667	11	115	956,171	444,590	357,373	367,031	2,125,166	2,340	1,210	3,550
2014	694,220	4	106	178,155	1,282,687	89,287	861,604	2,411,733	2,104	1,370	3,474
2015	747,805	8	112	696,447	1,296,496	230,807	535,463	2,759,212	2,665	1,025	3,690
<b>MA Total:</b>	<b>3,090,562</b>	<b>28</b>	<b>542</b>	<b>2,233,965</b>	<b>3,711,606</b>	<b>827,543</b>	<b>2,294,189</b>	<b>9,067,303</b>	<b>1,924</b>	<b>1,010</b>	<b>2,934</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	2.297	2.120	.
(14) Massachusetts Credibility:	0.470	0.670	.
(15) Countrywide Pure Premium:	1.607	0.880	2.487
(16) Countrywide Indicated Relativity:	1.924	1.839	.
(17) Countrywide Credibility:	0.270	0.170	.
(18) Countrywide Lost-Time Claims:	6875.0	.	.
(19) Pure Premium Underlying Present Rate:	1.359	0.704	2.063
(20) Relativity to Underlying Present Rate:	1.639	1.381	.
(21) Credibility to Underlying Relativity:	0.260	0.160	.
(22) Industry Group Converted Pure Premium:	0.837	0.476	1.314
(23) Formula Relativity:	2.025	1.954	.
(24) Balanced Formula Relativity:	2.012	1.953	1.991

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## Calculation of Class Relativities

Class(es):		Effective: 7/1/2018							Goods and Services		
8293 STORAGE WAREHOUSE-FURNITURE & DRIVERS											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period (1)	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2011	394,336	10	112	788,728	640,147	193,027	612,920	2,234,823	3,624	2,044	5,667
2012	446,587	8	98	634,065	649,952	851,062	376,306	2,511,384	2,875	2,748	5,624
2013	495,658	6	102	769,646	1,377,309	350,690	668,266	3,165,910	4,332	2,056	6,387
2014	578,049	12	149	1,242,287	2,469,922	362,539	1,466,140	5,540,888	6,422	3,164	9,586
2015	596,472	12	118	774,417	1,362,789	374,447	681,434	3,193,088	3,583	1,770	5,353
<b>MA Total:</b>	<b>2,511,101</b>	<b>48</b>	<b>579</b>	<b>4,209,143</b>	<b>6,500,119</b>	<b>2,131,764</b>	<b>3,805,066</b>	<b>16,646,092</b>	<b>4,265</b>	<b>2,364</b>	<b>6,629</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	5.093	4.962	.
(14) Massachusetts Credibility:	0.700	1.000	.
(15) Countrywide Pure Premium:	4.401	2.052	6.453
(16) Countrywide Indicated Relativity:	5.270	4.288	.
(17) Countrywide Credibility:	0.150	0.000	.
(18) Countrywide Lost-Time Claims:	4528.0	.	.
(19) Pure Premium Underlying Present Rate:	4.426	2.847	7.273
(20) Relativity to Underlying Present Rate:	5.338	5.587	.
(21) Credibility to Underlying Relativity:	0.150	0.000	.
(22) Industry Group Converted Pure Premium:	0.837	0.476	1.314
(23) Formula Relativity:	5.156	4.962	.
(24) Balanced Formula Relativity:	5.122	4.960	5.063

Class(es):		Effective: 7/1/2018							Goods and Services		
8350 GASOLINE OR OIL DEALER & DRIVERS											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period (1)	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2011	1,546,799	9	281	1,026,723	2,760,289	349,041	1,840,662	5,976,715	2,448	1,416	3,864
2012	1,562,999	17	233	2,968,066	1,448,139	1,379,742	1,183,156	6,979,103	2,825	1,640	4,465
2013	1,565,408	16	277	2,102,133	2,356,644	620,107	1,792,440	6,871,325	2,848	1,541	4,389
2014	1,606,604	18	272	1,806,074	4,089,709	785,439	1,985,254	8,666,476	3,670	1,725	5,394
2015	1,598,549	15	209	3,082,307	2,841,582	1,005,195	1,700,137	8,629,220	3,706	1,692	5,398
<b>MA Total:</b>	<b>7,880,360</b>	<b>75</b>	<b>1,272</b>	<b>10,985,303</b>	<b>13,496,363</b>	<b>4,139,524</b>	<b>8,501,649</b>	<b>37,122,838</b>	<b>3,107</b>	<b>1,604</b>	<b>4,711</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	3.710	3.367	.
(14) Massachusetts Credibility:	0.920	1.000	.
(15) Countrywide Pure Premium:	2.924	1.236	4.160
(16) Countrywide Indicated Relativity:	3.502	2.583	.
(17) Countrywide Credibility:	0.040	0.000	.
(18) Countrywide Lost-Time Claims:	3906.0	.	.
(19) Pure Premium Underlying Present Rate:	2.786	1.606	4.392
(20) Relativity to Underlying Present Rate:	3.359	3.151	.
(21) Credibility to Underlying Relativity:	0.040	0.000	.
(22) Industry Group Converted Pure Premium:	0.837	0.476	1.314
(23) Formula Relativity:	3.688	3.367	.
(24) Balanced Formula Relativity:	3.663	3.366	3.555

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## Calculation of Class Relativities

Class(es):		Effective: 7/1/2018							Goods and Services		
8380 AUTOMOBILE SERVICE OR REPAIR CENTER & DRIVERS											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period (1)	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2011	7,517,802	39	1,015	2,521,847	7,211,534	1,389,250	4,271,733	15,394,365	1,295	0,753	2,048
2012	7,720,727	37	1,067	4,178,075	5,657,194	1,668,058	3,810,383	15,313,709	1,274	0,710	1,983
2013	7,896,738	38	1,081	4,137,481	7,445,370	1,619,387	4,797,986	18,000,224	1,467	0,813	2,279
2014	8,092,070	37	999	4,139,570	6,673,962	1,650,743	4,342,188	16,806,462	1,336	0,741	2,077
2015	8,511,153	42	982	6,127,331	7,129,732	2,347,087	3,908,496	19,512,646	1,558	0,735	2,293
<b>MA Total:</b>	<b>39,738,490</b>	<b>193</b>	<b>5,144</b>	<b>21,104,303</b>	<b>34,117,791</b>	<b>8,674,526</b>	<b>21,130,786</b>	<b>85,027,406</b>	<b>1,390</b>	<b>0,750</b>	<b>2,140</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	1.660	1.574	.
(14) Massachusetts Credibility:	1.000	1.000	.
(15) Countrywide Pure Premium:	1.240	0.632	1.871
(16) Countrywide Indicated Relativity:	1.484	1.320	.
(17) Countrywide Credibility:	0.000	0.000	.
(18) Countrywide Lost-Time Claims:	27208	.	.
(19) Pure Premium Underlying Present Rate:	1.491	0.881	2.371
(20) Relativity to Underlying Present Rate:	1.798	1.728	.
(21) Credibility to Underlying Relativity:	0.000	0.000	.
(22) Industry Group Converted Pure Premium:	0.837	0.476	1.314
(23) Formula Relativity:	1.660	1.574	.
(24) Balanced Formula Relativity:	1.649	1.574	1.621

Class(es):		Effective: 7/1/2018							Goods and Services		
8381 GASOLINE STATION-RETAIL-SELF SERVICE											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period (1)	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2011	199,767	1	8	55,832	115,835	119,895	55,792	347,354	0,859	0,879	1,739
2012	201,975	1	14	49,938	50,995	14,043	140,368	255,344	0,500	0,765	1,264
2013	178,383	0	8	0	546,675	0	212,550	759,224	3,065	1,192	4,256
2014	200,703	1	18	38,205	34,466	11,622	35,172	119,465	0,362	0,233	0,595
2015	189,360	1	6	12,186	92,300	7,586	104,666	216,738	0,552	0,593	1,145
<b>MA Total:</b>	<b>970,188</b>	<b>4</b>	<b>54</b>	<b>156,161</b>	<b>840,271</b>	<b>153,146</b>	<b>548,548</b>	<b>1,698,126</b>	<b>1,027</b>	<b>0,723</b>	<b>1,750</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	1.227	1.518	.
(14) Massachusetts Credibility:	0.240	0.410	.
(15) Countrywide Pure Premium:	0.698	0.439	1.138
(16) Countrywide Indicated Relativity:	0.836	0.918	.
(17) Countrywide Credibility:	0.380	0.300	.
(18) Countrywide Lost-Time Claims:	634.00	.	.
(19) Pure Premium Underlying Present Rate:	0.822	0.670	1.492
(20) Relativity to Underlying Present Rate:	0.992	1.314	.
(21) Credibility to Underlying Relativity:	0.380	0.290	.
(22) Industry Group Converted Pure Premium:	0.837	0.476	1.314
(23) Formula Relativity:	0.989	1.279	.
(24) Balanced Formula Relativity:	0.982	1.278	1.090

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## Calculation of Class Relativities

Class(es):		Effective: 7/1/2018							Goods and Services		
8385 BUS CO: GARAGE EMPLOYEES											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period (1)	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2011	427.907	3	67	341.575	161.931	269.784	177.054	950.344	1.177	1.044	2.221
2012	435.207	7	80	644.910	357.365	197.609	298.822	1,498.707	2.303	1.141	3.444
2013	413.494	0	78	0	245.571	0	209.963	455.534	0.594	0.508	1.102
2014	420.527	3	78	118.576	1,028.772	113.114	488.553	1,749.014	2.728	1.431	4.159
2015	446.221	4	44	385.002	312.142	171.544	153.951	1,022.638	1.562	0.729	2.292
<b>MA Total:</b>	<b>2,143.356</b>	<b>17</b>	<b>347</b>	<b>1,490.063</b>	<b>2,105.781</b>	<b>752.051</b>	<b>1,328.342</b>	<b>5,676.237</b>	<b>1.678</b>	<b>0.971</b>	<b>2.648</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	2.003	2.037	.
(14) Massachusetts Credibility:	0.400	0.590	.
(15) Countrywide Pure Premium:	1.036	0.532	1.568
(16) Countrywide Indicated Relativity:	1.240	1.112	.
(17) Countrywide Credibility:	0.300	0.210	.
(18) Countrywide Lost-Time Claims:	1278.0	.	.
(19) Pure Premium Underlying Present Rate:	1.310	0.740	2.051
(20) Relativity to Underlying Present Rate:	1.580	1.453	.
(21) Credibility to Underlying Relativity:	0.300	0.200	.
(22) Industry Group Converted Pure Premium:	0.837	0.476	1.314
(23) Formula Relativity:	1.648	1.726	.
(24) Balanced Formula Relativity:	1.637	1.725	1.669

Class(es):		Effective: 7/1/2018							Goods and Services		
8392 AUTOMOBILE STORAGE GARAGE OR PARKING STATION & DRIVERS											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period (1)	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2011	517.949	4	54	313.792	110.263	63.100	64.843	551.998	0.819	0.247	1.066
2012	516.167	3	42	103.720	67.435	54.007	60.276	285.437	0.332	0.221	0.553
2013	509.864	2	48	44.995	126.659	7.363	107.420	286.436	0.337	0.225	0.562
2014	575.119	1	46	103.062	65.561	487.797	212.181	868.601	0.293	1.217	1.510
2015	612.069	3	46	89.253	113.220	51.394	122.943	376.810	0.331	0.285	0.616
<b>MA Total:</b>	<b>2,731.169</b>	<b>13</b>	<b>236</b>	<b>654.823</b>	<b>483.137</b>	<b>663.660</b>	<b>567.664</b>	<b>2,369.283</b>	<b>0.417</b>	<b>0.451</b>	<b>0.867</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.498	0.946	.
(14) Massachusetts Credibility:	0.360	0.530	.
(15) Countrywide Pure Premium:	0.893	0.570	1.463
(16) Countrywide Indicated Relativity:	1.070	1.191	.
(17) Countrywide Credibility:	0.320	0.240	.
(18) Countrywide Lost-Time Claims:	1438.0	.	.
(19) Pure Premium Underlying Present Rate:	0.763	0.451	1.214
(20) Relativity to Underlying Present Rate:	0.920	0.885	.
(21) Credibility to Underlying Relativity:	0.320	0.230	.
(22) Industry Group Converted Pure Premium:	0.837	0.476	1.314
(23) Formula Relativity:	0.816	0.991	.
(24) Balanced Formula Relativity:	0.810	0.991	0.876

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## Calculation of Class Relativities

Class(es): 8393 AUTOMOBILE BODY REPAIR		Effective: 7/1/2018							Goods and Services		
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period (1)	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2011	2,017,835	7	191	485,340	1,079,206	256,434	570,152	2,391,133	0.775	0.410	1.185
2012	1,995,238	6	199	1,111,984	1,519,649	233,351	843,235	3,708,218	1.319	0.540	1.859
2013	2,044,361	7	159	1,353,061	1,620,928	331,517	712,235	4,017,740	1.455	0.511	1.965
2014	2,188,666	6	174	750,006	679,734	101,765	595,720	2,127,224	0.653	0.319	0.972
2015	2,008,432	2	124	379,189	715,318	63,747	362,647	1,520,902	0.545	0.212	0.757
<b>MA Total:</b>	<b>10,254,534</b>	<b>28</b>	<b>847</b>	<b>4,079,580</b>	<b>5,614,835</b>	<b>986,813</b>	<b>3,083,989</b>	<b>13,765,217</b>	<b>0.945</b>	<b>0.397</b>	<b>1.342</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	1.129	0.833	.
(14) Massachusetts Credibility:	0.710	0.990	.
(15) Countrywide Pure Premium:	0.861	0.365	1.226
(16) Countrywide Indicated Relativity:	1.031	0.763	.
(17) Countrywide Credibility:	0.150	0.010	.
(18) Countrywide Lost-Time Claims:	2973.0	.	.
(19) Pure Premium Underlying Present Rate:	1.119	0.569	1.688
(20) Relativity to Underlying Present Rate:	1.350	1.116	.
(21) Credibility to Underlying Relativity:	0.140	0.000	.
(22) Industry Group Converted Pure Premium:	0.837	0.476	1.314
(23) Formula Relativity:	1.145	0.833	.
(24) Balanced Formula Relativity:	1.138	0.832	1.027

Class(es): 8601 ARCHITECT OR ENGINEER-CONSULTING		Effective: 7/1/2018							Office and Clerical		
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period (1)	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2011	12,617,011	4	197	500,178	713,768	108,080	534,432	1,856,458	0.096	0.051	0.147
2012	13,017,257	6	159	460,335	714,681	599,598	633,368	2,407,982	0.090	0.095	0.185
2013	13,414,370	1	151	302,594	607,812	35,103	490,234	1,435,743	0.068	0.039	0.107
2014	14,249,262	9	159	666,214	1,224,244	190,189	609,976	2,690,624	0.133	0.056	0.189
2015	15,155,372	5	153	811,549	829,109	263,810	1,029,677	2,934,146	0.108	0.085	0.194
<b>MA Total:</b>	<b>68,453,272</b>	<b>25</b>	<b>819</b>	<b>2,740,871</b>	<b>4,089,615</b>	<b>1,196,779</b>	<b>3,297,688</b>	<b>11,324,953</b>	<b>0.100</b>	<b>0.066</b>	<b>0.165</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	1.399	1.505	.
(14) Massachusetts Credibility:	0.610	0.970	.
(15) Countrywide Pure Premium:	0.115	0.068	0.183
(16) Countrywide Indicated Relativity:	1.895	1.753	.
(17) Countrywide Credibility:	0.200	0.020	.
(18) Countrywide Lost-Time Claims:	2414.0	.	.
(19) Pure Premium Underlying Present Rate:	0.118	0.081	0.199
(20) Relativity to Underlying Present Rate:	1.616	1.683	.
(21) Credibility to Underlying Relativity:	0.190	0.010	.
(22) Industry Group Converted Pure Premium:	0.071	0.044	0.115
(23) Formula Relativity:	1.539	1.512	.
(24) Balanced Formula Relativity:	1.550	1.516	1.537



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## Calculation of Class Relativities

Class(es):		Effective: 7/1/2018							Goods and Services		
8710 FIELD BONDED WAREHOUSING - ALL EMP & CLERICAL											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period (1)	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2011	7,206	0	0	0	0	0	0	0	0.000	0.000	0.000
2012	6,724	0	0	0	0	0	0	0	0.000	0.000	0.000
2013	8,440	0	1	0	15,143	0	3,410	18,553	1,794	0.404	2,198
2014	7,314	0	0	0	0	0	0	0	0.000	0.000	0.000
2015	2,259	0	1	0	11,343	0	2,583	13,926	5,020	1,143	6,164
<b>MA Total:</b>	<b>31,944</b>	<b>0</b>	<b>2</b>	<b>0</b>	<b>26,486</b>	<b>0</b>	<b>5,993</b>	<b>32,479</b>	<b>0.829</b>	<b>0.188</b>	<b>1.017</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.990	0.394	.
(14) Massachusetts Credibility:	0.100	0.150	.
(15) Countrywide Pure Premium:	0.820	0.476	1.296
(16) Countrywide Indicated Relativity:	0.982	0.994	.
(17) Countrywide Credibility:	0.230	0.250	.
(18) Countrywide Lost-Time Claims:	30.000	.	.
(19) Pure Premium Underlying Present Rate:	2.946	1.530	4.477
(20) Relativity to Underlying Present Rate:	3.553	3.003	.
(21) Credibility to Underlying Relativity:	0.670	0.600	.
(22) Industry Group Converted Pure Premium:	0.837	0.476	1.314
(23) Formula Relativity:	2.705	2.109	.
(24) Balanced Formula Relativity:	2.687	2.108	2.477

Class(es):		Effective: 7/1/2018							Goods and Services		
8720 INSPECTION OF RISKS FOR INSURANCE OR VALUATION PURPOSES NOC											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period (1)	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2011	1,503,178	3	60	16,667	695,126	19,105	241,390	972,289	0.474	0.173	0.647
2012	1,571,659	6	43	780,364	488,922	445,223	170,450	1,884,959	0.808	0.392	1,199
2013	1,705,211	7	56	118,467	76,473	56,360	175,031	426,332	0.114	0.136	0.250
2014	1,754,849	2	42	144,410	172,328	9,169	187,693	513,599	0.180	0.112	0.293
2015	1,792,771	5	48	879,508	656,317	307,444	395,162	2,238,430	0.857	0.392	1,249
<b>MA Total:</b>	<b>8,327,668</b>	<b>23</b>	<b>249</b>	<b>1,939,416</b>	<b>2,089,166</b>	<b>837,300</b>	<b>1,169,727</b>	<b>6,035,609</b>	<b>0.484</b>	<b>0.241</b>	<b>0.725</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.578	0.506	.
(14) Massachusetts Credibility:	0.450	0.640	.
(15) Countrywide Pure Premium:	0.495	0.251	0.746
(16) Countrywide Indicated Relativity:	0.593	0.525	.
(17) Countrywide Credibility:	0.280	0.180	.
(18) Countrywide Lost-Time Claims:	1292.0	.	.
(19) Pure Premium Underlying Present Rate:	0.455	0.237	0.692
(20) Relativity to Underlying Present Rate:	0.548	0.466	.
(21) Credibility to Underlying Relativity:	0.270	0.180	.
(22) Industry Group Converted Pure Premium:	0.837	0.476	1.314
(23) Formula Relativity:	0.574	0.502	.
(24) Balanced Formula Relativity:	0.570	0.502	0.545

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## Calculation of Class Relativities

Class(es):		Effective: 7/1/2018							Office and Clerical		
8721 REAL ESTATE APPRAISAL CO - OUTSIDE EMPLOYEES											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period (1)	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2011	273,309	1	2	73,434	16,593	335,958	1,660	427,644	0.329	1.235	1.565
2012	288,802	0	3	0	242,289	0	42,985	285,274	0.839	0.149	0.988
2013	275,524	2	1	132,664	0	8,991	30	141,685	0.481	0.033	0.514
2014	328,957	0	2	0	0	0	791	791	0.000	0.002	0.002
2015	284,195	0	1	0	0	0	46	46	0.000	0.000	0.000
<b>MA Total:</b>	<b>1,450,786</b>	<b>3</b>	<b>9</b>	<b>206,098</b>	<b>258,882</b>	<b>344,949</b>	<b>45,512</b>	<b>855,440</b>	<b>0.321</b>	<b>0.269</b>	<b>0.590</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	4.493	6.171	.
(14) Massachusetts Credibility:	0.140	0.310	.
(15) Countrywide Pure Premium:	0.112	0.049	0.162
(16) Countrywide Indicated Relativity:	1.848	1.280	.
(17) Countrywide Credibility:	0.380	0.350	.
(18) Countrywide Lost-Time Claims:	101.00	.	.
(19) Pure Premium Underlying Present Rate:	0.150	0.224	0.374
(20) Relativity to Underlying Present Rate:	2.061	4.629	.
(21) Credibility to Underlying Relativity:	0.480	0.340	.
(22) Industry Group Converted Pure Premium:	0.071	0.044	0.115
(23) Formula Relativity:	2.321	3.935	.
(24) Balanced Formula Relativity:	2.336	3.945	2.947

Class(es):		Effective: 7/1/2018							Office and Clerical		
8742 SALESPERSONS, COLLECTORS OR MESSENGERS-OUTSIDE											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period (1)	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2011	86,383,345	32	493	4,687,595	1,949,099	1,447,964	1,992,031	10,076,689	0.077	0.040	0.117
2012	89,730,553	29	534	2,023,959	2,561,817	1,641,695	1,607,654	7,835,125	0.051	0.036	0.087
2013	97,017,102	27	509	3,129,835	3,236,740	982,242	2,402,891	9,751,707	0.066	0.035	0.101
2014	101,992,142	33	520	2,537,258	2,878,282	1,650,731	2,312,770	9,379,042	0.053	0.039	0.092
2015	107,750,515	22	570	1,682,655	4,331,972	966,564	3,734,643	10,715,834	0.056	0.044	0.099
<b>MA Total:</b>	<b>482,873,657</b>	<b>143</b>	<b>2,626</b>	<b>14,061,303</b>	<b>14,957,910</b>	<b>6,689,196</b>	<b>12,049,989</b>	<b>47,758,398</b>	<b>0.060</b>	<b>0.039</b>	<b>0.099</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.842	0.890	.
(14) Massachusetts Credibility:	1.000	1.000	.
(15) Countrywide Pure Premium:	0.096	0.056	0.152
(16) Countrywide Indicated Relativity:	1.575	1.461	.
(17) Countrywide Credibility:	0.000	0.000	.
(18) Countrywide Lost-Time Claims:	15876	.	.
(19) Pure Premium Underlying Present Rate:	0.071	0.048	0.119
(20) Relativity to Underlying Present Rate:	0.976	0.987	.
(21) Credibility to Underlying Relativity:	0.000	0.000	.
(22) Industry Group Converted Pure Premium:	0.071	0.044	0.115
(23) Formula Relativity:	0.842	0.890	.
(24) Balanced Formula Relativity:	0.848	0.892	0.865

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## Calculation of Class Relativities

Class(es):		Effective: 7/1/2018							Goods and Services			
8745 NEWS AGENT OR DISTRIB OF MAGAZINE-NOT RETAIL & SALES,DR												
Converted Unlimited Losses												
Amount												
		Claim Count		Indemnity		Medical			MA Indicated Pure Premiums			
Policy Period (1)	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)	
2011	153.392	3	37	98.501	322.042	82.529	204.335	707.407	2.742	1.870	4.612	
2012	130.163	0	33	0	585.745	0	352.024	937.769	4.500	2.704	7.205	
2013	123.877	2	34	354.350	92.288	411.499	133.033	991.170	3.605	4.396	8.001	
2014	124.555	3	22	276.565	287.436	109.880	616.557	1.290.438	4.528	5.832	10.360	
2015	129.116	0	29	0	811.995	0	259.973	1.071.968	6.289	2.013	8.302	
<b>MA Total:</b>	<b>661,103</b>	<b>8</b>	<b>155</b>	<b>729,417</b>	<b>2,099,506</b>	<b>603,907</b>	<b>1,565,922</b>	<b>4,998,752</b>	<b>4.279</b>	<b>3.282</b>	<b>7.561</b>	

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	5.110	6.889	.
(14) Massachusetts Credibility:	0.340	0.560	.
(15) Countrywide Pure Premium:	1.889	1.124	3.013
(16) Countrywide Indicated Relativity:	2.262	2.349	.
(17) Countrywide Credibility:	0.330	0.220	.
(18) Countrywide Lost-Time Claims:	390.00	.	.
(19) Pure Premium Underlying Present Rate:	2.748	2.090	4.838
(20) Relativity to Underlying Present Rate:	3.314	4.101	.
(21) Credibility to Underlying Relativity:	0.330	0.220	.
(22) Industry Group Converted Pure Premium:	0.837	0.476	1.314
(23) Formula Relativity:	3.578	5.277	.
(24) Balanced Formula Relativity:	3.554	5.275	4.178

Class(es):		Effective: 7/1/2018							Goods and Services			
8747 DISPLAY SHOWROOMS - ALL TYPES												
Converted Unlimited Losses												
Amount												
		Claim Count		Indemnity		Medical			MA Indicated Pure Premiums			
Policy Period (1)	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)	
2011	73.931	0	3	0	0	0	2.018	2.018	0.000	0.027	0.027	
2012	103.461	0	3	0	238	0	1.085	1.323	0.002	0.010	0.013	
2013	137.333	1	1	300.481	1.272	17.569	492	319.814	2.197	0.132	2.329	
2014	144.263	0	0	0	0	0	0	0	0.000	0.000	0.000	
2015	138.742	0	2	0	4.353	0	14.444	18.797	0.031	0.104	0.135	
<b>MA Total:</b>	<b>597,729</b>	<b>1</b>	<b>9</b>	<b>300,481</b>	<b>5,862</b>	<b>17,569</b>	<b>18,039</b>	<b>341,951</b>	<b>0.513</b>	<b>0.060</b>	<b>0.572</b>	

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.612	0.125	.
(14) Massachusetts Credibility:	0.160	0.230	.
(15) Countrywide Pure Premium:	0.000	0.000	0.000
(16) Countrywide Indicated Relativity:	0.567	0.503	.
(17) Countrywide Credibility:	0.000	0.000	.
(18) Countrywide Lost-Time Claims:	0.000	.	.
(19) Pure Premium Underlying Present Rate:	0.474	0.259	0.732
(20) Relativity to Underlying Present Rate:	0.571	0.507	.
(21) Credibility to Underlying Relativity:	0.840	0.770	.
(22) Industry Group Converted Pure Premium:	0.837	0.476	1.314
(23) Formula Relativity:	0.578	0.419	.
(24) Balanced Formula Relativity:	0.574	0.419	0.518

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## Calculation of Class Relativities

Class(es): 8748 AUTOMOBILE SALESPERSONS		Effective: 7/1/2018						Office and Clerical			
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period (1)	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2011	2,534,945	3	101	362,892	529,380	111,113	386,730	1,390,115	0.352	0.196	0.548
2012	2,598,647	4	86	546,797	373,847	244,854	389,388	1,554,886	0.354	0.244	0.598
2013	2,766,046	7	96	702,158	449,028	357,018	268,374	1,776,578	0.416	0.226	0.642
2014	3,098,549	10	93	706,894	1,114,584	226,643	518,252	2,566,372	0.588	0.240	0.828
2015	3,096,150	2	64	286,310	915,273	39,784	309,039	1,550,407	0.388	0.113	0.501
<b>MA Total:</b>	<b>14,094,337</b>	<b>26</b>	<b>440</b>	<b>2,605,051</b>	<b>3,382,112</b>	<b>979,412</b>	<b>1,871,783</b>	<b>8,838,358</b>	<b>0.425</b>	<b>0.202</b>	<b>0.627</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	5.955	4.638	.
(14) Massachusetts Credibility:	0.470	0.710	.
(15) Countrywide Pure Premium:	0.199	0.109	0.308
(16) Countrywide Indicated Relativity:	3.278	2.807	.
(17) Countrywide Credibility:	0.270	0.150	.
(18) Countrywide Lost-Time Claims:	1867.0	.	.
(19) Pure Premium Underlying Present Rate:	0.292	0.184	0.476
(20) Relativity to Underlying Present Rate:	4.015	3.808	.
(21) Credibility to Underlying Relativity:	0.260	0.140	.
(22) Industry Group Converted Pure Premium:	0.071	0.044	0.115
(23) Formula Relativity:	4.728	4.247	.
(24) Balanced Formula Relativity:	4.759	4.258	4.569

Class(es): 8800 MAILING OR ADDRESSING CO & CLERICAL		Effective: 7/1/2018						Office and Clerical			
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period (1)	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2011	425,555	3	19	231,920	167,245	23,949	70,260	493,374	0.938	0.221	1.159
2012	412,929	2	21	124,896	43,299	72,997	62,098	303,290	0.407	0.327	0.734
2013	412,553	2	14	140,355	64,882	35,081	51,601	291,919	0.497	0.210	0.708
2014	370,892	0	14	0	79,439	0	37,153	116,592	0.214	0.100	0.314
2015	404,358	1	13	52,282	40,282	38,180	33,340	164,083	0.229	0.177	0.406
<b>MA Total:</b>	<b>2,026,286</b>	<b>8</b>	<b>81</b>	<b>549,453</b>	<b>395,146</b>	<b>170,208</b>	<b>254,452</b>	<b>1,369,258</b>	<b>0.466</b>	<b>0.210</b>	<b>0.676</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	6.535	4.805	.
(14) Massachusetts Credibility:	0.280	0.430	.
(15) Countrywide Pure Premium:	0.539	0.335	0.874
(16) Countrywide Indicated Relativity:	8.868	8.672	.
(17) Countrywide Credibility:	0.360	0.290	.
(18) Countrywide Lost-Time Claims:	901.00	.	.
(19) Pure Premium Underlying Present Rate:	0.580	0.350	0.930
(20) Relativity to Underlying Present Rate:	7.970	7.244	.
(21) Credibility to Underlying Relativity:	0.360	0.280	.
(22) Industry Group Converted Pure Premium:	0.071	0.044	0.115
(23) Formula Relativity:	7.891	6.609	.
(24) Balanced Formula Relativity:	7.944	6.627	7.444

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## Calculation of Class Relativities

Class(es):		Effective: 7/1/2018							Office and Clerical		
8803 AUDITORS, ACCOUNTANT OR FACTORY COST OR OFF SYSTEMZR-TRAV											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period (1)	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2011	29,094,926	2	50	13,037	54,603	28,957	262,207	358,804	0.002	0.010	0.012
2012	31,654,984	5	63	391,674	63,188	189,452	169,595	813,909	0.014	0.011	0.026
2013	29,052,084	3	48	154,420	344,090	112,869	190,641	802,020	0.017	0.010	0.028
2014	30,906,559	4	47	1,368,960	343,339	433,699	258,939	2,404,937	0.055	0.022	0.078
2015	32,361,411	0	40	0	468,584	0	260,922	729,506	0.014	0.008	0.023
<b>MA Total:</b>	<b>153,069,965</b>	<b>14</b>	<b>248</b>	<b>1,928,090</b>	<b>1,273,804</b>	<b>764,977</b>	<b>1,142,305</b>	<b>5,109,175</b>	<b>0.021</b>	<b>0.012</b>	<b>0.033</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.293	0.286	.
(14) Massachusetts Credibility:	0.390	0.620	.
(15) Countrywide Pure Premium:	0.022	0.012	0.034
(16) Countrywide Indicated Relativity:	0.360	0.316	.
(17) Countrywide Credibility:	0.310	0.190	.
(18) Countrywide Lost-Time Claims:	887.00	.	.
(19) Pure Premium Underlying Present Rate:	0.016	0.012	0.028
(20) Relativity to Underlying Present Rate:	0.225	0.244	.
(21) Credibility to Underlying Relativity:	0.300	0.190	.
(22) Industry Group Converted Pure Premium:	0.071	0.044	0.115
(23) Formula Relativity:	0.293	0.284	.
(24) Balanced Formula Relativity:	0.295	0.284	0.291

Class(es):		Effective: 7/1/2018							Office and Clerical		
8810 CLERICAL OFFICE EMPLOYEES NOC											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period (1)	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2011	433,442,847	87	1,731	6,119,751	6,231,690	2,519,597	5,701,563	20,572,601	0.028	0.019	0.047
2012	440,790,864	88	1,764	7,163,071	9,048,546	2,322,878	6,545,581	25,080,077	0.037	0.020	0.057
2013	461,936,498	71	1,816	5,279,067	9,278,822	2,776,783	6,800,962	24,135,634	0.032	0.021	0.052
2014	487,310,127	84	1,963	8,456,543	11,493,218	2,579,602	8,465,986	30,995,350	0.041	0.023	0.064
2015	530,213,073	73	1,672	7,563,570	10,058,000	3,274,808	7,389,720	28,286,098	0.033	0.020	0.053
<b>MA Total:</b>	<b>2,353,693,408</b>	<b>403</b>	<b>8,946</b>	<b>34,582,002</b>	<b>46,110,277</b>	<b>13,473,668</b>	<b>34,903,812</b>	<b>129,069,759</b>	<b>0.034</b>	<b>0.021</b>	<b>0.055</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.481	0.471	.
(14) Massachusetts Credibility:	1.000	1.000	.
(15) Countrywide Pure Premium:	0.042	0.027	0.069
(16) Countrywide Indicated Relativity:	0.685	0.703	.
(17) Countrywide Credibility:	0.000	0.000	.
(18) Countrywide Lost-Time Claims:	42785	.	.
(19) Pure Premium Underlying Present Rate:	0.031	0.022	0.053
(20) Relativity to Underlying Present Rate:	0.430	0.458	.
(21) Credibility to Underlying Relativity:	0.000	0.000	.
(22) Industry Group Converted Pure Premium:	0.071	0.044	0.115
(23) Formula Relativity:	0.481	0.471	.
(24) Balanced Formula Relativity:	0.484	0.472	0.480

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## Calculation of Class Relativities

Class(es):		Effective: 7/1/2018							Office and Clerical		
8820 ATTORNEY-ALL EMP & CLERICAL, MESSENGERS, DR											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period (1)	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2011	23,065,464	0	84	0	438,615	0	214,185	652,800	0.019	0.009	0.028
2012	24,761,604	4	69	107,747	811,085	36,977	621,917	1,577,725	0.037	0.027	0.064
2013	24,555,121	2	73	367,897	854,318	47,080	458,294	1,727,588	0.050	0.021	0.070
2014	24,325,225	2	67	391,786	839,446	261,996	529,617	2,022,845	0.051	0.033	0.083
2015	24,416,087	5	62	718,770	244,558	181,835	445,424	1,590,587	0.039	0.026	0.065
<b>MA Total:</b>	<b>121,123,501</b>	<b>13</b>	<b>355</b>	<b>1,586,199</b>	<b>3,188,022</b>	<b>527,889</b>	<b>2,269,436</b>	<b>7,571,545</b>	<b>0.039</b>	<b>0.023</b>	<b>0.063</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.553	0.530	.
(14) Massachusetts Credibility:	0.510	0.760	.
(15) Countrywide Pure Premium:	0.041	0.025	0.066
(16) Countrywide Indicated Relativity:	0.682	0.648	.
(17) Countrywide Credibility:	0.250	0.120	.
(18) Countrywide Lost-Time Claims:	1771.0	.	.
(19) Pure Premium Underlying Present Rate:	0.042	0.025	0.066
(20) Relativity to Underlying Present Rate:	0.571	0.515	.
(21) Credibility to Underlying Relativity:	0.240	0.120	.
(22) Industry Group Converted Pure Premium:	0.071	0.044	0.115
(23) Formula Relativity:	0.589	0.542	.
(24) Balanced Formula Relativity:	0.593	0.543	0.574

Class(es):		Effective: 7/1/2018							Goods and Services		
8829 CONVALESCENT OR NURSING HOME-ALL EMPLOYEES											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period (1)	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2011	10,254,311	51	2,265	4,659,735	8,261,610	1,339,201	4,781,500	19,042,045	1.260	0.597	1.857
2012	9,491,933	47	1,926	2,849,392	5,765,426	1,054,174	3,619,782	13,288,775	0.908	0.492	1.400
2013	9,893,555	48	1,816	3,868,712	6,296,163	1,251,427	3,756,429	15,172,732	1.027	0.506	1.534
2014	10,758,757	62	2,022	5,522,034	6,786,771	1,482,469	4,593,580	18,384,854	1.144	0.565	1.709
2015	9,502,033	42	1,643	4,182,151	7,802,581	1,557,459	4,458,136	18,000,326	1.261	0.633	1.894
<b>MA Total:</b>	<b>49,900,589</b>	<b>250</b>	<b>9,672</b>	<b>21,082,024</b>	<b>34,912,550</b>	<b>6,684,730</b>	<b>21,209,428</b>	<b>83,888,733</b>	<b>1.122</b>	<b>0.559</b>	<b>1.681</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	1.340	1.173	.
(14) Massachusetts Credibility:	1.000	1.000	.
(15) Countrywide Pure Premium:	0.974	0.568	1.542
(16) Countrywide Indicated Relativity:	1.166	1.187	.
(17) Countrywide Credibility:	0.000	0.000	.
(18) Countrywide Lost-Time Claims:	23984	.	.
(19) Pure Premium Underlying Present Rate:	1.040	0.556	1.596
(20) Relativity to Underlying Present Rate:	1.254	1.090	.
(21) Credibility to Underlying Relativity:	0.000	0.000	.
(22) Industry Group Converted Pure Premium:	0.837	0.476	1.314
(23) Formula Relativity:	1.340	1.173	.
(24) Balanced Formula Relativity:	1.331	1.173	1.274

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## Calculation of Class Relativities

Class(es): 8831 PET GROOMING & DRIVERS		Effective: 7/1/2018							Goods and Services		
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period (1)	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2011	2,456,219	2	555	636	517,661	38,461	881,433	1,438,191	0.211	0.375	0.586
2012	2,574,448	5	515	292,730	263,188	271,869	606,045	1,433,833	0.216	0.341	0.557
2013	2,741,235	6	621	634,814	636,468	117,455	899,753	2,288,491	0.464	0.371	0.835
2014	2,861,655	2	602	91,365	541,073	100,571	1,145,804	1,878,814	0.221	0.436	0.657
2015	3,128,077	13	611	886,514	458,398	438,272	1,109,427	2,892,610	0.430	0.495	0.925
<b>MA Total:</b>	<b>13,761,634</b>	<b>28</b>	<b>2,904</b>	<b>1,906,059</b>	<b>2,416,789</b>	<b>966,628</b>	<b>4,642,462</b>	<b>9,931,938</b>	<b>0.314</b>	<b>0.408</b>	<b>0.722</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.375	0.855	.
(14) Massachusetts Credibility:	0.500	0.950	.
(15) Countrywide Pure Premium:	0.442	0.390	0.832
(16) Countrywide Indicated Relativity:	0.529	0.815	.
(17) Countrywide Credibility:	0.250	0.030	.
(18) Countrywide Lost-Time Claims:	4444.0	.	.
(19) Pure Premium Underlying Present Rate:	0.356	0.388	0.744
(20) Relativity to Underlying Present Rate:	0.429	0.762	.
(21) Credibility to Underlying Relativity:	0.250	0.020	.
(22) Industry Group Converted Pure Premium:	0.837	0.476	1.314
(23) Formula Relativity:	0.427	0.852	.
(24) Balanced Formula Relativity:	0.424	0.852	0.579

Class(es): 8832 PHYSICIAN & CLERICAL		Effective: 7/1/2018							Office and Clerical		
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period (1)	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2011	49,031,893	43	1,136	4,703,239	4,668,766	2,116,063	3,038,431	14,526,499	0.191	0.105	0.296
2012	49,385,558	32	1,286	3,520,950	5,020,934	1,045,258	2,967,682	12,554,823	0.173	0.081	0.254
2013	53,360,566	39	1,338	3,339,387	2,977,565	1,234,124	3,082,913	10,633,989	0.118	0.081	0.199
2014	54,408,794	30	1,186	2,991,604	3,668,525	1,200,713	2,563,766	10,424,609	0.122	0.069	0.192
2015	55,225,726	21	1,136	1,711,518	4,343,384	802,721	2,893,936	9,751,559	0.110	0.067	0.177
<b>MA Total:</b>	<b>261,412,536</b>	<b>165</b>	<b>6,082</b>	<b>16,266,697</b>	<b>20,679,174</b>	<b>6,398,879</b>	<b>14,546,729</b>	<b>57,891,480</b>	<b>0.141</b>	<b>0.080</b>	<b>0.221</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	1.981	1.837	.
(14) Massachusetts Credibility:	1.000	1.000	.
(15) Countrywide Pure Premium:	0.100	0.057	0.157
(16) Countrywide Indicated Relativity:	1.640	1.475	.
(17) Countrywide Credibility:	0.000	0.000	.
(18) Countrywide Lost-Time Claims:	14376	.	.
(19) Pure Premium Underlying Present Rate:	0.156	0.085	0.241
(20) Relativity to Underlying Present Rate:	2.136	1.761	.
(21) Credibility to Underlying Relativity:	0.000	0.000	.
(22) Industry Group Converted Pure Premium:	0.071	0.044	0.115
(23) Formula Relativity:	1.981	1.837	.
(24) Balanced Formula Relativity:	1.994	1.842	1.937

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## Calculation of Class Relativities

Class(es):		Effective: 7/1/2018							Office and Clerical		
8833 HOSPITAL: PROFESSIONAL EMPLOYEES											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period (1)	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2011	7,831,497	28	851	1,421,229	2,454,609	681,918	1,984,089	6,541,845	0.495	0.340	0.835
2012	7,931,908	17	927	1,551,549	2,685,378	393,462	2,183,800	6,814,189	0.534	0.325	0.859
2013	7,789,989	25	787	2,107,097	4,421,585	734,750	1,998,714	9,262,146	0.838	0.351	1.189
2014	8,554,231	19	890	1,479,160	3,752,022	395,012	1,724,293	7,350,486	0.612	0.248	0.859
2015	8,861,619	17	820	1,700,896	3,716,451	532,686	1,983,519	7,933,553	0.611	0.284	0.895
<b>MA Total:</b>	<b>40,969,244</b>	<b>106</b>	<b>4,275</b>	<b>8,259,931</b>	<b>17,030,045</b>	<b>2,737,828</b>	<b>9,874,416</b>	<b>37,902,219</b>	<b>0.617</b>	<b>0.308</b>	<b>0.925</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	8.653	7.058	.
(14) Massachusetts Credibility:	0.970	1.000	.
(15) Countrywide Pure Premium:	0.297	0.182	0.479
(16) Countrywide Indicated Relativity:	4.891	4.701	.
(17) Countrywide Credibility:	0.020	0.000	.
(18) Countrywide Lost-Time Claims:	19540	.	.
(19) Pure Premium Underlying Present Rate:	0.616	0.345	0.961
(20) Relativity to Underlying Present Rate:	8.464	7.136	.
(21) Credibility to Underlying Relativity:	0.010	0.000	.
(22) Industry Group Converted Pure Premium:	0.071	0.044	0.115
(23) Formula Relativity:	8.576	7.058	.
(24) Balanced Formula Relativity:	8.633	7.077	8.043

Class(es):		Effective: 7/1/2018							Goods and Services		
8835 NURSING-HOME HEALTH, PUBLIC & TRAVELING-ALL EMPLOYEES											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period (1)	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2011	5,908,562	38	695	3,159,800	2,309,850	1,586,159	1,564,320	8,620,129	0.926	0.533	1.459
2012	6,759,166	40	776	2,454,763	3,531,213	728,266	1,821,248	8,535,490	0.886	0.377	1.263
2013	7,554,902	53	845	3,312,901	3,282,202	1,404,807	1,963,374	9,963,285	0.873	0.446	1.319
2014	9,041,601	63	933	4,643,520	5,579,777	1,187,718	3,005,705	14,416,720	1.131	0.464	1.594
2015	10,615,190	64	939	8,525,136	8,144,854	2,805,024	3,596,218	23,071,231	1.570	0.603	2.173
<b>MA Total:</b>	<b>39,879,422</b>	<b>258</b>	<b>4,188</b>	<b>22,096,120</b>	<b>22,847,897</b>	<b>7,711,973</b>	<b>11,950,865</b>	<b>64,606,855</b>	<b>1.127</b>	<b>0.493</b>	<b>1.620</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	1.346	1.035	.
(14) Massachusetts Credibility:	1.000	1.000	.
(15) Countrywide Pure Premium:	1.029	0.503	1.532
(16) Countrywide Indicated Relativity:	1.232	1.051	.
(17) Countrywide Credibility:	0.000	0.000	.
(18) Countrywide Lost-Time Claims:	18119	.	.
(19) Pure Premium Underlying Present Rate:	1.053	0.514	1.567
(20) Relativity to Underlying Present Rate:	1.270	1.009	.
(21) Credibility to Underlying Relativity:	0.000	0.000	.
(22) Industry Group Converted Pure Premium:	0.837	0.476	1.314
(23) Formula Relativity:	1.346	1.035	.
(24) Balanced Formula Relativity:	1.337	1.034	1.227



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## Calculation of Class Relativities

Class(es):		Effective: 7/1/2018							Office and Clerical		
8868 COLLEGE: PROFESSIONAL EMPLOYEES & CLERICAL											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period (1)	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2011	35,543,011	90	3,434	5,525,642	7,141,720	3,359,060	6,407,020	22,433,442	0.356	0.275	0.631
2012	35,485,319	78	3,094	4,201,306	7,606,119	2,078,662	6,627,971	20,514,058	0.333	0.245	0.578
2013	36,973,085	76	3,176	3,830,672	6,794,256	1,410,953	7,024,049	19,059,930	0.287	0.228	0.516
2014	39,556,217	95	3,220	5,483,340	8,297,695	2,176,962	6,814,476	22,772,473	0.348	0.227	0.576
2015	42,017,813	72	3,283	4,415,241	8,111,059	1,576,090	6,768,161	20,870,550	0.298	0.199	0.497
<b>MA Total:</b>	<b>189,575,445</b>	<b>411</b>	<b>16,207</b>	<b>23,456,200</b>	<b>37,950,850</b>	<b>10,601,727</b>	<b>33,641,676</b>	<b>105,650,453</b>	<b>0.324</b>	<b>0.233</b>	<b>0.557</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	4.541	5.351	.
(14) Massachusetts Credibility:	1.000	1.000	.
(15) Countrywide Pure Premium:	0.093	0.079	0.173
(16) Countrywide Indicated Relativity:	1.536	2.049	.
(17) Countrywide Credibility:	0.000	0.000	.
(18) Countrywide Lost-Time Claims:	17089	.	.
(19) Pure Premium Underlying Present Rate:	0.361	0.264	0.624
(20) Relativity to Underlying Present Rate:	4.950	5.466	.
(21) Credibility to Underlying Relativity:	0.000	0.000	.
(22) Industry Group Converted Pure Premium:	0.071	0.044	0.115
(23) Formula Relativity:	4.541	5.351	.
(24) Balanced Formula Relativity:	4.571	5.365	4.872

Class(es):		Effective: 7/1/2018							Goods and Services		
9014 BUILDINGS - OPERATION BY CONTRACTORS											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period (1)	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2011	5,148,044	53	535	4,655,554	5,170,280	1,583,162	2,662,065	14,071,062	1.909	0.825	2.733
2012	5,225,880	40	521	3,027,606	3,412,512	995,906	2,370,052	9,806,076	1.232	0.644	1.876
2013	5,558,652	30	473	2,452,597	5,070,117	847,878	2,742,316	11,112,908	1.353	0.646	1.999
2014	6,084,003	27	454	2,619,183	4,401,598	1,416,874	1,763,186	10,200,841	1.154	0.523	1.677
2015	6,766,448	32	515	1,967,905	4,023,045	875,939	2,500,317	9,367,206	0.885	0.499	1.384
<b>MA Total:</b>	<b>28,783,028</b>	<b>182</b>	<b>2,498</b>	<b>14,722,845</b>	<b>22,077,553</b>	<b>5,719,759</b>	<b>12,037,936</b>	<b>54,558,093</b>	<b>1.279</b>	<b>0.617</b>	<b>1.895</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	1.527	1.295	.
(14) Massachusetts Credibility:	1.000	1.000	.
(15) Countrywide Pure Premium:	1.324	0.749	2.072
(16) Countrywide Indicated Relativity:	1.585	1.564	.
(17) Countrywide Credibility:	0.000	0.000	.
(18) Countrywide Lost-Time Claims:	18757	.	.
(19) Pure Premium Underlying Present Rate:	1.458	0.765	2.222
(20) Relativity to Underlying Present Rate:	1.758	1.500	.
(21) Credibility to Underlying Relativity:	0.000	0.000	.
(22) Industry Group Converted Pure Premium:	0.837	0.476	1.314
(23) Formula Relativity:	1.527	1.295	.
(24) Balanced Formula Relativity:	1.517	1.294	1.436

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## Calculation of Class Relativities

Class(es):		Effective: 7/1/2018							Goods and Services		
9015 BUILDINGS-OPERATION BY OWNER OR LESSEE											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period (1)	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2011	5,289,270	30	824	3,277,515	5,604,458	1,182,616	2,968,511	13,033,101	1,679	0,785	2,464
2012	5,349,451	37	842	3,692,244	4,831,844	1,285,059	2,920,414	12,729,560	1,593	0,786	2,380
2013	5,566,603	27	795	3,028,592	6,411,137	1,178,603	3,714,168	14,332,500	1,696	0,879	2,575
2014	5,888,123	37	827	3,854,011	5,993,649	2,573,660	3,553,793	15,975,112	1,672	1,041	2,713
2015	6,111,789	21	761	2,580,609	6,109,681	977,202	4,429,101	14,096,593	1,422	0,885	2,306
<b>MA Total:</b>	<b>28,205,237</b>	<b>152</b>	<b>4,049</b>	<b>16,432,970</b>	<b>28,950,769</b>	<b>7,197,139</b>	<b>17,585,987</b>	<b>70,166,866</b>	<b>1,609</b>	<b>0,879</b>	<b>2,488</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	1.922	1.844	.
(14) Massachusetts Credibility:	1.000	1.000	.
(15) Countrywide Pure Premium:	1.476	0.763	2.239
(16) Countrywide Indicated Relativity:	1.768	1.593	.
(17) Countrywide Credibility:	0.000	0.000	.
(18) Countrywide Lost-Time Claims:	15988	.	.
(19) Pure Premium Underlying Present Rate:	1.623	0.826	2.449
(20) Relativity to Underlying Present Rate:	1.957	1.621	.
(21) Credibility to Underlying Relativity:	0.000	0.000	.
(22) Industry Group Converted Pure Premium:	0.837	0.476	1.314
(23) Formula Relativity:	1.922	1.844	.
(24) Balanced Formula Relativity:	1.909	1.844	1.885

Class(es):		Effective: 7/1/2018							Goods and Services		
9016 AMUSEMENT PARK OR EXHIBITION OPERATION & DR											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period (1)	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2011	539,494	3	103	116,209	575,473	494,755	337,936	1,524,372	1,282	1,543	2,826
2012	558,122	1	98	4,439	355,119	5,022	324,655	689,234	0,644	0,591	1,235
2013	595,855	5	102	301,781	431,276	168,179	189,676	1,090,911	1,230	0,601	1,831
2014	610,875	0	97	0	353,719	0	423,826	777,545	0,579	0,694	1,273
2015	629,921	2	88	49,961	733,961	28,429	489,703	1,302,054	1,244	0,823	2,067
<b>MA Total:</b>	<b>2,934,266</b>	<b>11</b>	<b>488</b>	<b>472,389</b>	<b>2,449,547</b>	<b>696,384</b>	<b>1,765,795</b>	<b>5,384,115</b>	<b>0,996</b>	<b>0,839</b>	<b>1,835</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	1.189	1.761	.
(14) Massachusetts Credibility:	0.380	0.720	.
(15) Countrywide Pure Premium:	0.829	0.662	1.490
(16) Countrywide Indicated Relativity:	0.992	1.382	.
(17) Countrywide Credibility:	0.310	0.140	.
(18) Countrywide Lost-Time Claims:	1944.0	.	.
(19) Pure Premium Underlying Present Rate:	0.820	0.887	1.707
(20) Relativity to Underlying Present Rate:	0.989	1.740	.
(21) Credibility to Underlying Relativity:	0.310	0.140	.
(22) Industry Group Converted Pure Premium:	0.837	0.476	1.314
(23) Formula Relativity:	1.066	1.705	.
(24) Balanced Formula Relativity:	1.059	1.705	1.293

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## Calculation of Class Relativities

Class(es):									Effective: 7/1/2018			Miscellaneous		
9019 BRIDGE OR VEHICULAR TUNNEL OPERATION & DRIVERS														
Converted Unlimited Losses														
									Amount					
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums						
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)			
2011	18,613	0	0	0	0	0	0	0	0.000	0.000	0.000			
2012	25,615	0	0	0	0	0	0	0	0.000	0.000	0.000			
2013	37,338	1	0	530,298	0	202,261	0	732,559	14,203	5,417	19,620			
2014	28,412	0	0	0	0	0	0	0	0.000	0.000	0.000			
2015	32,438	0	0	0	0	0	0	0	0.000	0.000	0.000			
<b>MA Total:</b>	<b>142,415</b>	<b>1</b>	<b>0</b>	<b>530,298</b>	<b>0</b>	<b>202,261</b>	<b>0</b>	<b>732,559</b>	<b>3,724</b>	<b>1,420</b>	<b>5,144</b>			

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	1.551	1.189	.
(14) Massachusetts Credibility:	0.140	0.170	.
(15) Countrywide Pure Premium:	0.614	0.401	1.015
(16) Countrywide Indicated Relativity:	0.284	0.377	.
(17) Countrywide Credibility:	0.250	0.260	.
(18) Countrywide Lost-Time Claims:	35,000	.	.
(19) Pure Premium Underlying Present Rate:	1.433	0.474	1.906
(20) Relativity to Underlying Present Rate:	0.588	0.359	.
(21) Credibility to Underlying Relativity:	0.610	0.570	.
(22) Industry Group Converted Pure Premium:	2.400	1.195	3.595
(23) Formula Relativity:	0.647	0.505	.
(24) Balanced Formula Relativity:	0.644	0.508	0.599

Class(es):									Effective: 7/1/2018			Goods and Services		
9033 HOUSING AUTHORITY & CLERICAL, SALES, DRIVERS														
Converted Unlimited Losses														
									Amount					
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums						
Policy Period (1)	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)			
2011	212,743	2	40	324,139	233,678	191,433	109,488	858,738	2,622	1,414	4,037			
2012	206,506	1	39	38,982	92,248	78,838	88,144	298,213	0,635	0,809	1,444			
2013	213,437	1	41	280	292,432	14,012	181,868	488,593	1,371	0,918	2,289			
2014	217,562	0	35	0	39,304	0	65,700	105,004	0,181	0,302	0,483			
2015	217,398	2	24	459,825	548,107	49,235	188,183	1,245,351	4,636	1,092	5,728			
<b>MA Total:</b>	<b>1,067,646</b>	<b>6</b>	<b>179</b>	<b>823,228</b>	<b>1,205,769</b>	<b>333,518</b>	<b>633,384</b>	<b>2,995,899</b>	<b>1,900</b>	<b>0,906</b>	<b>2,806</b>			

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	2.270	1.901	.
(14) Massachusetts Credibility:	0.340	0.480	.
(15) Countrywide Pure Premium:	1.101	0.530	1.632
(16) Countrywide Indicated Relativity:	1.319	1.108	.
(17) Countrywide Credibility:	0.330	0.260	.
(18) Countrywide Lost-Time Claims:	788.00	.	.
(19) Pure Premium Underlying Present Rate:	1.756	0.916	2.672
(20) Relativity to Underlying Present Rate:	2.118	1.798	.
(21) Credibility to Underlying Relativity:	0.330	0.260	.
(22) Industry Group Converted Pure Premium:	0.837	0.476	1.314
(23) Formula Relativity:	1.906	1.668	.
(24) Balanced Formula Relativity:	1.893	1.667	1.811

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## Calculation of Class Relativities

Class(es):		Effective: 7/1/2018							Goods and Services		
9040 HOSPITAL: ALL OTHER EMPLOYEES											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period (1)	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2011	737,191	4	233	188,776	591,104	217,177	422,476	1,419,533	1,058	0,868	1,926
2012	652,793	8	185	744,928	834,662	201,256	409,148	2,189,994	2,420	0,935	3,355
2013	621,328	6	190	321,575	649,829	232,325	580,164	1,783,892	1,563	1,308	2,871
2014	673,405	5	171	468,918	323,911	245,571	335,062	1,373,462	1,177	0,862	2,040
2015	755,965	4	231	478,076	728,179	145,739	457,550	1,809,545	1,596	0,798	2,394
<b>MA Total:</b>	<b>3,440,682</b>	<b>27</b>	<b>1,010</b>	<b>2,202,273</b>	<b>3,127,685</b>	<b>1,042,068</b>	<b>2,204,399</b>	<b>8,576,426</b>	<b>1,549</b>	<b>0,944</b>	<b>2,493</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	1.850	1.980	.
(14) Massachusetts Credibility:	0.510	0.760	.
(15) Countrywide Pure Premium:	1.348	0.842	2,189
(16) Countrywide Indicated Relativity:	1.614	1.759	.
(17) Countrywide Credibility:	0.250	0.120	.
(18) Countrywide Lost-Time Claims:	6911.0	.	.
(19) Pure Premium Underlying Present Rate:	1.461	0.884	2,344
(20) Relativity to Underlying Present Rate:	1.761	1.734	.
(21) Credibility to Underlying Relativity:	0.240	0.120	.
(22) Industry Group Converted Pure Premium:	0.837	0.476	1,314
(23) Formula Relativity:	1.770	1.924	.
(24) Balanced Formula Relativity:	1.758	1.923	1,818

Class(es):		Effective: 7/1/2018							Goods and Services		
9052 HOTEL: ALL OTHER EMPLOYEES & SALES, DRIVERS											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period (1)	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2011	6,369,096	33	856	2,715,631	2,866,721	1,092,211	2,114,223	8,788,786	0,876	0,503	1,380
2012	6,240,679	23	830	1,345,476	4,449,280	559,665	2,510,700	8,865,121	0,929	0,492	1,421
2013	6,171,810	29	689	2,195,858	3,002,032	597,001	1,885,888	7,680,779	0,842	0,402	1,244
2014	6,297,626	26	644	1,686,436	3,844,129	510,146	2,043,685	8,084,397	0,878	0,406	1,284
2015	6,707,252	24	675	1,898,527	2,880,675	542,265	1,888,661	7,210,127	0,713	0,362	1,075
<b>MA Total:</b>	<b>31,786,463</b>	<b>135</b>	<b>3,694</b>	<b>9,841,928</b>	<b>17,042,837</b>	<b>3,301,289</b>	<b>10,443,156</b>	<b>40,629,210</b>	<b>0,846</b>	<b>0,432</b>	<b>1,278</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	1.010	0.908	.
(14) Massachusetts Credibility:	1.000	1.000	.
(15) Countrywide Pure Premium:	0.878	0.540	1,418
(16) Countrywide Indicated Relativity:	1.051	1.127	.
(17) Countrywide Credibility:	0.000	0.000	.
(18) Countrywide Lost-Time Claims:	20227	.	.
(19) Pure Premium Underlying Present Rate:	0.860	0.525	1,386
(20) Relativity to Underlying Present Rate:	1.038	1.031	.
(21) Credibility to Underlying Relativity:	0.000	0.000	.
(22) Industry Group Converted Pure Premium:	0.837	0.476	1,314
(23) Formula Relativity:	1.010	0.908	.
(24) Balanced Formula Relativity:	1.003	0.907	0,968

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## Calculation of Class Relativities

Class(es):		Effective: 7/1/2018							Goods and Services		
9058 HOTEL: RESTAURANT EMPLOYEES											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period (1)	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2011	2,463,936	7	428	690,270	677,558	268,038	597,648	2,233,514	0.555	0.351	0.906
2012	2,415,769	10	449	658,960	2,172,040	136,187	1,143,951	4,111,139	1.172	0.530	1.702
2013	2,307,702	7	431	712,331	1,474,598	162,982	880,607	3,230,517	0.948	0.452	1.400
2014	2,507,873	5	357	560,856	1,456,403	130,407	985,460	3,133,126	0.804	0.445	1.249
2015	2,550,066	9	354	603,704	1,279,453	164,138	735,943	2,783,238	0.738	0.353	1.091
<b>MA Total:</b>	<b>12,245,347</b>	<b>38</b>	<b>2,019</b>	<b>3,226,122</b>	<b>7,060,052</b>	<b>861,751</b>	<b>4,343,609</b>	<b>15,491,534</b>	<b>0.840</b>	<b>0.425</b>	<b>1.265</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	1.003	0.892	.
(14) Massachusetts Credibility:	0.630	0.970	.
(15) Countrywide Pure Premium:	0.557	0.359	0.917
(16) Countrywide Indicated Relativity:	0.667	0.751	.
(17) Countrywide Credibility:	0.190	0.020	.
(18) Countrywide Lost-Time Claims:	6926.0	.	.
(19) Pure Premium Underlying Present Rate:	0.706	0.449	1.154
(20) Relativity to Underlying Present Rate:	0.851	0.880	.
(21) Credibility to Underlying Relativity:	0.180	0.010	.
(22) Industry Group Converted Pure Premium:	0.837	0.476	1.314
(23) Formula Relativity:	0.912	0.889	.
(24) Balanced Formula Relativity:	0.906	0.889	0.900

Class(es):		Effective: 7/1/2018							Goods and Services		
9060 CLUB-COUNTRY, GOLF, FISHING OR YACHT & CLERICAL											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period (1)	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2011	2,799,388	4	329	212,033	910,446	114,179	688,487	1,925,146	0.401	0.287	0.688
2012	2,919,095	1	329	493,240	742,696	123,860	523,433	1,883,229	0.423	0.222	0.645
2013	2,992,386	4	330	218,258	859,926	209,432	945,956	2,233,571	0.360	0.386	0.746
2014	3,120,144	3	302	333,906	995,199	461,594	745,072	2,535,771	0.426	0.387	0.813
2015	3,283,279	5	278	356,542	1,135,638	297,235	1,024,373	2,813,789	0.454	0.403	0.857
<b>MA Total:</b>	<b>15,114,292</b>	<b>17</b>	<b>1,568</b>	<b>1,613,979</b>	<b>4,643,906</b>	<b>1,206,300</b>	<b>3,927,321</b>	<b>11,391,506</b>	<b>0.414</b>	<b>0.340</b>	<b>0.754</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.494	0.713	.
(14) Massachusetts Credibility:	0.560	0.920	.
(15) Countrywide Pure Premium:	0.580	0.391	0.971
(16) Countrywide Indicated Relativity:	0.695	0.817	.
(17) Countrywide Credibility:	0.220	0.040	.
(18) Countrywide Lost-Time Claims:	5126.0	.	.
(19) Pure Premium Underlying Present Rate:	0.414	0.326	0.741
(20) Relativity to Underlying Present Rate:	0.500	0.641	.
(21) Credibility to Underlying Relativity:	0.220	0.040	.
(22) Industry Group Converted Pure Premium:	0.837	0.476	1.314
(23) Formula Relativity:	0.540	0.714	.
(24) Balanced Formula Relativity:	0.536	0.714	0.601

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## Calculation of Class Relativities

Class(es):		Effective: 7/1/2018							Goods and Services		
9061 CLUB NOC & CLERICAL											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period (1)	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2011	711,019	2	46	75,064	134,329	20,270	133,119	362,783	0.294	0.216	0.510
2012	725,506	4	41	232,270	26,765	145,350	86,992	491,376	0.357	0.320	0.677
2013	740,312	1	40	169,348	134,946	119,434	146,445	570,173	0.411	0.359	0.770
2014	745,114	0	48	0	454,101	0	444,942	899,043	0.609	0.597	1.207
2015	738,525	1	26	174,441	24,505	16,188	40,851	255,985	0.269	0.077	0.347
<b>MA Total:</b>	<b>3,660,477</b>	<b>8</b>	<b>201</b>	<b>651,123</b>	<b>774,646</b>	<b>301,242</b>	<b>852,349</b>	<b>2,579,360</b>	<b>0.390</b>	<b>0.315</b>	<b>0.705</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.465	0.661	.
(14) Massachusetts Credibility:	0.320	0.500	.
(15) Countrywide Pure Premium:	0.572	0.332	0.904
(16) Countrywide Indicated Relativity:	0.685	0.694	.
(17) Countrywide Credibility:	0.340	0.250	.
(18) Countrywide Lost-Time Claims:	788.00	.	.
(19) Pure Premium Underlying Present Rate:	0.425	0.294	0.719
(20) Relativity to Underlying Present Rate:	0.513	0.576	.
(21) Credibility to Underlying Relativity:	0.340	0.250	.
(22) Industry Group Converted Pure Premium:	0.837	0.476	1.314
(23) Formula Relativity:	0.556	0.648	.
(24) Balanced Formula Relativity:	0.552	0.648	0.587

Class(es):		Effective: 7/1/2018							Goods and Services		
9063 YMCA, YWCA, YMHA OR YWHA, INSTITUTION-ALL EMPLOYEES & CLERICAL											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period (1)	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2011	4,595,960	11	307	787,517	793,431	247,626	794,091	2,622,665	0.344	0.227	0.571
2012	4,799,202	10	291	763,093	1,154,691	454,922	782,175	3,154,881	0.400	0.258	0.657
2013	5,098,237	7	328	299,627	924,273	383,412	939,326	2,546,638	0.240	0.259	0.500
2014	5,703,741	8	330	499,427	1,108,973	214,273	953,504	2,776,176	0.282	0.205	0.487
2015	6,278,993	4	380	196,304	968,222	166,410	1,264,790	2,595,726	0.185	0.228	0.413
<b>MA Total:</b>	<b>26,476,133</b>	<b>40</b>	<b>1,636</b>	<b>2,545,968</b>	<b>4,949,590</b>	<b>1,466,642</b>	<b>4,733,886</b>	<b>13,696,087</b>	<b>0.283</b>	<b>0.234</b>	<b>0.517</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.338	0.492	.
(14) Massachusetts Credibility:	0.640	1.000	.
(15) Countrywide Pure Premium:	0.326	0.263	0.589
(16) Countrywide Indicated Relativity:	0.391	0.549	.
(17) Countrywide Credibility:	0.180	0.000	.
(18) Countrywide Lost-Time Claims:	3572.0	.	.
(19) Pure Premium Underlying Present Rate:	0.335	0.274	0.609
(20) Relativity to Underlying Present Rate:	0.404	0.538	.
(21) Credibility to Underlying Relativity:	0.180	0.000	.
(22) Industry Group Converted Pure Premium:	0.837	0.476	1.314
(23) Formula Relativity:	0.359	0.492	.
(24) Balanced Formula Relativity:	0.357	0.491	0.406

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## Calculation of Class Relativities

Class(es): 9079 RESTAURANT NOC		Effective: 7/1/2018							Goods and Services		
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period (1)	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2011	22,084,275	62	3,271	4,290,764	7,054,471	2,200,598	6,507,465	20,053,298	0.514	0.394	0.908
2012	23,145,520	74	3,178	4,581,313	6,176,705	1,835,708	5,496,568	18,090,294	0.465	0.317	0.782
2013	25,532,017	74	3,340	3,504,576	9,238,070	1,465,122	6,843,567	21,051,334	0.499	0.325	0.825
2014	26,315,866	77	3,094	6,140,322	8,428,616	2,132,349	6,661,670	23,362,956	0.554	0.334	0.888
2015	28,527,463	71	2,951	5,632,688	12,006,274	2,842,573	8,718,396	29,199,932	0.618	0.405	1.024
<b>MA Total:</b>	<b>125,605,140</b>	<b>358</b>	<b>15,834</b>	<b>24,149,664</b>	<b>42,904,136</b>	<b>10,476,349</b>	<b>34,227,665</b>	<b>111,757,814</b>	<b>0.534</b>	<b>0.356</b>	<b>0.890</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.638	0.747	.
(14) Massachusetts Credibility:	1.000	1.000	.
(15) Countrywide Pure Premium:	0.487	0.354	0.841
(16) Countrywide Indicated Relativity:	0.583	0.739	.
(17) Countrywide Credibility:	0.000	0.000	.
(18) Countrywide Lost-Time Claims:	3013.0	.	.
(19) Pure Premium Underlying Present Rate:	0.473	0.366	0.840
(20) Relativity to Underlying Present Rate:	0.571	0.719	.
(21) Credibility to Underlying Relativity:	0.000	0.000	.
(22) Industry Group Converted Pure Premium:	0.837	0.476	1.314
(23) Formula Relativity:	0.638	0.747	.
(24) Balanced Formula Relativity:	0.633	0.747	0.674

Class(es): 9089 BILLIARD HALL		Effective: 7/1/2018							Goods and Services		
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period (1)	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2011	4,592	0	1	0	0	0	478	478	0.000	0.104	0.104
2012	4,286	0	1	0	0	0	481	481	0.000	0.112	0.112
2013	5,382	0	0	0	0	0	0	0	0.000	0.000	0.000
2014	3,744	0	0	0	0	0	0	0	0.000	0.000	0.000
2015	5,885	0	0	0	0	0	0	0	0.000	0.000	0.000
<b>MA Total:</b>	<b>23,889</b>	<b>0</b>	<b>2</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>959</b>	<b>959</b>	<b>0.000</b>	<b>0.040</b>	<b>0.040</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.000	0.084	.
(14) Massachusetts Credibility:	0.040	0.070	.
(15) Countrywide Pure Premium:	0.225	0.325	0.550
(16) Countrywide Indicated Relativity:	0.270	0.679	.
(17) Countrywide Credibility:	0.160	0.160	.
(18) Countrywide Lost-Time Claims:	11.000	.	.
(19) Pure Premium Underlying Present Rate:	0.473	0.352	0.824
(20) Relativity to Underlying Present Rate:	0.570	0.691	.
(21) Credibility to Underlying Relativity:	0.800	0.770	.
(22) Industry Group Converted Pure Premium:	0.837	0.476	1.314
(23) Formula Relativity:	0.499	0.646	.
(24) Balanced Formula Relativity:	0.496	0.646	0.550

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## Calculation of Class Relativities

Class(es): 9093 BOWLING LANE		Effective: 7/1/2018							Goods and Services		
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period (1)	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2011	150.913	1	22	2.275	70.859	6.809	210.876	290.819	0.485	1.442	1.927
2012	154.528	0	19	0	10.139	0	25.674	35.813	0.066	0.166	0.232
2013	167.733	1	20	1.853	17.207	23.461	16.376	58.897	0.114	0.238	0.351
2014	195.554	0	18	0	242.538	0	113.673	356.211	1.240	0.581	1.822
2015	241.530	2	22	37.227	30.328	16.965	39.793	124.312	0.280	0.235	0.515
<b>MA Total:</b>	<b>910.258</b>	<b>4</b>	<b>101</b>	<b>41.354</b>	<b>371.072</b>	<b>47.235</b>	<b>406.393</b>	<b>866.054</b>	<b>0.453</b>	<b>0.498</b>	<b>0.951</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.541	1.046	.
(14) Massachusetts Credibility:	0.190	0.350	.
(15) Countrywide Pure Premium:	0.482	0.387	0.869
(16) Countrywide Indicated Relativity:	0.578	0.808	.
(17) Countrywide Credibility:	0.410	0.330	.
(18) Countrywide Lost-Time Claims:	445.00	.	.
(19) Pure Premium Underlying Present Rate:	0.470	0.469	0.938
(20) Relativity to Underlying Present Rate:	0.567	0.920	.
(21) Credibility to Underlying Relativity:	0.400	0.320	.
(22) Industry Group Converted Pure Premium:	0.837	0.476	1.314
(23) Formula Relativity:	0.566	0.927	.
(24) Balanced Formula Relativity:	0.562	0.927	0.695

Class(es): 9101 COLLEGE: ALL OTHER EMPLOYEES		Effective: 7/1/2018							Goods and Services		
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period (1)	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2011	1,476.231	15	565	804.174	1,314.565	463.567	1,152.248	3,734.554	1.435	1.095	2.530
2012	1,420.675	15	588	997.515	1,405.768	709.765	1,263.032	4,376.080	1.692	1.389	3.080
2013	1,486.072	10	503	945.235	905.369	173.246	806.680	2,830.528	1.245	0.659	1.905
2014	1,516.187	7	630	513.051	1,164.276	193.733	1,165.588	3,036.647	1.106	0.897	2.003
2015	1,538.806	11	626	506.634	2,088.174	218.183	1,741.734	4,554.724	1.686	1.274	2.960
<b>MA Total:</b>	<b>7,437.972</b>	<b>58</b>	<b>2,912</b>	<b>3,766.608</b>	<b>6,878.151</b>	<b>1,758.494</b>	<b>6,129.281</b>	<b>18,532.534</b>	<b>1.431</b>	<b>1.060</b>	<b>2.492</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	1.709	2.226	.
(14) Massachusetts Credibility:	0.660	1.000	.
(15) Countrywide Pure Premium:	1.326	0.893	2.219
(16) Countrywide Indicated Relativity:	1.588	1.866	.
(17) Countrywide Credibility:	0.170	0.000	.
(18) Countrywide Lost-Time Claims:	14511	.	.
(19) Pure Premium Underlying Present Rate:	1.275	0.957	2.232
(20) Relativity to Underlying Present Rate:	1.538	1.878	.
(21) Credibility to Underlying Relativity:	0.170	0.000	.
(22) Industry Group Converted Pure Premium:	0.837	0.476	1.314
(23) Formula Relativity:	1.659	2.226	.
(24) Balanced Formula Relativity:	1.648	2.225	1.857



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## Calculation of Class Relativities

Class(es):		Effective: 7/1/2018							Miscellaneous		
9102 PARK NOC- ALL EMPLOYEES & DRIVERS											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2011	172,769	0	23	0	417,923	0	298,795	716,717	2,419	1,729	4,148
2012	188,030	0	24	0	29,235	0	39,754	68,989	0,155	0,211	0,367
2013	190,940	2	29	330,220	144,611	153,969	56,003	684,803	2,487	1,100	3,586
2014	244,451	0	48	0	220,047	0	157,259	377,306	0,900	0,643	1,543
2015	271,167	1	28	169	122,253	2,634	74,233	199,289	0,451	0,283	0,735
<b>MA Total:</b>	<b>1,067,358</b>	<b>3</b>	<b>152</b>	<b>330,389</b>	<b>934,070</b>	<b>156,603</b>	<b>626,043</b>	<b>2,047,105</b>	<b>1,185</b>	<b>0,733</b>	<b>1,918</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.494	0.614	.
(14) Massachusetts Credibility:	0.300	0.460	.
(15) Countrywide Pure Premium:	1.332	0.836	2.167
(16) Countrywide Indicated Relativity:	0.617	0.786	.
(17) Countrywide Credibility:	0.350	0.270	.
(18) Countrywide Lost-Time Claims:	7359.0	.	.
(19) Pure Premium Underlying Present Rate:	1.220	0.819	2.039
(20) Relativity to Underlying Present Rate:	0.500	0.621	.
(21) Credibility to Underlying Relativity:	0.350	0.270	.
(22) Industry Group Converted Pure Premium:	2.400	1.195	3.595
(23) Formula Relativity:	0.539	0.662	.
(24) Balanced Formula Relativity:	0.537	0.667	0.580

Class(es):		Effective: 7/1/2018							Miscellaneous		
9154 THEATER NOC: ALL OTHER EMPLOYEES											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2011	661,207	1	100	107,907	968,588	309,500	413,071	1,799,066	1,628	1,093	2,721
2012	623,367	2	83	192,961	369,367	55,165	272,911	890,404	0,902	0,526	1,428
2013	682,375	0	91	0	204,532	0	225,130	429,662	0,300	0,330	0,630
2014	662,366	1	63	3,458	740,483	2,963	251,046	997,951	1,123	0,383	1,507
2015	658,543	1	60	11,260	251,943	2,614	339,617	605,433	0,400	0,520	0,919
<b>MA Total:</b>	<b>3,287,858</b>	<b>5</b>	<b>397</b>	<b>315,585</b>	<b>2,534,913</b>	<b>370,242</b>	<b>1,501,776</b>	<b>4,722,516</b>	<b>0,867</b>	<b>0,569</b>	<b>1,436</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.361	0.476	.
(14) Massachusetts Credibility:	0.420	0.660	.
(15) Countrywide Pure Premium:	0.610	0.451	1.061
(16) Countrywide Indicated Relativity:	0.283	0.424	.
(17) Countrywide Credibility:	0.290	0.170	.
(18) Countrywide Lost-Time Claims:	1480.0	.	.
(19) Pure Premium Underlying Present Rate:	0.921	0.654	1.576
(20) Relativity to Underlying Present Rate:	0.378	0.496	.
(21) Credibility to Underlying Relativity:	0.290	0.170	.
(22) Industry Group Converted Pure Premium:	2.400	1.195	3.595
(23) Formula Relativity:	0.343	0.471	.
(24) Balanced Formula Relativity:	0.342	0.474	0.386

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## Calculation of Class Relativities

Class(es):		Effective: 7/1/2018							Office and Clerical		
9156 THEATER NOC: PLAYERS, ENTERTAINERS OR MUSICIANS											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period (1)	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2011	496,728	0	102	0	478,649	0	255,054	733,703	0.964	0.513	1.477
2012	300,754	0	77	0	160,475	0	254,368	414,844	0.534	0.846	1.379
2013	332,188	1	77	5,722	166,524	8,805	203,082	384,133	0.519	0.638	1.156
2014	349,427	1	78	6,653	147,126	3,183	178,452	335,414	0.440	0.520	0.960
2015	340,295	0	83	0	239,728	0	232,676	472,404	0.704	0.684	1.388
<b>MA Total:</b>	<b>1,819,392</b>	<b>2</b>	<b>417</b>	<b>12,376</b>	<b>1,192,502</b>	<b>11,987</b>	<b>1,123,632</b>	<b>2,340,498</b>	<b>0.662</b>	<b>0.624</b>	<b>1.286</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	9.284	14.311	.
(14) Massachusetts Credibility:	0.280	0.480	.
(15) Countrywide Pure Premium:	0.553	0.403	0.956
(16) Countrywide Indicated Relativity:	9.096	10.422	.
(17) Countrywide Credibility:	0.360	0.260	.
(18) Countrywide Lost-Time Claims:	769.00	.	.
(19) Pure Premium Underlying Present Rate:	0.636	0.522	1.158
(20) Relativity to Underlying Present Rate:	8.730	10.815	.
(21) Credibility to Underlying Relativity:	0.360	0.260	.
(22) Industry Group Converted Pure Premium:	0.071	0.044	0.115
(23) Formula Relativity:	9.017	12.391	.
(24) Balanced Formula Relativity:	9.077	12.424	10.347

Class(es):		Effective: 7/1/2018							Miscellaneous		
9178 ATHLETIC TEAM OR PARK: NON-CONTACT SPORTS											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2011	12,877	1	36	57,085	221,079	49,495	174,716	502,376	21.602	17.412	39.015
2012	16,194	0	36	0	248,929	0	122,771	371,700	15.372	7.581	22.953
2013	17,177	0	51	0	573,792	0	360,090	933,882	33.405	20.964	54.369
2014	37,959	0	66	0	0	0	230,431	230,431	0.000	6.071	6.071
2015	37,411	0	59	0	776	0	161,659	162,435	0.021	4.321	4.342
<b>MA Total:</b>	<b>121,616</b>	<b>1</b>	<b>248</b>	<b>57,085</b>	<b>1,044,576</b>	<b>49,495</b>	<b>1,049,667</b>	<b>2,200,824</b>	<b>9.058</b>	<b>9.038</b>	<b>18.096</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	3.774	7.564	.
(14) Massachusetts Credibility:	0.200	0.440	.
(15) Countrywide Pure Premium:	1.413	2.061	3.474
(16) Countrywide Indicated Relativity:	0.655	1.938	.
(17) Countrywide Credibility:	0.400	0.280	.
(18) Countrywide Lost-Time Claims:	629.00	.	.
(19) Pure Premium Underlying Present Rate:	3.849	6.312	10.162
(20) Relativity to Underlying Present Rate:	1.579	4.783	.
(21) Credibility to Underlying Relativity:	0.400	0.280	.
(22) Industry Group Converted Pure Premium:	2.400	1.195	3.595
(23) Formula Relativity:	1.648	5.210	.
(24) Balanced Formula Relativity:	1.641	5.245	2.839

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## Calculation of Class Relativities

Class(es):		Effective: 7/1/2018							Miscellaneous		
9179 ATHLETIC TEAM OR PARK: CONTACT SPORTS											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2011	28,259	2	56	162,339	1,112,694	5,336	255,192	1,535,561	45,119	9,219	54,338
2012	28,133	4	62	1,017,171	858,239	83,266	167,703	2,126,379	66,663	8,921	75,584
2013	29,955	3	104	156,500	372,868	121,011	492,465	1,142,845	17,672	20,480	38,152
2014	30,667	0	107	0	607,595	0	720,367	1,327,962	19,813	23,490	43,303
2015	26,083	2	99	147,084	832,467	558,063	792,938	2,330,553	37,555	51,796	89,351
<b>MA Total:</b>	<b>143,097</b>	<b>11</b>	<b>428</b>	<b>1,483,094</b>	<b>3,783,864</b>	<b>767,676</b>	<b>2,428,665</b>	<b>8,463,299</b>	<b>36,807</b>	<b>22,337</b>	<b>59,144</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	15.334	18.693	.
(14) Massachusetts Credibility:	0.350	0.500	.
(15) Countrywide Pure Premium:	2.314	1.855	4.170
(16) Countrywide Indicated Relativity:	1.073	1.745	.
(17) Countrywide Credibility:	0.330	0.250	.
(18) Countrywide Lost-Time Claims:	1259.0	.	.
(19) Pure Premium Underlying Present Rate:	13.568	7.230	20.798
(20) Relativity to Underlying Present Rate:	5.567	5.478	.
(21) Credibility to Underlying Relativity:	0.320	0.250	.
(22) Industry Group Converted Pure Premium:	2.400	1.195	3.595
(23) Formula Relativity:	7.502	11.152	.
(24) Balanced Formula Relativity:	7.471	11.228	8.720

Class(es):		Effective: 7/1/2018							Miscellaneous		
9180 AMUSEMENT DEVICE OPERATION NOC-NOT TRAV & DR											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2011	143,095	0	30	0	30,603	0	117,493	148,096	0.214	0.821	1.035
2012	156,421	1	41	188,612	62,565	84,641	224,023	559,840	1.606	1.973	3.579
2013	185,482	0	41	0	145,505	0	256,010	401,515	0.784	1.380	2.165
2014	175,481	0	34	0	146,323	0	283,229	429,552	0.834	1.614	2.448
2015	198,348	0	39	0	329,536	0	988,023	1,317,558	1.661	4.981	6.643
<b>MA Total:</b>	<b>858,826</b>	<b>1</b>	<b>185</b>	<b>188,612</b>	<b>714,532</b>	<b>84,641</b>	<b>1,868,778</b>	<b>2,856,562</b>	<b>1.052</b>	<b>2.275</b>	<b>3.326</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.438	1.903	.
(14) Massachusetts Credibility:	0.300	0.550	.
(15) Countrywide Pure Premium:	2.147	2.253	4.401
(16) Countrywide Indicated Relativity:	0.995	2.119	.
(17) Countrywide Credibility:	0.350	0.230	.
(18) Countrywide Lost-Time Claims:	2060.0	.	.
(19) Pure Premium Underlying Present Rate:	1.593	1.547	3.140
(20) Relativity to Underlying Present Rate:	0.654	1.172	.
(21) Credibility to Underlying Relativity:	0.350	0.220	.
(22) Industry Group Converted Pure Premium:	2.400	1.195	3.595
(23) Formula Relativity:	0.709	1.792	.
(24) Balanced Formula Relativity:	0.706	1.804	1.071

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## Calculation of Class Relativities

Class(es): 9182 ATHLETIC TEAM OR PARK: OPERATIONS & DRIVERS									Effective: 7/1/2018			Miscellaneous	
Converted Unlimited Losses													
Amount													
		Claim Count		Indemnity		Medical				MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)		
2011	206,857	2	52	25,553	302,535	19,546	78,116	425,751	1,586	0,472	2,058		
2012	190,867	3	65	154,448	405,703	36,967	245,104	842,222	2,935	1,478	4,413		
2013	247,268	3	83	300,299	736,087	113,874	284,146	1,434,406	4,191	1,610	5,801		
2014	297,302	2	54	226,566	305,709	165,167	188,737	886,179	1,790	1,190	2,981		
2015	306,206	1	39	15,823	184,359	15,387	179,680	395,248	0,654	0,637	1,291		
<b>MA Total:</b>	<b>1,248,501</b>	<b>11</b>	<b>293</b>	<b>722,690</b>	<b>1,934,393</b>	<b>350,940</b>	<b>975,782</b>	<b>3,983,805</b>	<b>2,128</b>	<b>1,063</b>	<b>3,191</b>		

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.887	0.889	.
(14) Massachusetts Credibility:	0.320	0.600	.
(15) Countrywide Pure Premium:	0.681	0.553	1.234
(16) Countrywide Indicated Relativity:	0.316	0.520	.
(17) Countrywide Credibility:	0.340	0.200	.
(18) Countrywide Lost-Time Claims:	403.00	.	.
(19) Pure Premium Underlying Present Rate:	1.293	1.336	2.629
(20) Relativity to Underlying Present Rate:	0.530	1.012	.
(21) Credibility to Underlying Relativity:	0.340	0.200	.
(22) Industry Group Converted Pure Premium:	2.400	1.195	3.595
(23) Formula Relativity:	0.571	0.840	.
(24) Balanced Formula Relativity:	0.569	0.846	0.661

Class(es): 9220 CEMETERY OPERATION & DRIVERS									Effective: 7/1/2018			Goods and Services	
Converted Unlimited Losses													
Amount													
		Claim Count		Indemnity		Medical				MA Indicated Pure Premiums			
Policy Period (1)	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)		
2011	186,692	1	32	4,871	12,461	1,807	56,696	75,835	0,093	0,313	0,406		
2012	191,140	1	32	160,031	196,416	14,108	151,153	521,708	1,865	0,865	2,729		
2013	197,407	0	32	0	48,209	0	60,702	108,911	0,244	0,307	0,552		
2014	198,182	1	33	53,223	84,426	35,773	109,778	283,201	0,695	0,734	1,429		
2015	192,924	1	28	23,506	314,908	15,125	137,856	491,395	1,754	0,793	2,547		
<b>MA Total:</b>	<b>966,345</b>	<b>4</b>	<b>157</b>	<b>241,631</b>	<b>656,420</b>	<b>66,813</b>	<b>516,186</b>	<b>1,481,050</b>	<b>0,929</b>	<b>0,603</b>	<b>1,533</b>		

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	1.110	1.266	.
(14) Massachusetts Credibility:	0.310	0.460	.
(15) Countrywide Pure Premium:	1.979	1.166	3.144
(16) Countrywide Indicated Relativity:	2.369	2.436	.
(17) Countrywide Credibility:	0.350	0.270	.
(18) Countrywide Lost-Time Claims:	656.00	.	.
(19) Pure Premium Underlying Present Rate:	1.551	0.892	2.443
(20) Relativity to Underlying Present Rate:	1.870	1.751	.
(21) Credibility to Underlying Relativity:	0.340	0.270	.
(22) Industry Group Converted Pure Premium:	0.837	0.476	1.314
(23) Formula Relativity:	1.809	1.713	.
(24) Balanced Formula Relativity:	1.797	1.712	1.766

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## Calculation of Class Relativities

Class(es):		Effective: 7/1/2018							Miscellaneous		
9402 STREET CLEANING & DRIVERS											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2011	595.841	5	81	422.101	910.343	208.424	409.522	1,950.390	2.236	1.037	3.273
2012	653.585	6	81	453.142	774.422	157.632	450.154	1,835.349	1.878	0.930	2.808
2013	757.125	5	65	651.100	714.415	295.839	402.530	2,063.884	1.804	0.922	2.726
2014	967.331	7	69	180.744	1,671.288	151.837	611.348	2,615.216	1.915	0.789	2.704
2015	905.865	2	68	188.526	2,132.107	100.204	958.762	3,379.599	2.562	1.169	3.731
<b>MA Total:</b>	<b>3,879.748</b>	<b>25</b>	<b>364</b>	<b>1,895.612</b>	<b>6,202.575</b>	<b>913.935</b>	<b>2,832.316</b>	<b>11,844.438</b>	<b>2.087</b>	<b>0.966</b>	<b>3.053</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.870	0.808	.
(14) Massachusetts Credibility:	0.660	0.910	.
(15) Countrywide Pure Premium:	2.676	1.278	3.954
(16) Countrywide Indicated Relativity:	1.240	1.201	.
(17) Countrywide Credibility:	0.170	0.050	.
(18) Countrywide Lost-Time Claims:	2169.0	.	.
(19) Pure Premium Underlying Present Rate:	2.450	1.236	3.687
(20) Relativity to Underlying Present Rate:	1.005	0.937	.
(21) Credibility to Underlying Relativity:	0.170	0.040	.
(22) Industry Group Converted Pure Premium:	2.400	1.195	3.595
(23) Formula Relativity:	0.956	0.833	.
(24) Balanced Formula Relativity:	0.952	0.839	0.914

Class(es):		Effective: 7/1/2018							Miscellaneous		
9403 GARBAGE, ASHES OR REFUSE COLLECTION & DRIVERS											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2011	1,042.398	14	271	1,596.357	2,940.279	836.562	1,656.725	7,029.924	4.352	2.392	6.744
2012	970.964	17	209	4,166.056	1,895.313	1,162.550	1,295.323	8,519.243	6.243	2.531	8.774
2013	1,057.111	17	272	2,501.376	2,880.488	1,078.996	1,400.279	7,861.140	5.091	2.345	7.436
2014	1,081.497	9	234	1,019.584	3,285.002	204.779	1,592.051	6,101.415	3.980	1.661	5.642
2015	1,146.854	10	259	1,058.592	5,093.799	594.675	2,462.874	9,209.940	5.365	2.666	8.031
<b>MA Total:</b>	<b>5,298.825</b>	<b>67</b>	<b>1,245</b>	<b>10,341.966</b>	<b>16,094.881</b>	<b>3,877.563</b>	<b>8,407.252</b>	<b>38,721.662</b>	<b>4.989</b>	<b>2.318</b>	<b>7.308</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	2.079	1.940	.
(14) Massachusetts Credibility:	1.000	1.000	.
(15) Countrywide Pure Premium:	3.689	1.705	5.394
(16) Countrywide Indicated Relativity:	1.710	1.603	.
(17) Countrywide Credibility:	0.000	0.000	.
(18) Countrywide Lost-Time Claims:	7860.0	.	.
(19) Pure Premium Underlying Present Rate:	5.099	2.434	7.533
(20) Relativity to Underlying Present Rate:	2.092	1.844	.
(21) Credibility to Underlying Relativity:	0.000	0.000	.
(22) Industry Group Converted Pure Premium:	2.400	1.195	3.595
(23) Formula Relativity:	2.079	1.940	.
(24) Balanced Formula Relativity:	2.070	1.953	2.031

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## Calculation of Class Relativities

Class(es):		Effective: 7/1/2018							Goods and Services		
9410 MUNICIPAL, TOWN, COUNTY OR STATE EMP NOC											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period (1)	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2011	66,918	0	24	0	21,419	0	35,625	57,044	0.320	0.532	0.852
2012	50,749	0	26	0	6,927	0	23,775	30,702	0.136	0.468	0.605
2013	51,775	1	9	219,325	3,332	144,669	3,451	370,777	4.300	2.861	7.161
2014	51,706	1	16	80,206	204,621	7,360	56,557	348,743	5.509	1.236	6.745
2015	50,835	0	24	0	167,127	0	95,644	262,772	3.288	1.881	5.169
<b>MA Total:</b>	<b>271,983</b>	<b>2</b>	<b>99</b>	<b>299,531</b>	<b>403,425</b>	<b>152,029</b>	<b>215,052</b>	<b>1,070,037</b>	<b>2.585</b>	<b>1.350</b>	<b>3.934</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	3.086	2.833	.
(14) Massachusetts Credibility:	0.170	0.290	.
(15) Countrywide Pure Premium:	1.043	0.510	1.553
(16) Countrywide Indicated Relativity:	1.249	1.067	.
(17) Countrywide Credibility:	0.420	0.360	.
(18) Countrywide Lost-Time Claims:	950.00	.	.
(19) Pure Premium Underlying Present Rate:	1.127	0.992	2.118
(20) Relativity to Underlying Present Rate:	1.359	1.945	.
(21) Credibility to Underlying Relativity:	0.410	0.350	.
(22) Industry Group Converted Pure Premium:	0.837	0.476	1.314
(23) Formula Relativity:	1.606	1.886	.
(24) Balanced Formula Relativity:	1.596	1.886	1.701

Class(es):		Effective: 7/1/2018							Manufacturing		
9501 SIGN PAINTING OR LETTERING-INSIDE & DRIVERS											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2011	298,839	3	44	280,956	109,191	196,887	99,699	686,733	1.306	0.992	2.298
2012	301,368	2	29	97,456	115,046	33,816	64,047	310,365	0.705	0.325	1.030
2013	303,750	1	25	58,266	298,673	3,326	259,406	619,671	1.175	0.865	2.040
2014	304,415	0	37	0	63,984	0	89,357	153,341	0.210	0.294	0.504
2015	329,772	1	29	9,873	28,775	14,383	70,365	123,396	0.117	0.257	0.374
<b>MA Total:</b>	<b>1,538,144</b>	<b>7</b>	<b>164</b>	<b>446,551</b>	<b>615,669</b>	<b>248,412</b>	<b>582,873</b>	<b>1,893,506</b>	<b>0.691</b>	<b>0.540</b>	<b>1.231</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.706	1.051	.
(14) Massachusetts Credibility:	0.330	0.510	.
(15) Countrywide Pure Premium:	1.211	0.649	1.860
(16) Countrywide Indicated Relativity:	1.351	1.407	.
(17) Countrywide Credibility:	0.340	0.250	.
(18) Countrywide Lost-Time Claims:	1408.0	.	.
(19) Pure Premium Underlying Present Rate:	1.083	0.710	1.794
(20) Relativity to Underlying Present Rate:	1.149	1.296	.
(21) Credibility to Underlying Relativity:	0.330	0.240	.
(22) Industry Group Converted Pure Premium:	0.978	0.514	1.493
(23) Formula Relativity:	1.071	1.199	.
(24) Balanced Formula Relativity:	1.062	1.193	1.107

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## Calculation of Class Relativities

Class(es):		Effective: 7/1/2018							Goods and Services			
9519 HOUSEHOLD APPLIANCES-ELECTRICAL-INSTALL, SERV OR REPAIR & DR												
Converted Unlimited Losses												
Amount												
		Claim Count		Indemnity		Medical			MA Indicated Pure Premiums			
Policy Period (1)	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)	
2011	779,943	14	144	2,047,777	335,449	651,867	380,251	3,415,344	3,056	1,323	4,379	
2012	778,298	5	115	1,140,349	570,555	610,897	446,474	2,768,276	2,198	1,359	3,557	
2013	851,336	9	107	630,253	1,149,000	179,265	539,008	2,497,526	2,090	0,844	2,934	
2014	791,727	4	75	397,621	288,151	162,437	264,301	1,112,509	0,866	0,539	1,405	
2015	924,209	6	74	262,616	669,414	167,541	406,160	1,505,731	1,008	0,621	1,629	
<b>MA Total:</b>	<b>4,125,514</b>	<b>38</b>	<b>515</b>	<b>4,478,615</b>	<b>3,012,569</b>	<b>1,772,007</b>	<b>2,036,194</b>	<b>11,299,385</b>	<b>1,816</b>	<b>0,923</b>	<b>2,739</b>	

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	2.168	1.937	.
(14) Massachusetts Credibility:	0.600	0.900	.
(15) Countrywide Pure Premium:	2.329	0.966	3.295
(16) Countrywide Indicated Relativity:	2.788	2.019	.
(17) Countrywide Credibility:	0.200	0.050	.
(18) Countrywide Lost-Time Claims:	2383.0	.	.
(19) Pure Premium Underlying Present Rate:	1.824	1.109	2.932
(20) Relativity to Underlying Present Rate:	2.199	2.175	.
(21) Credibility to Underlying Relativity:	0.200	0.050	.
(22) Industry Group Converted Pure Premium:	0.837	0.476	1.314
(23) Formula Relativity:	2.299	1.953	.
(24) Balanced Formula Relativity:	2.283	1.953	2.163

Class(es):		Effective: 7/1/2018							Manufacturing			
9521 HOUSE FURNISHINGS INSTALLATION-NOC												
Converted Unlimited Losses												
Amount												
		Claim Count		Indemnity		Medical			MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)	
2011	236,350	0	16	0	20,248	0	59,263	79,512	0,086	0,251	0,336	
2012	181,933	1	14	5,267	43,812	10,268	219,859	279,206	0,270	1,265	1,535	
2013	208,169	1	14	385,734	30,540	56,499	24,204	496,976	2,000	0,388	2,387	
2014	216,443	1	23	9,622	137,162	6,894	112,097	265,774	0,678	0,550	1,228	
2015	277,420	1	20	194,114	352,389	16,792	179,748	743,043	1,970	0,708	2,678	
<b>MA Total:</b>	<b>1,120,314</b>	<b>4</b>	<b>87</b>	<b>594,736</b>	<b>584,151</b>	<b>90,453</b>	<b>595,171</b>	<b>1,864,510</b>	<b>1,052</b>	<b>0,612</b>	<b>1,664</b>	

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	1.075	1.190	.
(14) Massachusetts Credibility:	0.350	0.480	.
(15) Countrywide Pure Premium:	1.712	0.840	2,553
(16) Countrywide Indicated Relativity:	1.910	1.824	.
(17) Countrywide Credibility:	0.330	0.260	.
(18) Countrywide Lost-Time Claims:	595.00	.	.
(19) Pure Premium Underlying Present Rate:	1.725	0.856	2,581
(20) Relativity to Underlying Present Rate:	1.829	1.561	.
(21) Credibility to Underlying Relativity:	0.320	0.260	.
(22) Industry Group Converted Pure Premium:	0.978	0.514	1,493
(23) Formula Relativity:	1.592	1.451	.
(24) Balanced Formula Relativity:	1.578	1.444	1,532

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## Calculation of Class Relativities

Class(es): 9522 UPHOLSTERING		Effective: 7/1/2018							Manufacturing		
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2011	140,205	0	10	0	33,169	0	26,828	59,997	0.237	0.191	0.428
2012	149,857	0	11	0	200,886	0	53,485	254,371	1.341	0.357	1.697
2013	139,128	0	16	0	142,766	0	81,483	224,249	1.026	0.586	1.612
2014	131,340	2	18	104,657	39,583	9,675	51,789	205,704	1.098	0.468	1.566
2015	145,716	0	13	0	1,765	0	3,785	5,550	0.012	0.026	0.038
<b>MA Total:</b>	<b>706,246</b>	<b>2</b>	<b>68</b>	<b>104,657</b>	<b>418,168</b>	<b>9,675</b>	<b>217,370</b>	<b>749,871</b>	<b>0.740</b>	<b>0.321</b>	<b>1.062</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.757	0.625	.
(14) Massachusetts Credibility:	0.220	0.310	.
(15) Countrywide Pure Premium:	1.017	0.531	1.548
(16) Countrywide Indicated Relativity:	1.134	1.153	.
(17) Countrywide Credibility:	0.390	0.350	.
(18) Countrywide Lost-Time Claims:	1691.0	.	.
(19) Pure Premium Underlying Present Rate:	0.905	0.467	1.372
(20) Relativity to Underlying Present Rate:	0.960	0.852	.
(21) Credibility to Underlying Relativity:	0.390	0.340	.
(22) Industry Group Converted Pure Premium:	0.978	0.514	1.493
(23) Formula Relativity:	0.983	0.887	.
(24) Balanced Formula Relativity:	0.974	0.883	0.943

Class(es): 9533 SCAFFOLDING: SCAFFOLD INST, RPR OR REMOVAL- BUILT UP FROM GROUN		Effective: 7/1/2018							Construction		
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2011	82,523	1	13	1,135	693,186	1,755	266,444	962,520	8,414	3,250	11,664
2012	60,263	0	6	0	355,203	0	226,286	581,489	5,894	3,755	9,649
2013	63,697	1	6	152,561	252,676	356,592	59,625	821,453	6,362	6,534	12,896
2014	56,426	1	4	31,603	179,005	11,925	85,875	308,408	3,732	1,733	5,466
2015	59,667	0	10	0	409,025	0	134,712	543,737	6,855	2,258	9,113
<b>MA Total:</b>	<b>322,577</b>	<b>3</b>	<b>39</b>	<b>185,298</b>	<b>1,889,094</b>	<b>370,272</b>	<b>772,943</b>	<b>3,217,607</b>	<b>6,431</b>	<b>3,544</b>	<b>9,975</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	2.451	2.997	.
(14) Massachusetts Credibility:	0.400	0.510	.
(15) Countrywide Pure Premium:	0.000	0.000	0.000
(16) Countrywide Indicated Relativity:	2.964	2.447	.
(17) Countrywide Credibility:	0.000	0.000	.
(18) Countrywide Lost-Time Claims:	0.000	.	.
(19) Pure Premium Underlying Present Rate:	8.514	3.469	11.983
(20) Relativity to Underlying Present Rate:	3.102	2.588	.
(21) Credibility to Underlying Relativity:	0.600	0.490	.
(22) Industry Group Converted Pure Premium:	2.624	1.182	3.806
(23) Formula Relativity:	2.842	2.797	.
(24) Balanced Formula Relativity:	2.858	2.800	2.840



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## Calculation of Class Relativities

Class(es):		Effective: 7/1/2018							Construction		
9534 MOBILE CRANE & HOIST SERV CONTR-NOC-ALL OP -INCL YRD EMP &DR											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2011	215,120	2	11	573,528	210,516	117,310	158,677	1,060,031	3,645	1,283	4,928
2012	234,662	2	13	683,114	475,961	183,846	197,951	1,540,871	4,939	1,627	6,566
2013	246,747	0	14	0	66,475	0	244,970	311,444	0,269	0,993	1,262
2014	272,846	4	15	1,173,478	424,308	409,763	205,682	2,213,231	5,856	2,256	8,112
2015	319,548	0	5	0	212,675	0	269,260	481,935	0,666	0,843	1,508
<b>MA Total:</b>	<b>1,288,923</b>	<b>8</b>	<b>58</b>	<b>2,430,119</b>	<b>1,389,934</b>	<b>710,919</b>	<b>1,076,540</b>	<b>5,607,513</b>	<b>2,964</b>	<b>1,387</b>	<b>4,351</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	1.130	1.173	.
(14) Massachusetts Credibility:	0.490	0.720	.
(15) Countrywide Pure Premium:	2.168	0.752	2.920
(16) Countrywide Indicated Relativity:	0.846	0.664	.
(17) Countrywide Credibility:	0.260	0.140	.
(18) Countrywide Lost-Time Claims:	421.00	.	.
(19) Pure Premium Underlying Present Rate:	3.624	2.026	5.650
(20) Relativity to Underlying Present Rate:	1.321	1.511	.
(21) Credibility to Underlying Relativity:	0.250	0.140	.
(22) Industry Group Converted Pure Premium:	2.624	1.182	3.806
(23) Formula Relativity:	1.104	1.149	.
(24) Balanced Formula Relativity:	1.110	1.151	1.123

Class(es):		Effective: 7/1/2018							Construction		
9549 ADVERTISING CO & DRIVERS											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2011	28,307	1	7	345,988	5,105	56,879	14,252	422,224	12,403	2,513	14,916
2012	30,629	2	5	364,262	18,174	37,314	17,803	437,552	12,486	1,799	14,285
2013	30,660	0	8	0	11,982	0	6,438	18,420	0,391	0,210	0,601
2014	14,630	0	1	0	4,289	0	5,157	9,446	0,293	0,353	0,646
2015	15,820	0	2	0	0	0	1,366	1,366	0,000	0,086	0,086
<b>MA Total:</b>	<b>120,046</b>	<b>3</b>	<b>23</b>	<b>710,250</b>	<b>39,549</b>	<b>94,193</b>	<b>45,016</b>	<b>889,008</b>	<b>6,246</b>	<b>1,160</b>	<b>7,406</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	2.380	0.981	.
(14) Massachusetts Credibility:	0.170	0.220	.
(15) Countrywide Pure Premium:	0.000	0.000	0.000
(16) Countrywide Indicated Relativity:	0.873	0.812	.
(17) Countrywide Credibility:	0.000	0.000	.
(18) Countrywide Lost-Time Claims:	0.000	.	.
(19) Pure Premium Underlying Present Rate:	2.507	1.151	3.658
(20) Relativity to Underlying Present Rate:	0.913	0.859	.
(21) Credibility to Underlying Relativity:	0.830	0.780	.
(22) Industry Group Converted Pure Premium:	2.624	1.182	3.806
(23) Formula Relativity:	1.163	0.886	.
(24) Balanced Formula Relativity:	1.169	0.887	1.082

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## Calculation of Class Relativities

Class(es):		Effective: 7/1/2018							Construction			
9552 SIGN MFG-ERECTION, REPAIR OR MAINT & SHOP, DR												
		Converted Unlimited Losses										
		Amount										
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums				
Policy Period	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)	
2011	120,889	0	19	0	287,849	0	140,947	428,796	2,381	1,166	3,547	
2012	121,174	2	21	73,008	107,074	168,768	105,422	454,272	1,486	2,263	3,749	
2013	129,658	0	23	0	593,775	0	214,298	808,073	4,580	1,653	6,232	
2014	165,766	4	26	946,685	68,092	415,911	67,626	1,498,313	6,122	2,917	9,039	
2015	170,617	2	23	421,772	302,504	361,089	150,378	1,235,743	4,245	2,998	7,243	
<b>MA Total:</b>	<b>708,105</b>	<b>8</b>	<b>112</b>	<b>1,441,465</b>	<b>1,359,295</b>	<b>945,767</b>	<b>678,670</b>	<b>4,425,198</b>	<b>3,955</b>	<b>2,294</b>	<b>6,249</b>	

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	1.507	1.940	.
(14) Massachusetts Credibility:	0.390	0.520	.
(15) Countrywide Pure Premium:	4.819	2.234	7.054
(16) Countrywide Indicated Relativity:	1.881	1.973	.
(17) Countrywide Credibility:	0.140	0.140	.
(18) Countrywide Lost-Time Claims:	8.000	.	.
(19) Pure Premium Underlying Present Rate:	3.725	1.647	5.372
(20) Relativity to Underlying Present Rate:	1.357	1.228	.
(21) Credibility to Underlying Relativity:	0.470	0.340	.
(22) Industry Group Converted Pure Premium:	2.624	1.182	3.806
(23) Formula Relativity:	1.489	1.703	.
(24) Balanced Formula Relativity:	1.498	1.705	1.562

Class(es):		Effective: 7/1/2018							Goods and Services			
9586 BARBER SHOP, BEAUTY PARLOR, HAIR STYLING SALON												
		Converted Unlimited Losses										
		Amount										
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums				
Policy Period (1)	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)	
2011	3,982,126	4	80	114,112	437,975	37,855	199,389	789,331	0.139	0.060	0.198	
2012	4,209,145	1	75	164,767	279,810	40,590	120,605	605,771	0.106	0.038	0.144	
2013	4,389,682	5	73	53,451	118,177	33,721	130,316	335,665	0.039	0.037	0.076	
2014	4,606,937	2	65	518,897	593,217	112,333	258,448	1,482,896	0.241	0.080	0.322	
2015	4,843,148	1	82	17,610	734,303	13,165	339,354	1,104,432	0.155	0.073	0.228	
<b>MA Total:</b>	<b>22,031,038</b>	<b>13</b>	<b>375</b>	<b>868,837</b>	<b>2,163,482</b>	<b>237,664</b>	<b>1,048,112</b>	<b>4,318,095</b>	<b>0.138</b>	<b>0.058</b>	<b>0.196</b>	

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.164	0.122	.
(14) Massachusetts Credibility:	0.470	0.660	.
(15) Countrywide Pure Premium:	0.232	0.130	0.362
(16) Countrywide Indicated Relativity:	0.278	0.273	.
(17) Countrywide Credibility:	0.270	0.170	.
(18) Countrywide Lost-Time Claims:	1953.0	.	.
(19) Pure Premium Underlying Present Rate:	0.184	0.097	0.282
(20) Relativity to Underlying Present Rate:	0.222	0.191	.
(21) Credibility to Underlying Relativity:	0.260	0.170	.
(22) Industry Group Converted Pure Premium:	0.837	0.476	1.314
(23) Formula Relativity:	0.210	0.160	.
(24) Balanced Formula Relativity:	0.209	0.160	0.191

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Section IX - Classification Pricing  
 Subsection G - Class Relativities  
 7/1/2018

Section IX - G  
 Exhibit 189

## Calculation of Class Relativities

Class(es):		Effective: 7/1/2018							Goods and Services		
9620 FUNERAL DIRECTOR & DRIVERS											
		Converted Unlimited Losses									
		Amount									
		Claim Count		Indemnity		Medical		MA Indicated Pure Premiums			
Policy Period (1)	Exposure (2)	Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)	Likely (7)	Not-Likely (8)	Total (9)	Indemnity (10)	Medical (11)	Total (12)
2011	615,274	2	16	220,650	43,260	131,620	59,294	454,824	0.429	0.310	0.739
2012	601,352	2	9	102,550	18,448	17,585	41,111	179,694	0.201	0.098	0.299
2013	664,230	2	10	3,540	39,355	13,339	112,251	168,485	0.065	0.189	0.254
2014	673,427	0	16	0	269,585	0	104,077	373,662	0.400	0.155	0.555
2015	673,527	1	12	6,650	106,645	19,745	142,245	275,285	0.168	0.241	0.409
<b>MA Total:</b>	<b>3,227,810</b>	<b>7</b>	<b>63</b>	<b>333,390</b>	<b>477,293</b>	<b>182,289</b>	<b>458,977</b>	<b>1,451,949</b>	<b>0.251</b>	<b>0.199</b>	<b>0.450</b>

	Pure Premium Relativities		
	Indemnity	Medical	Total
(13) Massachusetts Indicated Relativity:	0.300	0.417	.
(14) Massachusetts Credibility:	0.280	0.430	.
(15) Countrywide Pure Premium:	0.441	0.259	0.700
(16) Countrywide Indicated Relativity:	0.528	0.542	.
(17) Countrywide Credibility:	0.360	0.290	.
(18) Countrywide Lost-Time Claims:	518.00	.	.
(19) Pure Premium Underlying Present Rate:	0.337	0.223	0.560
(20) Relativity to Underlying Present Rate:	0.406	0.438	.
(21) Credibility to Underlying Relativity:	0.360	0.280	.
(22) Industry Group Converted Pure Premium:	0.837	0.476	1.314
(23) Formula Relativity:	0.420	0.459	.
(24) Balanced Formula Relativity:	0.417	0.459	0.432

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## Exhibit I

Section IX - Classification Pricing  
 Subsection H - Industry Group Rate Change and Rate Level Factors  
 7/1/2018

Section IX - H  
 Exhibit 1

### Calculation of Industry Group Rate Change and Limits

	Industry Group				
	Manufacturing	Construction	Office & Clerical	Goods & Services	Miscellaneous
(1) Selected Industry Group Differentials	1.019	0.985	0.994	1.011	0.998
(2) Experience and Benefit Level Change - Overall	-12.9%	-12.9%	-12.9%	-12.9%	-12.9%
(3) Target Rate Change = (1) x [1.000 + (2)] - 1.000	-11.2%	-14.2%	-13.4%	-12.0%	-13.0%
(4) Maximum Rate Change = (3) + 17.5%	6.3%	3.3%	4.1%	5.5%	4.5%
(5) Minimum Rate Change = (3) - 17.5%	-28.7%	-31.7%	-30.9%	-29.5%	-30.5%
(6) Present Average Rate	2.029	5.542	0.165	1.817	5.097
(7) Uncapped Rate Level Factor = [1.000 + (3)] x (6)	1.801	4.755	0.143	1.600	4.432
(8) Capped Rate Level Factor	1.866	4.762	0.145	1.603	4.484

In addition, the WCRIBMA is limiting the increase in average rates for any class to \$15.00 and no average rate shall exceed \$90.00 per \$100.00 of payroll.

Notes:

- (1): Exhibit 2. Tempered per Stipulation
- (2): Indicated Rate Change, from Section I-A, Exhibit 1.
- (4), (5): Per Stipulation
- (6): Rates by class consistent with the 07/01/16 stipulation, weighted by five years of exposure.
- (8): Proposed average uncapped rates are capped by an iterative process using rate levels to determine if the required change is achieved.

Calculation of Massachusetts Industry Group Differentials  
 Excluding Large Deductibles

Industry Group (1)	Expected Losses (2)	Converted Unlimited Losses (3)	Industry Group Differential = (3) / (2) (4)	Lost-Time Cases (5)	Full Standard for Credibility Lost-Time Cases (6)	Credibility (7)	Credibility Weighted (8)	Balanced Industry Group Differential = (8) / 0.960 (9)
Manufacturing	457,346,341	457,757,403	1.001	10,139	12,000	0.919	0.998	1.039
Construction	1,179,381,704	1,098,872,717	0.932	12,723	12,000	1.000	0.932	0.970
Office & Clerical	449,945,547	427,073,279	0.949	11,071	12,000	0.961	0.950	0.989
Goods & Services	1,123,601,254	1,102,590,122	0.981	30,038	12,000	1.000	0.981	1.022
Miscellaneous	517,231,162	494,941,220	0.957	9,652	12,000	0.897	0.957	0.997
All	3,727,506,008	3,581,234,741	0.961			1.000	0.960	1.000

Notes:

(2): Five Years of Exposure x Pure Premium Underlying Present Rate from Section IX - F.

(3): Section IX - C. Goods and Services includes Per Capita classes.

(7) =  $\text{Min} ( 1.0 , [(5)/(6)]^{0.5} )$

(8) =  $[(7) \times (4)] + [(1.0 - (7)) \times (4) \text{ Total}]$

(8) Total =  $\text{sum} [ (2) \times (8) ] / (2) \text{ Total}$

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Section IX - Classification Pricing  
 Subsection I - Average Uncapped Rates  
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Section IX - I  
 Exhibit 1

## Calculation of Average Uncapped Rates All Industry Groups

Class (1)	Balanced Formula Relativity			Uncapped Rate Level Factor (5)	Proposed Average Uncapped Rate (6)
	Indemnity (2)	Medical (3)	Total (4)		
0005	1.345	1.291	1.326	1.600	2.12
0008	1.314	1.549	1.399	1.600	2.24
0016	2.372	2.224	2.319	1.600	3.71
0034	2.061	2.656	2.277	1.600	3.64
0035	1.180	1.369	1.249	1.600	2.00
0036	2.061	2.656	2.277	1.600	3.64
0042	2.232	2.463	2.316	1.600	3.71
0046	1.071	1.178	1.110	1.600	1.78
0050	0.990	0.884	0.957	4.755	4.55
0079	1.668	2.677	2.034	1.600	3.25
0083	2.024	2.130	2.062	1.600	3.30
0106	2.045	2.939	2.342	4.432	10.38
0113	2.061	2.656	2.277	1.600	3.64
0170	2.061	2.656	2.277	1.600	3.64
0908	105.766	81.332	96.905	1.600	77.53
0909	159.337	280.769	203.373	1.600	162.72
0912	159.337	280.769	203.373	1.600	325.43
0913	105.766	81.332	96.905	1.600	155.06
0917	1.762	1.844	1.792	1.600	2.87
0918	0.389	0.224	0.329	1.600	0.53
1430	2.772	2.177	2.567	1.801	4.62
1438	1.684	1.610	1.658	1.801	2.99
1463	4.668	5.406	4.922	1.801	8.87
1624	0.805	0.906	0.838	4.432	3.71
1655	0.676	0.677	0.676	4.432	3.00
1701	1.477	1.211	1.386	1.801	2.50
1710	0.805	0.906	0.838	4.432	3.71
1747	1.710	1.499	1.638	1.801	2.95
1748	1.367	1.840	1.530	1.801	2.76
1853	0.878	0.520	0.754	1.801	1.36
1924	1.139	1.083	1.120	1.801	2.02
1925	1.867	14.933	6.369	1.801	11.47
2003	1.956	1.861	1.923	1.801	3.46
2014	1.815	1.596	1.739	1.801	3.13
2021	1.230	1.224	1.228	1.801	2.21
2039	1.814	2.077	1.904	1.801	3.43
2041	1.497	1.332	1.440	1.801	2.59
2070	2.118	1.964	2.065	1.801	3.72
2081	1.450	2.124	1.682	1.801	3.03
2089	1.703	1.378	1.591	1.801	2.87
2095	1.904	1.561	1.786	1.801	3.22
2101	1.703	1.378	1.591	1.801	2.87

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## Calculation of Average Uncapped Rates All Industry Groups

Class (1)	Balanced Formula Relativity			Uncapped Rate Level Factor (5)	Proposed Average Uncapped Rate (6)
	Indemnity (2)	Medical (3)	Total (4)		
2111	1.092	1.052	1.078	1.801	1.94
2114	1.703	1.378	1.591	1.801	2.87
2115	2.657	2.341	2.548	1.801	4.59
2121	0.619	0.671	0.637	1.801	1.15
2130	0.957	0.813	0.908	1.801	1.63
2131	1.313	1.396	1.341	1.801	2.42
2143	0.968	1.014	0.984	1.801	1.77
2150	2.299	2.317	2.305	1.801	4.15
2156	2.475	2.321	2.422	1.801	4.36
2157	2.064	1.741	1.953	1.801	3.52
2172	1.134	0.726	0.993	1.801	1.79
2211	3.274	3.445	3.333	1.801	6.00
2220	1.226	1.359	1.272	1.801	2.29
2260	3.242	2.670	3.045	1.801	5.49
2288	1.622	1.469	1.569	1.801	2.83
2305	2.271	2.057	2.197	1.801	3.96
2362	0.754	0.975	0.830	1.801	1.50
2380	1.240	1.277	1.253	1.801	2.26
2402	1.166	1.221	1.185	1.801	2.13
2413	1.676	1.903	1.754	1.801	3.16
2416	1.442	1.232	1.370	1.801	2.47
2417	1.574	1.187	1.441	1.801	2.60
2501	1.023	0.942	0.995	1.801	1.79
2503	0.757	0.612	0.707	1.801	1.27
2570	3.324	2.693	3.107	1.801	5.60
2576	0.864	0.957	0.896	1.801	1.61
2585	1.527	1.562	1.539	1.801	2.77
2586	0.900	0.894	0.898	1.801	1.62
2587	2.271	1.899	2.136	1.600	3.42
2623	2.629	2.438	2.563	1.801	4.62
2651	0.791	0.715	0.765	1.801	1.38
2660	0.925	1.081	0.979	1.801	1.76
2683	0.854	1.088	0.934	1.801	1.68
2688	1.190	1.126	1.168	1.801	2.10
2702	2.946	3.073	2.988	4.432	13.25
2710	3.321	4.050	3.572	1.801	6.44
2731	1.554	1.806	1.641	1.801	2.96
2747	3.070	2.822	2.985	1.801	5.38
2790	0.874	0.823	0.856	1.801	1.54
2802	2.068	2.027	2.054	1.801	3.70
2835	0.922	0.990	0.945	1.801	1.70
2836	1.008	0.966	0.993	1.801	1.79

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## Calculation of Average Uncapped Rates All Industry Groups

Class (1)	Balanced Formula Relativity			Uncapped Rate Level Factor (5)	Proposed Average Uncapped Rate (6)
	Indemnity (2)	Medical (3)	Total (4)		
2841	1.872	1.610	1.782	1.801	3.21
2883	1.681	1.504	1.620	1.801	2.92
2923	0.875	0.870	0.873	1.801	1.57
2942	0.969	1.013	0.984	1.801	1.77
3018	1.470	1.226	1.386	1.801	2.50
3022	1.830	1.939	1.868	1.801	3.36
3027	2.263	3.545	2.705	1.801	4.87
3028	1.412	1.546	1.458	1.801	2.63
3030	3.178	2.847	3.064	1.801	5.52
3040	2.762	2.091	2.531	1.801	4.56
3041	1.696	2.199	1.869	1.801	3.37
3042	3.266	2.500	3.002	1.801	5.41
3066	1.171	1.290	1.212	1.801	2.18
3076	1.156	1.162	1.158	1.801	2.09
3081	2.429	2.829	2.567	1.801	4.62
3082	2.429	2.829	2.567	1.801	4.62
3085	2.508	2.492	2.502	1.801	4.51
3110	4.576	4.853	4.671	1.801	8.42
3111	0.989	1.059	1.013	1.801	1.82
3113	0.767	0.780	0.771	1.801	1.39
3114	1.295	1.504	1.367	1.801	2.46
3118	1.111	0.641	0.949	1.801	1.71
3119	0.346	0.487	0.394	1.801	0.71
3120	0.819	0.620	0.750	1.801	1.35
3122	1.007	1.208	1.076	1.801	1.94
3127	0.659	0.806	0.709	1.801	1.28
3131	0.754	0.815	0.775	1.801	1.40
3132	1.516	1.732	1.590	1.801	2.87
3145	0.815	0.814	0.815	1.801	1.47
3146	1.082	1.240	1.137	1.801	2.05
3169	1.226	1.617	1.360	1.801	2.45
3179	0.654	0.511	0.605	1.801	1.09
3180	1.459	1.359	1.424	1.801	2.57
3188	1.044	1.023	1.037	1.801	1.87
3200	1.031	1.059	1.041	1.801	1.87
3220	2.243	1.696	2.054	1.801	3.70
3255	1.151	1.104	1.135	1.801	2.04
3257	1.324	1.381	1.344	1.801	2.42
3270	1.044	1.031	1.039	1.801	1.87
3300	1.729	2.128	1.867	1.801	3.36
3315	1.660	1.469	1.594	1.801	2.87
3336	2.009	1.447	1.816	1.801	3.27



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## Calculation of Average Uncapped Rates All Industry Groups

Class (1)	Balanced Formula Relativity			Uncapped Rate Level Factor (5)	Proposed Average Uncapped Rate (6)
	Indemnity (2)	Medical (3)	Total (4)		
3365	1.221	1.204	1.215	4.755	5.78
3372	1.076	1.314	1.158	1.801	2.09
3373	2.143	1.620	1.963	1.801	3.54
3381	1.205	1.141	1.183	1.801	2.13
3383	0.881	1.032	0.933	1.801	1.68
3385	0.356	0.363	0.358	1.801	0.65
3400	1.226	1.617	1.360	1.801	2.45
3507	1.413	1.252	1.358	1.801	2.45
3515	1.434	1.633	1.502	1.801	2.71
3558	0.362	0.606	0.446	1.801	0.80
3571	0.437	0.401	0.425	1.801	0.76
3574	0.865	0.822	0.850	1.801	1.53
3612	0.847	0.972	0.890	1.801	1.60
3620	2.045	3.157	2.428	1.801	4.37
3629	0.865	0.822	0.850	1.801	1.53
3632	0.865	0.822	0.850	1.801	1.53
3634	0.771	0.709	0.749	1.801	1.35
3635	1.403	1.442	1.416	1.801	2.55
3638	0.865	0.822	0.850	1.801	1.53
3642	0.617	0.531	0.587	1.801	1.06
3643	0.809	0.752	0.789	1.801	1.42
3647	1.047	0.935	1.008	1.801	1.82
3648	0.640	0.723	0.668	1.801	1.20
3681	0.376	0.328	0.360	1.801	0.65
3685	0.341	0.295	0.326	1.801	0.59
3724	1.085	1.065	1.079	4.755	5.13
3726	1.109	0.748	0.997	4.755	4.74
3807	1.226	1.617	1.360	1.801	2.45
3808	1.393	1.513	1.434	1.801	2.58
3821	2.628	2.740	2.668	1.600	4.27
3826	2.609	3.450	2.899	1.801	5.22
3830	0.865	0.822	0.850	1.801	1.53
3841	0.661	0.728	0.684	1.801	1.23
4000	1.083	0.969	1.045	4.432	4.63
4021	1.904	2.011	1.941	1.801	3.50
4024	1.576	1.466	1.538	1.801	2.77
4034	3.030	3.711	3.265	1.801	5.88
4036	1.288	1.106	1.225	1.801	2.21
4038	1.564	1.314	1.478	1.801	2.66
4053	1.101	1.296	1.168	1.801	2.10
4062	0.860	0.910	0.877	1.801	1.58
4112	0.252	0.233	0.246	1.801	0.44

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## Calculation of Average Uncapped Rates All Industry Groups

Class (1)	Balanced Formula Relativity			Uncapped Rate Level Factor (5)	Proposed Average Uncapped Rate (6)
	Indemnity (2)	Medical (3)	Total (4)		
4113	1.101	1.296	1.168	1.801	2.10
4114	1.263	0.952	1.156	1.801	2.08
4130	1.570	1.542	1.560	1.801	2.81
4133	0.873	0.757	0.833	1.801	1.50
4150	0.341	0.301	0.327	1.801	0.59
4239	1.199	1.190	1.196	1.801	2.15
4243	1.706	1.540	1.649	1.801	2.97
4244	1.278	1.088	1.213	1.801	2.18
4250	0.927	1.020	0.959	1.801	1.73
4251	1.285	0.925	1.161	1.801	2.09
4273	1.362	1.308	1.343	1.801	2.42
4279	1.003	1.003	1.003	1.801	1.81
4283	1.063	1.031	1.052	1.801	1.90
4299	0.940	0.982	0.955	1.801	1.72
4304	2.429	2.918	2.597	1.801	4.68
4307	0.792	0.881	0.823	1.801	1.48
4308	1.610	0.396	1.192	1.801	2.15
4351	0.482	0.442	0.468	1.801	0.84
4352	0.807	0.588	0.732	1.801	1.32
4360	0.327	0.290	0.314	1.801	0.57
4361	4.699	5.127	4.861	0.143	0.70
4362	0.338	0.313	0.329	1.600	0.53
4410	1.328	1.402	1.353	1.801	2.44
4432	0.428	0.513	0.457	1.801	0.82
4439	2.207	2.848	2.428	1.801	4.37
4452	1.587	1.447	1.539	1.801	2.77
4459	1.340	1.348	1.343	1.801	2.42
4470	1.133	0.904	1.054	1.801	1.90
4484	0.982	1.097	1.021	1.801	1.84
4493	1.102	1.061	1.088	1.801	1.96
4511	0.186	0.172	0.181	1.600	0.29
4512	0.055	0.063	0.058	1.600	0.09
4557	0.863	0.948	0.892	1.801	1.61
4558	0.663	0.760	0.696	1.801	1.25
4583	1.784	1.398	1.651	1.801	2.97
4611	0.307	0.266	0.293	1.801	0.53
4635	2.435	2.814	2.566	1.801	4.62
4653	0.897	0.757	0.849	1.801	1.53
4665	4.204	4.191	4.199	1.801	7.56
4692	0.318	0.294	0.310	1.801	0.56
4693	0.468	0.459	0.465	1.801	0.84
4720	0.961	1.015	0.980	1.801	1.76

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## Calculation of Average Uncapped Rates All Industry Groups

Class (1)	Balanced Formula Relativity			Uncapped Rate Level Factor (5)	Proposed Average Uncapped Rate (6)
	Indemnity (2)	Medical (3)	Total (4)		
4740	0.607	0.594	0.603	1.801	1.09
4741	1.307	0.937	1.180	1.801	2.13
4771	2.745	1.113	2.183	1.801	3.93
4777	1.784	1.398	1.651	1.801	2.97
4825	0.298	0.238	0.277	1.801	0.50
4828	0.567	0.532	0.555	1.801	1.00
4829	0.567	0.532	0.555	1.801	1.00
4902	0.969	1.013	0.984	1.801	1.77
4923	0.327	0.290	0.314	1.801	0.57
5020	0.958	0.754	0.895	4.755	4.25
5022	2.088	1.928	2.038	4.755	9.69
5037	3.825	3.037	3.580	4.755	17.02
5040	5.503	4.182	5.092	4.755	24.21
5057	4.231	5.376	4.586	4.755	21.81
5059	3.401	3.857	3.543	4.755	16.84
5102	1.410	1.053	1.299	4.755	6.18
5146	1.489	1.391	1.459	4.755	6.94
5160	0.600	0.547	0.584	4.755	2.77
5183	0.634	0.594	0.621	4.755	2.95
5188	0.962	0.819	0.917	4.755	4.36
5190	0.440	0.505	0.460	4.755	2.19
5191	0.501	0.436	0.477	1.600	0.76
5192	1.759	1.647	1.718	1.600	2.75
5213	2.680	2.228	2.540	4.755	12.08
5215	0.980	0.783	0.918	4.755	4.37
5221	1.565	1.303	1.483	4.755	7.05
5222	1.977	1.476	1.822	4.755	8.66
5223	0.858	0.957	0.888	4.755	4.22
5348	0.960	0.706	0.881	4.755	4.19
5402	1.059	1.338	1.146	4.755	5.45
5403	1.705	1.435	1.621	4.755	7.71
5437	0.984	0.882	0.953	4.755	4.53
5443	0.679	0.705	0.687	4.755	3.27
5445	1.383	1.087	1.291	4.755	6.14
5462	1.396	1.122	1.311	4.755	6.23
5472	1.965	1.619	1.857	4.755	8.83
5473	2.339	2.715	2.456	4.755	11.68
5474	0.874	0.965	0.902	4.755	4.29
5478	0.964	0.715	0.887	4.755	4.22
5479	1.480	1.445	1.469	4.755	6.99
5480	0.903	0.752	0.857	4.755	4.07
5506	1.121	1.064	1.103	4.755	5.24

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## Calculation of Average Uncapped Rates All Industry Groups

Class (1)	Balanced Formula Relativity			Uncapped Rate Level Factor (5)	Proposed Average Uncapped Rate (6)
	Indemnity (2)	Medical (3)	Total (4)		
5507	1.175	1.218	1.188	4.755	5.65
5508	0.990	0.884	0.957	4.755	4.55
5509	0.776	1.066	0.866	4.755	4.12
5538	0.805	0.820	0.810	4.755	3.85
5545	6.642	9.633	7.571	4.755	36.00
5547	2.120	3.112	2.428	4.755	11.55
5606	0.301	0.336	0.312	4.755	1.48
5610	1.341	0.892	1.202	4.755	5.71
5645	1.405	1.733	1.507	4.755	7.17
5701	3.999	6.153	4.668	4.755	22.20
5703	2.455	2.199	2.375	4.755	11.29
5705	2.730	2.770	2.743	4.755	13.04
6003	2.045	1.712	1.941	4.755	9.23
6005	0.990	0.884	0.957	4.755	4.55
6204	1.296	1.120	1.241	4.755	5.90
6217	0.853	0.862	0.856	4.755	4.07
6229	0.825	0.748	0.801	4.755	3.81
6233	0.588	0.436	0.541	4.755	2.57
6251	1.283	0.721	1.108	4.755	5.27
6252	1.816	1.627	1.757	4.755	8.36
6306	1.777	1.586	1.718	4.755	8.17
6319	0.731	0.805	0.754	4.755	3.58
6325	0.748	0.671	0.724	4.755	3.44
6400	0.986	1.032	1.000	4.755	4.76
6504	1.703	1.378	1.591	1.801	2.87
6834	0.467	0.558	0.497	4.432	2.20
6836	0.789	1.089	0.889	4.432	3.94
7219	2.070	1.738	1.960	4.432	8.69
7230	2.162	2.134	2.153	4.432	9.54
7231	2.417	2.325	2.386	4.432	10.58
7360	0.988	1.070	1.015	4.432	4.50
7370	0.655	0.886	0.732	4.432	3.24
7380	1.405	1.358	1.389	4.432	6.16
7382	0.757	0.847	0.787	4.432	3.49
7403	1.017	1.188	1.074	4.432	4.76
7405	0.265	0.242	0.257	4.432	1.14
7420	1.801	0.842	1.482	4.432	6.57
7421	0.305	0.227	0.279	4.432	1.24
7422	0.305	0.227	0.279	4.432	1.24
7425	0.645	0.343	0.544	4.432	2.41
7431	0.305	0.227	0.279	4.432	1.24
7502	0.365	0.367	0.366	4.432	1.62

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## Calculation of Average Uncapped Rates All Industry Groups

Class (1)	Balanced Formula Relativity			Uncapped Rate Level Factor (5)	Proposed Average Uncapped Rate (6)
	Indemnity (2)	Medical (3)	Total (4)		
7515	0.457	1.128	0.680	4.432	3.01
7520	0.649	0.638	0.645	4.432	2.86
7538	1.286	1.306	1.292	4.755	6.14
7539	0.266	0.259	0.264	4.432	1.17
7580	0.735	0.702	0.724	4.432	3.21
7590	0.825	0.792	0.814	4.432	3.61
7600	0.738	0.594	0.690	4.432	3.06
7601	1.316	1.676	1.428	4.755	6.79
7610	3.915	2.453	3.360	0.143	0.48
7704	0.868	1.104	0.947	4.432	4.20
7720	0.307	0.326	0.313	4.432	1.39
7855	0.936	0.820	0.900	4.755	4.28
8001	0.996	1.283	1.100	1.600	1.76
8002	0.789	1.039	0.880	1.600	1.41
8006	0.697	0.883	0.765	1.600	1.22
8008	0.451	0.480	0.462	1.600	0.74
8010	0.900	1.102	0.973	1.600	1.56
8013	0.206	0.207	0.206	1.600	0.33
8017	0.548	0.625	0.576	1.600	0.92
8018	2.010	1.797	1.933	1.600	3.09
8021	2.028	1.707	1.911	1.600	3.06
8031	1.158	1.042	1.116	1.600	1.79
8032	0.852	0.757	0.817	1.600	1.31
8033	0.984	1.128	1.036	1.600	1.66
8034	2.215	1.846	2.081	1.600	3.33
8039	0.639	0.863	0.720	1.600	1.15
8044	1.800	1.802	1.800	1.600	2.88
8046	1.061	1.176	1.103	1.600	1.76
8048	1.769	1.436	1.648	1.600	2.64
8058	1.299	1.641	1.423	1.600	2.28
8103	1.755	1.678	1.727	1.600	2.76
8105	7.909	5.961	7.203	1.600	11.53
8106	3.525	3.599	3.552	1.600	5.68
8107	1.543	1.627	1.573	1.600	2.52
8111	1.578	1.712	1.626	1.600	2.60
8203	3.640	3.484	3.584	1.600	5.73
8204	2.398	3.928	2.953	1.600	4.73
8215	2.085	2.346	2.179	1.600	3.49
8227	0.995	1.064	1.016	4.755	4.83
8232	3.818	3.736	3.788	1.600	6.06
8233	4.015	3.795	3.935	1.600	6.30
8235	2.598	2.344	2.505	1.600	4.01

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## Calculation of Average Uncapped Rates All Industry Groups

Class (1)	Balanced Formula Relativity			Uncapped Rate Level Factor (5)	Proposed Average Uncapped Rate (6)
	Indemnity (2)	Medical (3)	Total (4)		
8263	2.175	2.809	2.405	1.600	3.85
8264	2.976	3.055	3.004	1.600	4.81
8265	4.015	3.795	3.935	1.600	6.30
8279	2.640	2.905	2.736	1.600	4.38
8291	2.156	2.165	2.159	1.600	3.45
8292	2.012	1.953	1.991	1.600	3.19
8293	5.122	4.960	5.063	1.600	8.10
8350	3.663	3.366	3.555	1.600	5.69
8380	1.649	1.574	1.621	1.600	2.59
8381	0.982	1.278	1.090	1.600	1.74
8385	1.637	1.725	1.669	1.600	2.67
8392	0.810	0.991	0.876	1.600	1.40
8393	1.138	0.832	1.027	1.600	1.64
8500	4.015	3.795	3.935	1.600	6.30
8601	1.550	1.516	1.537	0.143	0.22
8710	2.687	2.108	2.477	1.600	3.96
8719	2.687	2.108	2.477	1.600	3.96
8720	0.570	0.502	0.545	1.600	0.87
8721	2.336	3.945	2.947	0.143	0.42
8742	0.848	0.892	0.865	0.143	0.12
8745	3.554	5.275	4.178	1.600	6.69
8747	0.574	0.419	0.518	1.600	0.83
8748	4.759	4.258	4.569	0.143	0.65
8800	7.944	6.627	7.444	0.143	1.07
8803	0.295	0.284	0.291	0.143	0.04
8810	0.484	0.472	0.480	0.143	0.07
8820	0.593	0.543	0.574	0.143	0.08
8829	1.331	1.173	1.274	1.600	2.04
8831	0.424	0.852	0.579	1.600	0.93
8832	1.994	1.842	1.937	0.143	0.28
8833	8.633	7.077	8.043	0.143	1.15
8835	1.337	1.034	1.227	1.600	1.96
8868	4.571	5.365	4.872	0.143	0.70
8901	0.484	0.472	0.480	0.143	0.07
9014	1.517	1.294	1.436	1.600	2.30
9015	1.909	1.844	1.885	1.600	3.02
9016	1.059	1.705	1.293	1.600	2.07
9019	0.644	0.508	0.599	4.432	2.65
9033	1.893	1.667	1.811	1.600	2.90
9040	1.758	1.923	1.818	1.600	2.91
9052	1.003	0.907	0.968	1.600	1.55
9058	0.906	0.889	0.900	1.600	1.44

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## Calculation of Average Uncapped Rates All Industry Groups

Class (1)	Balanced Formula Relativity			Uncapped Rate Level Factor (5)	Proposed Average Uncapped Rate (6)
	Indemnity (2)	Medical (3)	Total (4)		
9060	0.536	0.714	0.601	1.600	0.96
9061	0.552	0.648	0.587	1.600	0.94
9063	0.357	0.491	0.406	1.600	0.65
9079	0.633	0.747	0.674	1.600	1.08
9089	0.496	0.646	0.550	1.600	0.88
9093	0.562	0.927	0.695	1.600	1.11
9101	1.648	2.225	1.857	1.600	2.97
9102	0.537	0.667	0.580	4.432	2.57
9154	0.342	0.474	0.386	4.432	1.71
9156	9.077	12.424	10.347	0.143	1.48
9178	1.641	5.245	2.839	4.432	12.59
9179	7.471	11.228	8.720	4.432	38.65
9180	0.706	1.804	1.071	4.432	4.75
9182	0.569	0.846	0.661	4.432	2.93
9186	0.706	1.804	1.071	4.432	4.75
9220	1.797	1.712	1.766	1.600	2.83
9402	0.952	0.839	0.914	4.432	4.05
9403	2.070	1.953	2.031	4.432	9.00
9410	1.596	1.886	1.701	1.600	2.72
9501	1.062	1.193	1.107	1.801	1.99
9505	1.062	1.193	1.107	1.801	1.99
9519	2.283	1.953	2.163	1.600	3.46
9521	1.578	1.444	1.532	1.801	2.76
9522	0.974	0.883	0.943	1.801	1.70
9533	2.858	2.800	2.840	4.755	13.50
9534	1.110	1.151	1.123	4.755	5.34
9549	1.169	0.887	1.082	4.755	5.14
9552	1.498	1.705	1.562	4.755	7.43
9586	0.209	0.160	0.191	1.600	0.31
9620	0.417	0.459	0.432	1.600	0.69

Notes:

(2), (3), (4): Section IX - G.

(5): Section IX - H, Exhibit 1.

(6) = (4) x (5)

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Section IX - Classification Pricing  
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7/1/2018

Section IX - J  
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## Comparison of Average Rates All Industry Groups

Class (1)	Present Average Capped Rate (2)	Proposed Average Uncapped Rate (3)	Proposed Average Capped Rate (4)
0005	2.56	2.12	2.12
0008	2.54	2.24	2.24
0016	4.54	3.71	3.72
0034	4.53	3.64	3.65
0035	2.41	2.00	2.00
0036	4.53	3.64	3.65
0042	4.30	3.71	3.71
0046	2.32	1.78	1.78
0050	6.57	4.55	4.56
0079	3.16	3.25	3.26
0083	4.61	3.30	3.31
0106	14.33	10.38	10.50
0113	4.53	3.64	3.65
0170	4.53	3.64	3.65
0908	90.06	77.53	77.65
0909	166.70	162.72	162.95
0912	333.39	325.43	325.91
0913	180.12	155.06	155.29
0917	3.42	2.87	2.87
0918	0.61	0.53	0.53
1430	9.15	4.62	6.53
1438	3.39	2.99	3.09
1463	9.45	8.87	9.18
1624	4.87	3.71	3.76
1655	4.96	3.00	3.45
1701	3.78	2.50	2.70
1710	4.87	3.71	3.76
1747	3.17	2.95	3.05
1748	3.36	2.76	2.85
1853	1.67	1.36	1.41
1924	2.05	2.02	2.09
1925	4.61	11.47	4.90
2003	3.60	3.46	3.59
2014	3.66	3.13	3.25
2021	2.92	2.21	2.29
2039	2.96	3.43	3.15
2041	2.71	2.59	2.69
2070	4.28	3.72	3.85
2081	4.13	3.03	3.14
2089	2.65	2.87	2.82
2095	3.62	3.22	3.33
2101	2.65	2.87	2.82
2111	2.27	1.94	2.01
2114	2.65	2.87	2.82
2115	4.04	4.59	4.29
2121	1.68	1.15	1.20
2130	2.10	1.63	1.69
2131	2.46	2.42	2.50



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## Comparison of Average Rates All Industry Groups

Class (1)	Present Average Capped Rate (2)	Proposed Average Uncapped Rate (3)	Proposed Average Capped Rate (4)
2143	2.41	1.77	1.84
2150	5.31	4.15	4.30
2156	6.16	4.36	4.52
2157	4.46	3.52	3.64
2172	2.19	1.79	1.85
2211	6.68	6.00	6.22
2220	2.92	2.29	2.37
2260	7.10	5.49	5.68
2288	2.83	2.83	2.93
2305	2.63	3.96	2.80
2362	1.85	1.50	1.55
2380	2.53	2.26	2.34
2402	2.39	2.13	2.21
2413	3.71	3.16	3.27
2416	2.66	2.47	2.56
2417	3.75	2.60	2.69
2501	2.13	1.79	1.86
2503	1.15	1.27	1.23
2570	5.19	5.60	5.51
2576	2.52	1.61	1.80
2585	3.40	2.77	2.87
2586	1.73	1.62	1.68
2587	3.33	3.42	3.42
2623	4.57	4.62	4.78
2651	1.91	1.38	1.43
2660	1.82	1.76	1.83
2683	1.74	1.68	1.74
2688	2.51	2.10	2.18
2702	16.34	13.25	13.40
2710	7.24	6.44	6.66
2731	3.66	2.96	3.06
2747	6.04	5.38	5.57
2790	1.80	1.54	1.60
2802	4.65	3.70	3.83
2835	1.99	1.70	1.76
2836	2.50	1.79	1.85
2841	3.90	3.21	3.32
2883	3.25	2.92	3.02
2923	1.62	1.57	1.63
2942	1.85	1.77	1.84
3018	3.58	2.50	2.59
3022	3.64	3.36	3.48
3027	4.92	4.87	5.05
3028	3.38	2.63	2.72
3030	6.48	5.52	5.72
3040	6.29	4.56	4.72
3041	4.98	3.37	3.55
3042	6.12	5.41	5.60

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## Comparison of Average Rates All Industry Groups

Class (1)	Present Average Capped Rate (2)	Proposed Average Uncapped Rate (3)	Proposed Average Capped Rate (4)
3066	2.99	2.18	2.26
3076	2.42	2.09	2.16
3081	6.42	4.62	4.79
3082	6.42	4.62	4.79
3085	4.62	4.51	4.67
3110	8.63	8.42	8.71
3111	2.25	1.82	1.89
3113	1.71	1.39	1.44
3114	2.82	2.46	2.55
3118	1.71	1.71	1.77
3119	0.86	0.71	0.74
3120	1.55	1.35	1.40
3122	2.04	1.94	2.01
3127	0.94	1.28	1.00
3131	1.67	1.40	1.45
3132	3.54	2.87	2.97
3145	1.64	1.47	1.52
3146	1.85	2.05	1.97
3169	3.38	2.45	2.54
3179	1.32	1.09	1.13
3180	2.78	2.57	2.66
3188	2.67	1.87	1.93
3200	2.49	1.87	1.94
3220	2.66	3.70	2.83
3255	2.71	2.04	2.12
3257	2.72	2.42	2.51
3270	2.15	1.87	1.94
3300	5.55	3.36	3.96
3315	3.50	2.87	2.97
3336	3.81	3.27	3.39
3365	7.81	5.78	5.79
3372	2.51	2.09	2.16
3373	3.72	3.54	3.66
3381	2.68	2.13	2.21
3383	1.48	1.68	1.57
3385	0.80	0.65	0.67
3400	3.38	2.45	2.54
3507	2.91	2.45	2.53
3515	2.72	2.71	2.80
3558	0.83	0.80	0.83
3571	0.97	0.76	0.79
3574	1.73	1.53	1.59
3612	1.99	1.60	1.66
3620	5.63	4.37	4.53
3629	1.73	1.53	1.59
3632	1.73	1.53	1.59
3634	1.70	1.35	1.40
3635	3.05	2.55	2.64

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Section IX - Classification Pricing  
Subsection J - Average Rates and Proposed Premium Change  
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Section IX - J  
Exhibit 1

## Comparison of Average Rates All Industry Groups

Class (1)	Present Average Capped Rate (2)	Proposed Average Uncapped Rate (3)	Proposed Average Capped Rate (4)
3638	1.73	1.53	1.59
3642	1.13	1.06	1.10
3643	1.67	1.42	1.47
3647	2.20	1.82	1.88
3648	1.40	1.20	1.25
3681	0.86	0.65	0.67
3685	0.67	0.59	0.61
3724	5.02	5.13	5.14
3726	12.45	4.74	8.50
3807	3.38	2.45	2.54
3808	3.07	2.58	2.68
3821	4.23	4.27	4.28
3826	3.24	5.22	3.44
3830	1.73	1.53	1.59
3841	1.43	1.23	1.28
4000	4.52	4.63	4.69
4021	4.06	3.50	3.62
4024	3.07	2.77	2.87
4034	6.24	5.88	6.09
4036	2.36	2.21	2.29
4038	2.58	2.66	2.74
4053	1.88	2.10	1.99
4062	2.37	1.58	1.69
4112	0.67	0.44	0.48
4113	1.88	2.10	1.99
4114	2.21	2.08	2.16
4130	3.99	2.81	2.91
4133	1.79	1.50	1.55
4150	0.80	0.59	0.61
4239	2.70	2.15	2.23
4243	3.71	2.97	3.08
4244	3.03	2.18	2.26
4250	2.28	1.73	1.79
4251	2.09	2.09	2.17
4273	2.45	2.42	2.51
4279	2.89	1.81	2.06
4283	2.34	1.90	1.96
4299	1.96	1.72	1.78
4304	4.20	4.68	4.46
4307	1.72	1.48	1.53
4308	1.27	2.15	1.35
4351	0.86	0.84	0.87
4352	1.20	1.32	1.27
4360	1.04	0.57	0.74
4361	0.65	0.70	0.68
4362	0.63	0.53	0.53
4410	3.61	2.44	2.57
4432	1.09	0.82	0.85

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## Comparison of Average Rates All Industry Groups

Class (1)	Present Average Capped Rate (2)	Proposed Average Uncapped Rate (3)	Proposed Average Capped Rate (4)
4439	3.27	4.37	3.47
4452	3.53	2.77	2.87
4459	2.87	2.42	2.50
4470	2.28	1.90	1.97
4484	2.20	1.84	1.91
4493	2.64	1.96	2.03
4511	0.29	0.29	0.29
4512	0.12	0.09	0.09
4557	1.98	1.61	1.66
4558	1.42	1.25	1.30
4583	3.53	2.97	3.08
4611	1.26	0.53	0.90
4635	4.03	4.62	4.28
4653	2.49	1.53	1.78
4665	6.79	7.56	7.22
4692	0.65	0.56	0.58
4693	0.97	0.84	0.87
4720	1.95	1.76	1.83
4740	1.21	1.09	1.12
4741	2.65	2.13	2.20
4771	9.08	3.93	6.47
4777	3.53	2.97	3.08
4825	0.71	0.50	0.52
4828	1.01	1.00	1.03
4829	1.01	1.00	1.03
4902	1.85	1.77	1.84
4923	1.04	0.57	0.74
5020	5.04	4.25	4.26
5022	9.77	9.69	9.71
5037	22.83	17.02	17.05
5040	33.63	24.21	24.25
5057	26.64	21.81	21.84
5059	16.98	16.84	16.87
5102	6.17	6.18	6.19
5146	6.43	6.94	6.64
5160	3.40	2.77	2.78
5183	3.47	2.95	2.96
5188	4.98	4.36	4.37
5190	2.63	2.19	2.19
5191	0.96	0.76	0.76
5192	3.30	2.75	2.75
5213	15.57	12.08	12.09
5215	5.69	4.37	4.37
5221	6.82	7.05	7.04
5222	10.48	8.66	8.68
5223	4.33	4.22	4.23
5348	5.16	4.19	4.19
5402	9.28	5.45	6.34

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Section IX - J  
Exhibit 1

## Comparison of Average Rates All Industry Groups

Class (1)	Present Average Capped Rate (2)	Proposed Average Uncapped Rate (3)	Proposed Average Capped Rate (4)
5403	11.08	7.71	7.72
5437	5.56	4.53	4.54
5443	4.25	3.27	3.27
5445	6.95	6.14	6.15
5462	7.75	6.23	6.24
5472	9.33	8.83	8.85
5473	10.32	11.68	10.66
5474	5.70	4.29	4.30
5478	5.63	4.22	4.22
5479	8.96	6.99	7.00
5480	4.67	4.07	4.08
5506	6.90	5.24	5.25
5507	7.70	5.65	5.66
5508	6.57	4.55	4.56
5509	3.74	4.12	3.86
5538	4.61	3.85	3.86
5545	37.31	36.00	36.06
5547	13.78	11.55	11.57
5606	1.88	1.48	1.49
5610	6.53	5.71	5.72
5645	8.17	7.17	7.18
5701	25.57	22.20	22.23
5703	21.57	11.29	14.73
5705	12.15	13.04	12.55
6003	10.53	9.23	9.24
6005	6.57	4.55	4.56
6204	7.84	5.90	5.91
6217	4.56	4.07	4.07
6229	4.59	3.81	3.81
6233	4.26	2.57	2.91
6251	6.39	5.27	5.28
6252	9.42	8.36	8.37
6306	9.16	8.17	8.18
6319	4.51	3.58	3.59
6325	4.82	3.44	3.45
6400	6.04	4.76	4.76
6504	2.65	2.87	2.82
6834	2.61	2.20	2.23
6836	3.26	3.94	3.41
7219	10.27	8.69	8.79
7230	8.37	9.54	8.74
7231	8.49	10.58	8.87
7360	5.87	4.50	4.55
7370	4.26	3.24	3.28
7380	6.39	6.16	6.23
7382	3.91	3.49	3.53
7403	5.52	4.76	4.82
7405	1.58	1.14	1.15

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## Comparison of Average Rates All Industry Groups

Class (1)	Present Average Capped Rate (2)	Proposed Average Uncapped Rate (3)	Proposed Average Capped Rate (4)
7420	7.87	6.57	6.65
7421	1.87	1.24	1.30
7422	1.87	1.24	1.30
7425	3.20	2.41	2.44
7431	1.87	1.24	1.30
7502	3.12	1.62	2.17
7515	2.28	3.01	2.39
7520	3.32	2.86	2.89
7538	6.04	6.14	6.15
7539	1.35	1.17	1.18
7580	3.31	3.21	3.25
7590	5.16	3.61	3.65
7600	4.17	3.06	3.09
7601	5.42	6.79	5.60
7610	0.25	0.48	0.26
7704	2.42	4.20	2.53
7720	1.80	1.39	1.40
7855	5.21	4.28	4.29
8001	1.95	1.76	1.76
8002	1.85	1.41	1.41
8006	1.50	1.22	1.23
8008	0.85	0.74	0.74
8010	1.49	1.56	1.56
8013	0.43	0.33	0.33
8017	1.12	0.92	0.92
8018	3.17	3.09	3.10
8021	3.11	3.06	3.06
8031	2.23	1.79	1.79
8032	1.62	1.31	1.31
8033	2.03	1.66	1.66
8034	3.40	3.33	3.34
8039	1.32	1.15	1.15
8044	4.16	2.88	2.94
8046	2.15	1.76	1.77
8048	2.84	2.64	2.64
8058	2.56	2.28	2.28
8103	2.83	2.76	2.77
8105	5.45	11.53	5.75
8106	6.60	5.68	5.69
8107	3.25	2.52	2.52
8111	2.78	2.60	2.61
8203	6.71	5.73	5.74
8204	4.44	4.73	4.69
8215	3.95	3.49	3.49
8227	4.73	4.83	4.84
8232	5.81	6.06	6.07
8233	7.17	6.30	6.31
8235	4.54	4.01	4.02

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Exhibit 1

## Comparison of Average Rates All Industry Groups

Class (1)	Present Average Capped Rate (2)	Proposed Average Uncapped Rate (3)	Proposed Average Capped Rate (4)
8263	5.69	3.85	4.01
8264	6.04	4.81	4.81
8265	7.17	6.30	6.31
8279	5.81	4.38	4.38
8291	4.36	3.45	3.46
8292	3.15	3.19	3.19
8293	9.92	8.10	8.11
8350	5.99	5.69	5.70
8380	3.23	2.59	2.60
8381	2.04	1.74	1.75
8385	2.80	2.67	2.67
8392	1.66	1.40	1.40
8393	2.30	1.64	1.65
8500	7.17	6.30	6.31
8601	0.29	0.22	0.22
8710	2.93	3.96	3.09
8719	2.93	3.96	3.09
8720	0.94	0.87	0.87
8721	0.23	0.42	0.23
8742	0.17	0.12	0.13
8745	4.41	6.69	4.65
8747	1.00	0.83	0.83
8748	0.61	0.65	0.63
8800	1.02	1.07	1.07
8803	0.04	0.04	0.04
8810	0.08	0.07	0.07
8820	0.10	0.08	0.08
8829	2.17	2.04	2.04
8831	1.02	0.93	0.93
8832	0.29	0.28	0.28
8833	1.39	1.15	1.16
8835	2.13	1.96	1.97
8868	0.83	0.70	0.71
8901	0.08	0.07	0.07
9014	3.03	2.30	2.30
9015	3.34	3.02	3.02
9016	2.12	2.07	2.07
9019	2.96	2.65	2.69
9033	3.81	2.90	2.90
9040	3.20	2.91	2.91
9052	1.89	1.55	1.55
9058	1.58	1.44	1.44
9060	1.01	0.96	0.96
9061	0.98	0.94	0.94
9063	0.83	0.65	0.65
9079	1.15	1.08	1.08
9089	1.13	0.88	0.88
9093	1.28	1.11	1.11

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Section IX - Classification Pricing  
Subsection J - Average Rates and Proposed Premium Change  
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Section IX - J  
Exhibit 1

## Comparison of Average Rates All Industry Groups

Class (1)	Present Average Capped Rate (2)	Proposed Average Uncapped Rate (3)	Proposed Average Capped Rate (4)
9101	3.05	2.97	2.98
9102	2.79	2.57	2.60
9154	1.61	1.71	1.68
9156	1.48	1.48	1.50
9178	14.43	12.59	12.73
9179	28.46	38.65	29.73
9180	4.31	4.75	4.50
9182	3.61	2.93	2.96
9186	4.31	4.75	4.50
9220	3.33	2.83	2.83
9402	5.04	4.05	4.10
9403	10.30	9.00	9.11
9410	2.61	2.72	2.73
9501	2.49	1.99	2.07
9505	2.49	1.99	2.07
9519	3.39	3.46	3.47
9521	3.58	2.76	2.86
9522	1.90	1.70	1.76
9533	16.89	13.50	13.53
9534	6.75	5.34	5.35
9549	4.97	5.14	5.14
9552	7.30	7.43	7.44
9586	0.39	0.31	0.31
9620	0.76	0.69	0.69

### Notes:

(2) = (4) from Section IX - J, Exhibit 1 of the 07/01/2016 stipulation.

(3): Section IX - I.

(4): Total Balanced Formula Relativity (from Section IX - I, Exhibit 1) x Capped Rate Level Factors and subject to maximum and minimum caps (from Section IX - H, Exhibit 1.)



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Section IX - Classification Pricing  
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Section IX - J  
Exhibit 2

## Summary of Proposed Premium Change All Industry Groups

Industry Group (1)	Present Premium (2)	Proposed Premium (3)	Proposed Change (4)	Target Change (5)	Capped Rate Level Factor (6)
Manufacturing	622,202,559	552,426,585	-11.2%	-11.2%	1.866
Construction	1,599,999,112	1,372,747,104	-14.2%	-14.2%	4.762
Office & Clerical	614,575,666	532,270,499	-13.4%	-13.4%	0.145
Goods & Services	1,535,250,460	1,351,730,313	-12.0%	-12.0%	1.603
Miscellaneous	701,745,124	610,209,411	-13.0%	-13.0%	4.484
All Groups	5,073,772,921	4,419,383,912	-12.9%		

### Notes:

(2) = Exposure x Present Average Rates from Exhibit 1.

(3) = Exposure x Proposed Average Capped Rates from Exhibit 1.

(4) = [(3) - (2)] / (2)

(5): Section IX - H, Exhibit 1.

(6): Section IX - H, Exhibit 1. Proposed average uncapped rates are capped by an iterative process using rate levels to determine if the required change is achieved.

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Section IX - Classification Pricing  
Subsection K - Adjustments to Derive Final Manual Rates  
7/1/2018

Section IX - K  
Exhibit 1

## Calculation of Proposed Manual Rates

The proposed manual rates in Section IX - A, Exhibit 1 are derived from the proposed average capped rates in Section IX - J, Exhibit 1 as follows:

$$\text{Proposed Manual Rate} = [\text{Proposed Average Rate} / (\text{Factor 1} \times \text{Factor 2} \times \text{Factor 3})] \times [1.000 / (1.000 - \text{Factor 4})]$$

(1)	Factor 1 =	0.997	The offset for Merit Rating and Average Experience Modification
(2)	Factor 2 =	1.051	The offset for ARAP
(3)	Factor 3 =	0.967	For eligible classes, the offset for the Construction Classification Premium Adjustment Program
(4)	Factor 4 =	0.0026	The loading from the filing of recoupment of amounts paid to the Insolvency Fund

### Notes:

- (1): Exhibit 2.
- (2): Exhibit 3.
- (3): Exhibit 4.
- (4): Exhibit 5, Page 1.

Offset for Experience & Merit Rating

Policy Year (1)	Age (2)	Rating Category (3)	Number of Policies (4)	% of Policies = (4) / Total (4) (5)	Manual Premium (6)	% of Manual = (6) / Total (6) (7)	Standard Premium (8)	Historical Average Mod = (8) / (6) (9)	Selected Average Mod (10)
2011	66	Non Rated	78,335	41%	18,891,236	2%	18,889,669	1.000	
		Merit Rated	75,668	40%	139,448,780	15%	136,679,175	0.980	
		Intrastate Rated	18,304	10%	406,497,233	44%	423,653,133	1.042	
		Interstate Rated	17,200	9%	352,945,157	38%	338,854,742	0.960	
		Total	189,507	100%	917,782,406	100%	918,076,719	1.000	
2012	54	Non Rated	85,059	43%	20,271,268	2%	20,269,341	1.000	
		Merit Rated	76,929	39%	142,893,092	15%	139,931,353	0.979	
		Intrastate Rated	18,667	9%	414,314,281	44%	427,747,711	1.032	
		Interstate Rated	18,051	9%	369,046,123	39%	350,009,695	0.948	
		Total	198,706	100%	946,524,764	100%	937,958,100	0.991	
2013	42	Non Rated	88,376	43%	21,040,727	2%	21,038,717	1.000	
		Merit Rated	78,749	38%	147,049,718	15%	143,930,935	0.979	
		Intrastate Rated	19,619	10%	435,291,294	43%	447,448,304	1.028	
		Interstate Rated	19,008	9%	401,989,880	40%	373,179,338	0.928	
		Total	205,752	100%	1,005,371,619	100%	985,597,294	0.980	
2014	30	Non Rated	93,282	44%	22,202,167	2%	22,196,243	1.000	
		Merit Rated	79,860	37%	150,997,827	14%	147,589,899	0.977	
		Intrastate Rated	20,625	10%	466,559,867	43%	470,582,834	1.009	
		Interstate Rated	20,316	9%	439,421,335	41%	402,888,301	0.917	
		Total	214,083	100%	1,079,181,196	100%	1,043,257,277	0.967	
2015	18	Non Rated	97,395	44%	23,286,534	2%	23,278,507	1.000	
		Merit Rated	80,344	36%	155,146,815	13%	151,653,905	0.977	
		Intrastate Rated	22,331	10%	500,135,203	43%	499,608,387	0.999	
		Interstate Rated	21,634	10%	476,527,776	41%	437,257,779	0.918	
		Total	221,704	100%	1,155,096,328	100%	1,111,798,578	0.963	
Total		Non Rated	442,447	43%	105,691,932	2%	105,672,477	1.000	1.000
		Merit Rated	391,550	38%	735,536,232	14%	719,785,267	0.979	0.979
		Intrastate Rated	99,546	10%	2,222,797,878	44%	2,269,040,369	1.021	1.000
		Interstate Rated	96,209	9%	2,039,930,271	40%	1,902,189,855	0.932	1.000
		Total	1,029,752	100%	5,103,956,313	100%	4,996,687,968	0.979	0.997

Notes:

Unit Statistical Plan data, excluding Large Deductibles and SIGs.  
 Non Rated, Merit Rated and Intrastate Rated categories are estimated based on manual premium.  
 (10): Set to 1.000 for Non Rated and Interstate Rated and Intrastate Rated.

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 Subsection K - Adjustments to Derive Final Manual Rates  
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Section IX - K  
 Exhibit 3

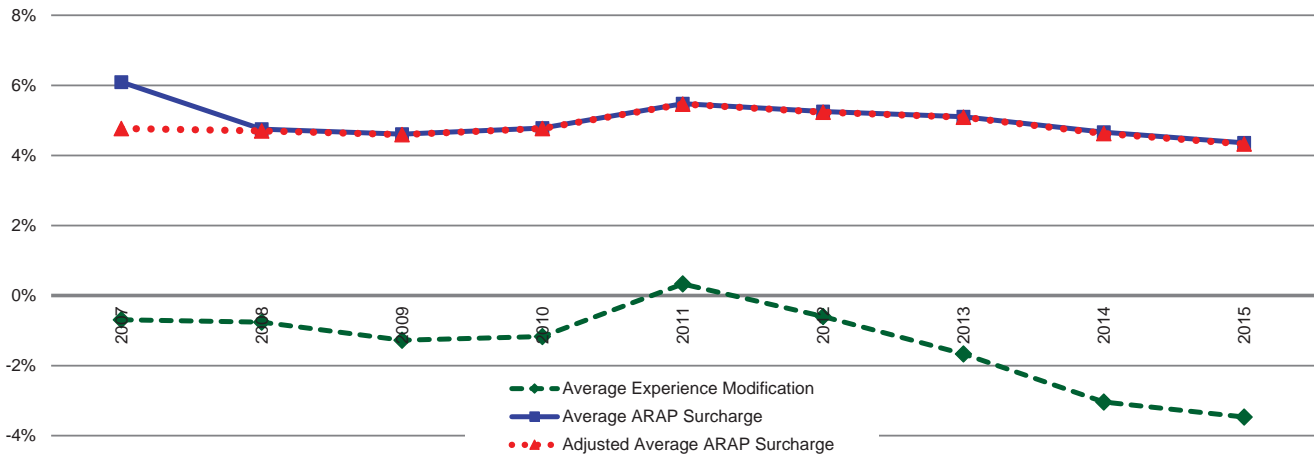
## Offset for ARAP Estimate of Average ARAP Surcharge for Prospective Effective Period

### Historical Average Experience Modification and ARAP Surcharge

Policy Year (1)	Manual Premium (2)	Standard Premium (3)	ARAP Premium (4)	Adjusted ARAP Premium (5)	Average ARAP Surcharge =(4) / (3) (6)	Average Experience Modification =(3) / (2) - 1.000 (7)	Adjusted Average ARAP Surcharge =(5) / [ (3)+(4)-(5) ] (8)
2007	996,526,290	989,596,286	60,296,346	47,769,380	6.1%	-0.7%	4.8%
2008	831,911,040	825,571,365	39,208,730	38,814,225	4.7%	-0.8%	4.7%
2009	802,126,746	791,883,094	36,467,853	36,389,208	4.6%	-1.3%	4.6%
2010	870,460,835	860,253,960	41,112,225	41,025,277	4.8%	-1.2%	4.8%
2011	915,060,483	918,076,719	50,277,522	50,181,538	5.5%	0.3%	5.5%
2012	943,637,428	937,958,100	49,236,332	49,114,361	5.2%	-0.6%	5.2%
2013	1,002,292,947	985,597,294	50,272,250	50,163,987	5.1%	-1.7%	5.1%
2014	1,075,947,404	1,043,257,277	48,638,523	48,259,973	4.7%	-3.0%	4.6%
2015	1,151,755,819	1,111,798,578	48,450,846	48,109,803	4.4%	-3.5%	4.3%

### Regression of Average ARAP Surcharge on Average Experience Modification

(9) R-Squared	0.558
(10) Slope	0.220
(11) Intercept	0.051
(12) Projected Average ARAP Surcharge = (11)	0.051



**Notes:**

- (2)-(4): Unit Statistical Plan data, excluding Large Deductibles and SIGs. ARAP adjusted from company level to DSR level.
- (5): (4) adjusted to maximum ARAP surcharge factor of 1.25.

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Section IX - Classification Pricing  
Subsection K - Adjustments to Derive Final Manual Rates  
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Section IX - K  
Exhibit 4

## Construction Class Premium Adjustment Program

Policy Year (1)	Manual Premium for Eligible Class Codes (2)	Construction Credit (3)	Percent (4)
2014	361,670,345	14,880,487	4.1%
2015	399,967,834	13,391,847	3.3%
(5) Selected Average Credit for Eligible Class Codes in Prospective Effective Period			3.3%

Note:

(2),(3): Unit Statistical Plan data, excluding Large Deductibles and SIGs.

(4): (3) / (2)

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Section IX - Classification Pricing  
Subsection K - Adjustments to Derive Final Manual Rates  
7/1/2018

Section IX - K  
Exhibit 5  
Page 1

## Loading for Recoupment of Insolvency Fund Assessments

### Unanticipated Insolvency Assessment Recoupments

(1)	Estimated Written Premium for the Policy Period beginning 7/1/17 and ending 6/30/18, absent Insolvency loads	1,471,980,951
(2)	Unanticipated Insolvency Assessment Recoupment Rate (As a % of premium absent insolvency loads)	-0.23%
(3)	Unanticipated Insolvency Assessment Recoupments	(3,385,556)
(4)	Interest Adjustment Factor	1.016
(5)	Adjusted Unanticipated Insolvency Assessment Recoupments	(3,440,201)

### Net Assessments

(6)	Amount Sufficient to Recoup Assessment	0
(7)	Net Assessments	3,440,201

### Loading for Recoupment

(8)	Estimated Written Premium in the Prospective Effective Period, absent insolvency loads	1,309,193,802
(9)	Indicated Loading for Recoupment of Insolvency Fund Assessments	<b>0.26%</b>

#### Notes:

(1): consistent with Page 2.

(2): loading for insolvency fund in 07/01/2016 effective rates.

(3) = (1) x (2)

(4): 1.6% is the risk-free rate of interest, shown in Section VII-J, Exhibit 1, Page 1 compounded from the expected collection date of the unanticipated insolvency assessment recoupments to the average date the assessment will be recouped or returned.

(5) = (3) x (4)

(6): No Assessments in 2016 or 2017.

(7) = (6) - (5)

(8): Page 2.

(9) = (7) / [ (7) + (8) ]

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Section IX - Classification Pricing  
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Exhibit 5  
Page 2

## Expected Workers' Compensation Written Premium in Prospective Effective Period

(1)	2016 Calendar Year Written Premium, absent insolvency loads	1,414,836,086
(2)	Estimated Exposure Growth Factor from Calendar Year 2016 to Policy Period ending 6/30/18	1.032
(3)	Rate Change from Calendar Year 2016 Written to the Policy Period ending 6/30/18	0.8%
(4)	Estimated Written Premium for the Policy Period ending 6/30/18, absent Insolvency Loads = (1) x (2) x [ 1.0 + (3) ]	1,471,980,951
(5)	Estimated Exposure Growth Factor from the Policy Period ending 6/30/18 to the Prospective Effective Period	1.021
(6)	Average Indicated Rate Change	-12.9%
(7)	Estimated Written Premium in Prospective Effective Period, absent insolvency loads = (4) x (5) x [ 1.0 + (6) ]	1,309,193,802

### Notes:

- (1): Adjusted to remove any loading for recoupment of insolvency fund assessments.
- (2): Assumes a 2.1% (from Section V-H, Exhibit 3).
- (3): The 7/1/16 rate change was 1.5%.
- (5): Assumes a 2.1% annual change (from Section V-H, Exhibit 3) compounded for 1 year.
- (6): Section I-A, Exhibit 1.

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Section IX - Classification Pricing  
 Subsection L - Pricing Example  
 7/1/2018

Section IX - L  
 Exhibit 1  
 Page 1

## Pricing Example for Class 2660 Boot Or Shoe Mfg Noc

Calculation of MA Indicated Relativity:

		(A). Limited Losses (Unit Statistical Plan data, excluding Large Deductibles)							
	Policy Year	Fatal		Permanent Total	Permanent Partial		Temporary Total		Medical Only
		LD	NLD		LD	NLD	LD	NLD	
Indemnity	2011	0	0	0	0	7,119	0	7,997	0
	2012	0	0	0	0	0	0	10,044	0
	2013	0	0	0	0	0	0	1,519	0
	2014	0	0	0	0	0	3,528	0	0
	2015	0	0	0	0	98,589	0	337	0
Medical	2011	0	0	0	0	1,538	0	39,536	2,537
	2012	0	0	0	0	0	0	3,114	1,153
	2013	0	0	0	0	0	0	7,158	0
	2014	0	0	0	0	0	1,781	0	326
	2015	0	0	0	0	60,488	0	989	113

		(B). Primary Conversion Factors (Section IX - B, Exhibit 1, Page 1)							
	Policy Year	Fatal		Permanent Total	Permanent Partial		Temporary Total		Medical Only
		LD	NLD		LD	NLD	LD	NLD	
Indemnity	2011	0.878	0.881	0.878	0.902	0.906	0.864	0.867	0.000
	2012	0.921	0.928	0.919	0.940	0.947	0.907	0.914	0.000
	2013	1.010	1.004	1.008	1.029	1.023	0.995	0.990	0.000
	2014	1.071	1.060	1.070	1.089	1.078	1.059	1.047	0.000
	2015	1.674	1.494	1.681	1.703	1.521	1.667	1.488	0.000
Medical	2011	0.778	0.789	0.778	0.778	0.789	0.778	0.789	0.641
	2012	0.765	0.779	0.765	0.765	0.779	0.765	0.779	0.673
	2013	0.835	0.847	0.835	0.835	0.847	0.835	0.847	0.702
	2014	0.796	0.798	0.796	0.796	0.798	0.796	0.798	0.774
	2015	0.931	0.927	0.931	0.931	0.927	0.931	0.927	0.828

		(C). Converted Limited Losses [ (A) x (B) ]							
	Policy Year	Fatal		Permanent Total	Permanent Partial		Temporary Total		Medical Only
		LD	NLD		LD	NLD	LD	NLD	
Indemnity	2011	0	0	0	0	6,447	0	6,933	0
	2012	0	0	0	0	0	0	9,176	0
	2013	0	0	0	0	0	0	1,503	0
	2014	0	0	0	0	0	3,735	0	0
	2015	0	0	0	0	149,923	0	502	0
Medical	2011	0	0	0	0	1,213	0	31,190	1,627
	2012	0	0	0	0	0	0	2,425	776
	2013	0	0	0	0	0	0	6,064	0
	2014	0	0	0	0	0	1,418	0	252
	2015	0	0	0	0	56,063	0	917	94



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Section IX - Classification Pricing  
 Subsection L - Pricing Example  
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 Exhibit 1  
 Page 2

Pricing Example for Class 2660  
 Boot Or Shoe Mfg Noc

Calculation of MA Indicated Relativity:

(D). Unadjusted Excess Losses [ (Excess Factor -1.0) x (C) ]									
	Policy Year	Fatal		Permanent Total	Permanent Partial		Temporary Total		Medical Only
		LD	NLD		LD	NLD	LD	NLD	
Indemnity	2011	0	0	0	0	764	0	822	0
	2012	0	0	0	0	0	0	1,088	0
	2013	0	0	0	0	0	0	178	0
	2014	0	0	0	0	0	443	0	0
	2015	0	0	0	0	17,776	0	59	0
Medical	2011	0	0	0	0	144	0	3,698	193
	2012	0	0	0	0	0	0	288	92
	2013	0	0	0	0	0	0	719	0
	2014	0	0	0	0	0	168	0	30
	2015	0	0	0	0	6,647	0	109	11

(E). Adjusted Excess Losses									
	Policy Year	Fatal		Permanent Total	Permanent Partial		Temporary Total		Medical Only
		LD	NLD		LD	NLD	LD	NLD	
Indemnity	2011	0	0	0	0	535	0	575	0
	2012	0	0	0	0	0	0	762	0
	2013	0	0	0	0	0	0	125	0
	2014	0	0	0	0	0	310	0	0
	2015	0	0	0	0	12,443	0	42	0
Medical	2011	0	0	0	0	373	0	3,945	193
	2012	0	0	0	0	0	0	614	92
	2013	0	0	0	0	0	0	772	0
	2014	0	0	0	0	0	301	0	30
	2015	0	0	0	0	11,980	0	127	11

(F). Secondary Conversion Factors					
	Fatal	Permanent	Permanent Partial	Temporary Total	Medical
Indemnity	0.963	0.903	1.220	1.231	0.000
Medical	1.185	0.904	1.221	1.232	1.185

(G). Converted Unlimited Losses									
	Policy Year	Fatal		Permanent Total	Permanent Partial		Temporary Total		Medical Only
		LD	NLD		LD	NLD	LD	NLD	
Indemnity	2011	0	0	0	0	8,522	0	9,243	0
	2012	0	0	0	0	0	0	12,234	0
	2013	0	0	0	0	0	0	2,004	0
	2014	0	0	0	0	0	4,980	0	0
	2015	0	0	0	0	198,165	0	669	0
Medical	2011	0	0	0	0	1,938	0	43,283	2,156
	2012	0	0	0	0	0	0	3,744	1,028
	2013	0	0	0	0	0	0	8,422	0
	2014	0	0	0	0	0	2,118	0	334
	2015	0	0	0	0	83,106	0	1,285	124

(H). Total					
Policy Year	Exposure	Indemnity		Medical	
		LD	NLD	LD	NLD
2011	43,694	0	17,765	0	47,377
2012	48,173	0	12,234	0	4,772
2013	44,048	0	2,004	0	8,422
2014	46,156	4,980	0	2,118	334
2015	44,779	0	198,834	0	84,515
<b>Total</b>	<b>226,850</b>	<b>4,980</b>	<b>230,836</b>	<b>2,118</b>	<b>145,419</b>

	Indemnity	Medical
(I). Indicated Pure Premium	1.040	0.650
(J). Manufacturing Industry Group Pure Premium	0.978	0.514
(K). MA Indicated Relativity	1.063	1.265

Notes:

- (E): Indemnity Adjusted Excess Losses = Indemnity Unadjusted Excess Losses x 0.7
- Medical Adjusted Excess Losses = Medical Unadjusted Excess Losses + 0.3 x Indemnity Unadjusted Excess Losses
- (F): Section IX-B, Exhibit 1, Page 3.
- (G) = [ (C) + (E) ] x (F)
- (I) = Total Losses / Total Exposure
- (J): Industry Group Pure Premium from Section IX - C, Exhibit 1, Page 2.
- (K) = (I) / (J)

# IX 000296 STIP

## Pricing Example for Class 2660 Boot Or Shoe Mfg Noc

Calculation of Countrywide Relativity

State (1)	State Code (2)	Losses				Lost-Time Claims		Payroll (9)
		Indemnity		Medical		Likely (7)	Not-Likely (8)	
		Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)			
Alabama	1	0	0	0	0	0	0	0
Arizona	2	0	0	0	8,316	0	0	5,843,139
Arkansas	3	0	33,410	0	143,750	0	14	45,853,201
Colorado	5	0	0	0	3,874	0	0	3,404,823
Connecticut	6	0	0	0	0	0	0	45,695
D.C.	8	0	0	0	0	0	0	0
Florida	9	0	12,135	0	50,932	0	3	4,980,438
Georgia	10	0	23,233	0	11,710	0	2	1,958,404
Idaho	11	0	0	0	0	0	0	986,623
Illinois	12	120,045	94,629	47,344	86,940	6	8	14,054,430
Indiana	13	0	8,182	0	43,994	0	1	2,464,503
Iowa	14	0	0	0	0	0	0	623,414
Kansas	15	0	0	0	0	0	0	0
Kentucky	16	0	3,491	0	6,629	0	2	2,103,760
Louisiana	17	0	0	0	0	0	0	0
Maine	18	21,390	1,008,642	95,252	1,229,988	2	51	126,081,699
Maryland	19	0	0	0	0	0	0	24,962
Michigan	21	40,459	51,218	17,544	401,185	2	13	72,189,882
Minnesota	22	0	7,044	0	40,048	0	2	6,588,983
Mississippi	23	0	0	0	0	0	0	0
Missouri	24	61,449	616,466	64,173	913,383	4	65	73,316,886
Montana	25	0	0	0	0	0	0	731,252
Nebraska	26	0	0	0	111	0	0	820,261
Nevada	27	0	0	0	0	0	0	418,686
New Hampshire	28	0	20,046	0	95,322	0	2	1,264,121
New Mexico	30	0	0	0	0	0	0	0
North Carolina	32	34,701	43,907	34,249	64,537	1	7	13,445,023
Oklahoma	35	0	0	0	0	0	0	0
Oregon	36	0	124,922	0	171,532	0	8	38,950,433
Rhode Island	38	0	0	0	0	0	0	61,912
South Carolina	39	0	0	0	0	0	0	38,602
South Dakota	40	0	0	0	0	0	0	0
Tennessee	41	1,777	110,507	8,017	282,195	1	18	20,277,616
Utah	43	0	0	0	2,602	0	0	1,734,177
Vermont	44	0	0	0	0	0	0	14,695
Virginia	45	0	0	0	1,594	0	0	8,505,709
West Virginia	47	0	0	0	0	0	0	0
Wisconsin	48	856,149	217,353	604,358	936,814	5	36	63,248,150
Hawaii	52	0	23,794	0	15,860	0	1	2,402,382
Alaska	54	0	0	0	0	0	0	0
<b>Total</b>		<b>1,135,970</b>	<b>2,398,979</b>	<b>870,937</b>	<b>4,511,316</b>	<b>21</b>	<b>233</b>	<b>512,433,861</b>

Note:  
 (3) - (9): Data are total for latest three policy years. See Section IX-D, Exhibit 3.

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Section IX - Classification Pricing  
 Subsection L - Pricing Example  
 7/1/2018

Section IX - L  
 Exhibit 2  
 Page 2

Pricing Example for Class 2660  
 Boot Or Shoe Mfg Noc

Calculation of Countrywide Relativity

State (1)	State Code (2)	Manufacturing Pitch Factors		Pure Premiums, on MA Level		Total (7)
		Indemnity (3)	Medical (4)	Indemnity (5)	Medical (6)	
Alabama	1	2.312	0.443	0.000	0.000	
Arizona	2	3.320	0.483	0.000	0.069	
Arkansas	3	3.562	0.890	0.260	0.279	
Colorado	5	1.438	0.456	0.000	0.052	
Connecticut	6	0.650	0.299	0.000	0.000	
D.C.	8	0.273	0.124	0.000	0.000	
Florida	9	1.657	0.370	0.404	0.379	
Georgia	10	1.311	0.695	1.555	0.416	
Idaho	11	1.555	0.379	0.000	0.000	
Illinois	12	0.843	0.356	1.288	0.340	
Indiana	13	3.827	0.637	1.271	1.137	
Iowa	14	0.914	0.301	0.000	0.000	
Kansas	15	1.785	0.505	0.000	0.000	
Kentucky	16	1.909	0.606	0.317	0.191	
Louisiana	17	1.368	0.439	0.000	0.000	
Maine	18	1.020	0.440	0.833	0.462	
Maryland	19	1.290	0.576	0.000	0.000	
Michigan	21	1.870	0.687	0.238	0.399	
Minnesota	22	1.526	0.577	0.163	0.350	
Mississippi	23	1.675	0.513	0.000	0.000	
Missouri	24	1.233	0.448	1.140	0.597	
Montana	25	0.618	0.175	0.000	0.000	
Nebraska	26	1.046	0.230	0.000	0.003	
Nevada	27	1.281	0.030	0.000	0.000	
New Hampshire	28	2.046	0.358	3.244	2.702	
New Mexico	30	1.449	0.360	0.000	0.000	
North Carolina	32	1.385	0.706	0.810	0.519	
Oklahoma	35	0.895	0.435	0.000	0.000	
Oregon	36	1.696	0.669	0.544	0.295	
Rhode Island	38	0.638	0.513	0.000	0.000	
South Carolina	39	0.868	0.547	0.000	0.000	
South Dakota	40	2.347	0.409	0.000	0.000	
Tennessee	41	2.166	0.494	1.199	0.707	
Utah	43	3.929	0.575	0.000	0.086	
Vermont	44	0.889	0.372	0.000	0.000	
Virginia	45	2.346	0.613	0.000	0.011	
West Virginia	47	2.190	0.516	0.000	0.000	
Wisconsin	48	1.533	0.353	2.603	0.861	
Hawaii	52	0.912	0.468	0.903	0.309	
Alaska	54	1.641	0.258	0.000	0.000	
(8)	Average of (5), (6) weighted by Payroll from Page 1, respectively			0.923	0.486	1.409
(9)	CW Manufacturing Pure Premium			0.885	0.454	1.339
(10)	CW Relativity = (8) / (9)			1.043	1.069	1.052
(11)	CW Relativity, balanced to unity			1.029	1.054	

**Notes:**

- (3), (4) = (MA Total Unlimited Losses) / [(State Pure Premium) x (MA Total Exposure)] for Industry Code 1. See Section IX - D, Exhibit 2.
- (5) = 100 x [ State Indemnity Losses / State Payroll ] x (3), where State Indemnity Losses and State Payroll from page 1.
- (6) = 100 x [ State Medical Losses / State Payroll ] x (4), where State Medical Losses and State Payroll from page 1.
- (9) = (8) weighted by MA five year Manufacturing Exposure
- (11): Relativities balanced to unity (weighted by MA exposure) over Manufacturing Industry Group.

# IX 000298 STIP

Section IX - Classification Pricing  
 Subsection L - Pricing Example  
 7/1/2018

Section IX - L  
 Exhibit 3

## Pricing Example for Class 2660 Boot Or Shoe Mfg Noc

Calculation of Credibility and Balanced Formula Relativity:

- (1) MA Indicated Relativity
- (2) Countrywide Indicated Relativity
- (3) Relativity to Underlying Present Rate

Injury Type	
Indemnity	Medical
1.063	1.265
1.029	1.054
0.796	1.025

Calculation of MA Credibility:

The MA Credibilities are calculated using the formula  $Z=(E / F)^{0.4}$  where E are expected losses for that injury type.

- (4) Adopted Relativity
- (5) Industry Group Pure Premium Underlying Present Rate Factor
- (6) Pure Premium Underlying Present Rate  
 = (4) x (5)
- (7) Expected Losses  
 = (6) x [(Total Exposure from Exhibit 1)]
- (8) Full Credibility Standards
- (9) MA Credibility  
 = Minimum of {100%, [(7) / (8)]<sup>0.4</sup>}

Injury Type	
Indemnity	Medical
0.791	1.018
0.949	0.552
0.751	0.562
170,318	127,413
27,200,000	6,000,000
13%	21%

Calculation of Countrywide Credibility

The Countrywide Credibilities are calculated using the formula  $Z=(E / F)^{0.4}$  where E are the countrywide claim counts for that injury type. The countrywide credibility is limited to no more than half of the complement of the credibility assigned to the Massachusetts data.

- (10) Countrywide Lost-Time Claims
- (11) Countrywide Claim Count Standard
- (12) Countrywide Credibility  
 = Minimum of {[(10) / (11)]<sup>0.4</sup>, 0.5 x [100% - (9)]}
- (13) Credibility to Underlying Present Rate  
 = 100% - (9) - (12)
- (14) Formula Relativity  
 = [(1) x (9)] + [(2) x (12)] + [(3) x (13)]
- (15) Off Balance Factor

Injury Type	
Indemnity	Medical
254	254
1,150	1,000
44%	40%
43%	39%
0.933	1.087
1.009	1.005

- (16) Balanced Formula Relativity

Injury Type		
Indemnity	Medical	Total
0.925	1.081	0.979

Notes:

- (1): Exhibit 1, Page 2.
- (2): Exhibit 2, Page 2.
- (3): Relativity of (6) to Industry Group average, using 5 year Schedule Z exposure as weights.
- (4): Section IX-F, Exhibit 1.
- (5): Section IX-E, Exhibit 1.
- (8), (11): Section IX-D, Exhibit 1, Page 1.
- (10): Exhibit 2, Page 1.
- (15): Factor to balance Formula relativities across industry group to unity using 5 year Schedule Z exposure by injury type.
- (16) = (14) / (15) , Total Balanced Formula Relativity is the weighted average of Partial Relativities using the MA Industry Group Pure Premium as weights.

## IX 000299 STIP

Section IX - Classification Pricing  
Subsection L - Pricing Example  
7/1/2018

Section IX - L  
Exhibit 4

### Pricing Example for Class 2660 Boot Or Shoe Mfg Noc

Calculation of Proposed Average Rate and Proposed Manual Rate:

(1) Total Balanced Formula Relativity	0.979
(2) Capped Rate Level Factor	1.866
(3) Proposed Average Capped Rate = (1) x (2)	1.83
(4) Offset for Merit Rating	0.997
(5) Offset for ARAP	1.051
(6) Offset for Construction Classification Premium Adjustment Program	1.000
(7) Provision for Insolvency Fund Assessment Recoupment	0.0026
(8) Proposed Manual Rate = {(3) / [(4) x (5) x (6)]} x {1.000 / [1.000 - (7)]}	1.75
(9) Minimum Premium	220
(10) Loss Constant	0
(11) Expected Loss Rate	0.91
(12) D-Ratio	0.16

#### Notes:

(1): Exhibit 3.

(2): Section IX-H, Exhibit 1. Proposed average uncapped rates are capped by an iterative process using rate levels to determine if the required change is achieved. Class 2660 is in the Manufacturing Industry Group.

(4), (5), (6), (7): Section IX-K, Exhibit 1. Class 2660 is not eligible for the Construction Credit program.

(9) = {[ (8) x 35.0] + (10) + Expense Constant} subject to a maximum of \$500

Where Expense Constant = 159 if (8) x 35 + (10) < 200

= 250 if (8) x 35 + (10) >= 200 and < 1000.

= 338 if (8) x 35 + (10) >= 1000.

(10): No loss constant for Manufacturing classes, \$50 for Construction classes, \$20 for all other classes.

(11) = (3) x Ratio of Experience Rating ELR to Average Rate, from Section X - A, Exhibit 1. Class 2660 is in Hazard Group B.

(12): See text of Section X for an explanation of the calculation of D-Ratios.

# IX 000300 STIP

Section IX - Classification Pricing  
 Subsection M - Steel Erection  
 7/1/2018

Section IX - M  
 Exhibit 1

## Underlying Values

(1) Class	(2) Exposure (\$100 Payroll)	(3) Weight	(4)	(5)	(6) Present Average Rate
			Adopted Relativity		
			Indemnity	Medical	
5040	553,319.99	53%	11.923	8.675	59.49
Reassigned 5538	493,204.04	47%	0.781	0.767	4.61
Adjusted 5040	1,046,524.03	100%	6.672	4.948	33.63
5059	211,412.78	56%	3.252	3.107	26.64
Reassigned 5538	165,025.47	44%	0.781	0.767	4.61
Adjusted 5059	376,438.25	100%	2.168	2.081	16.98

**Notes:**

(2): Based on Unit Statistical Data

(4),(5),(6): 5040, 5059, 5538 from 7/1/2016 Stipulation. Adjusted values are weighted averages using (3) as weight.

# IX 000301 STIP

Section IX - Classification Pricing  
 Subsection M - Steel Erection  
 7/1/2018

Section IX - M  
 Exhibit 2  
 Page 1

## Pricing Example for Class 5040 Iron Or Steel: Erection: Erection-Frame Structures

Calculation of MA Indicated Relativity

		(A). Limited Losses (Unit Statistical Plan data, excluding Large Deductibles)							
	Policy Year	Fatal		Permanent Total	Permanent Partial		Temporary Total		Medical Only
		LD	NLD		LD	NLD	LD	NLD	
Indemnity	2011	0	0	224,927	0	1,396,478	0	81,783	
	2012	0	0	399,085	211,929	820,221	150,000	218,677	
	2013	0	0	468,515	496,244	1,148,642	47,500	48,662	
	2014	0	0	0	723,582	848,190	224,988	333,797	
	2015	0	0	0	201,853	304,103	433,150	203,325	
Medical	2011	0	0	275,073	0	361,975	0	35,356	23,260
	2012	0	0	100,915	30,320	78,838	25,000	62,970	26,691
	2013	0	0	31,485	75,541	191,940	0	25,232	28,357
	2014	0	0	0	166,361	231,789	177,707	148,467	65,033
	2015	0	0	0	23,818	45,235	88,322	143,170	22,486

		(B). Primary Conversion Factors (Section IX - B, Exhibit 1, Page 1)							
	Policy Year	Fatal		Permanent Total	Permanent Partial		Temporary Total		Medical Only
		LD	NLD		LD	NLD	LD	NLD	
Indemnity	2011	0.878	0.881	0.878	0.902	0.906	0.864	0.867	0.000
	2012	0.921	0.928	0.919	0.940	0.947	0.907	0.914	0.000
	2013	1.010	1.004	1.008	1.029	1.023	0.995	0.990	0.000
	2014	1.071	1.060	1.070	1.089	1.078	1.059	1.047	0.000
	2015	1.674	1.494	1.681	1.703	1.521	1.667	1.488	0.000
Medical	2011	0.778	0.789	0.778	0.778	0.789	0.778	0.789	0.641
	2012	0.765	0.779	0.765	0.765	0.779	0.765	0.779	0.673
	2013	0.835	0.847	0.835	0.835	0.847	0.835	0.847	0.702
	2014	0.796	0.798	0.796	0.796	0.798	0.796	0.798	0.774
	2015	0.931	0.927	0.931	0.931	0.927	0.931	0.927	0.828

		(C). Converted Limited Losses							
	Policy Year	Fatal		Permanent Total	Permanent Partial		Temporary Total		Medical Only
		LD	NLD		LD	NLD	LD	NLD	
Indemnity	2011	0	0	199,257	0	1,256,392	0	70,573	0
	2012	0	0	366,825	199,189	776,824	136,009	199,780	0
	2013	0	0	472,253	510,419	1,172,479	47,282	48,154	0
	2014	0	0	0	816,341	929,177	238,190	349,600	0
	2015	0	0	0	343,853	480,965	883,394	312,775	0
Medical	2011	0	0	194,871	0	282,018	0	27,803	14,815
	2012	0	0	77,224	23,202	60,002	19,131	48,885	17,709
	2013	0	0	26,279	63,052	160,699	0	21,374	19,726
	2014	0	0	0	129,756	184,775	141,476	118,531	50,078
	2015	0	0	0	22,164	42,950	86,054	134,213	19,193

Notes:

(A) : The combined total of Remainder of Industry and AIG losses.

(B): Separate Primary Conversion Factors are applied to AIG data (factors also from Section IX-B, Exhibit 1, Page 1). The Remainder of Industry factors are displayed here.

(C): = (A) x (B) with Primary Conversion Factors for AIG (Section IX-B, Exhibit 1, Page 1) applied to AIG's losses instead of the factors displayed in (B).

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 Exhibit 2  
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Pricing Example for Class 5040  
 Iron Or Steel: Erection: Erection-Frame Structures

Calculation of MA Indicated Relativity:

(D). Unadjusted Excess Losses [ (Excess Factor -1.0) x (C) ]									
	Policy Year	Fatal		Permanent Total	Permanent Partial		Temporary Total		Medical Only
		LD	NLD		LD	NLD	LD	NLD	
Indemnity	2011	0	0	96,816	0	610,461	0	34,290	0
	2012	0	0	178,234	96,783	377,446	66,085	97,070	0
	2013	0	0	229,460	248,005	569,689	22,973	23,397	0
	2014	0	0	0	396,647	451,472	115,733	169,865	0
	2015	0	0	0	167,073	233,693	429,227	151,972	0
Medical	2011	0	0	94,685	0	137,028	0	13,509	7,198
	2012	0	0	37,522	11,274	29,154	9,295	23,752	8,605
	2013	0	0	12,769	30,636	78,081	0	10,386	9,584
	2014	0	0	0	63,047	89,779	68,741	57,592	24,332
	2015	0	0	0	10,769	20,869	41,812	65,212	9,325

(E). Adjusted Excess Losses									
	Policy Year	Fatal		Permanent Total	Permanent Partial		Temporary Total		Medical Only
		LD	NLD		LD	NLD	LD	NLD	
Indemnity	2011	0	0	67,771	0	427,322	0	24,003	0
	2012	0	0	124,764	67,748	264,212	46,259	67,949	0
	2013	0	0	160,622	173,603	398,782	16,081	16,378	0
	2014	0	0	0	277,653	316,030	81,013	118,906	0
	2015	0	0	0	116,951	163,585	300,459	106,381	0
Medical	2011	0	0	123,730	0	320,166	0	23,796	7,198
	2012	0	0	90,992	40,308	142,388	29,121	52,873	8,605
	2013	0	0	81,607	105,037	248,988	6,892	17,405	9,584
	2014	0	0	0	182,041	225,221	103,461	108,552	24,332
	2015	0	0	0	60,891	90,977	170,580	110,804	9,325

(F). Secondary Conversion Factors					
	Fatal	Permanent Total	Permanent Partial	Temporary Total	Medical
Indemnity	0.963	0.903	1.220	1.231	0.000
Medical	1.185	0.904	1.221	1.232	1.185

(G). Converted Unlimited Losses									
	Policy Year	Fatal		Permanent Total	Permanent Partial		Temporary Total		Medical Only
		LD	NLD		LD	NLD	LD	NLD	
Indemnity	2011	0	0	241,209	0	2,054,936	0	116,428	0
	2012	0	0	444,058	325,791	1,270,562	224,381	329,587	0
	2013	0	0	571,683	834,835	1,917,690	78,003	79,442	0
	2014	0	0	0	1,335,196	1,519,748	392,954	576,753	0
	2015	0	0	0	562,401	786,660	1,457,377	516,000	0
Medical	2011	0	0	288,004	0	735,484	0	63,568	26,086
	2012	0	0	152,062	77,569	247,191	59,443	125,360	31,182
	2013	0	0	97,525	205,297	500,376	8,491	47,774	34,733
	2014	0	0	0	380,817	500,754	301,746	279,753	88,176
	2015	0	0	0	101,440	163,572	316,157	301,845	33,794

(H). Total					
Policy Year	Exposure	Indemnity		Medical	
		LD	NLD	LD	NLD
2011	142,586	241,209	2,171,364	288,004	825,138
2012	142,332	994,229	1,600,149	289,075	403,732
2013	220,982	1,484,521	1,997,132	311,313	582,882
2014	282,222	1,728,150	2,096,501	682,563	868,682
2015	258,402	2,019,778	1,302,659	417,597	499,211
Total	1,046,524	6,467,889	9,167,806	1,988,553	3,179,646

	Indemnity	Medical
(I). Indicated Pure Premium	14.941	4.938
(J). Construction Industry Group Pure Premium	2.623	1.182
(K). MA Indicated Relativity	5.696	4.180

Notes:

(E): Indemnity Adjusted Excess Losses = Indemnity Unadjusted Excess Losses x 0.7

Medical Adjusted Excess Losses = Medical Unadjusted Excess Losses + 0.3 x Indemnity Unadjusted Excess Losses

(F): Section IX-B, Exhibit 1, Page 3.

(G) = [ (C) + (E) ] x (F)

(I) = Total Losses / Total Exposure

(J): Industry Group Pure Premium from Section IX - C, Exhibit 1, Page 2.

(K) = (I) / (J)



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Pricing Example for Class 5040  
 Iron Or Steel: Erection: Erection-Frame Structures

Calculation of Countrywide Relativity

State (1)	State Code (2)	Losses				Lost-Time Claims		Payroll (9)
		Indemnity		Medical		Likely (7)	Not-Likely (8)	
		Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)			
Alabama	1	0	640,876	0	839,177	0	13	50,516,359
Arizona	2	486,600	276,243	630,480	726,235	3	14	47,687,051
Arkansas	3	211,523	216,252	951,697	701,339	4	9	39,591,254
Colorado	5	1,016,867	716,677	1,725,023	1,310,852	8	29	40,110,023
Connecticut	6	1,662,260	465,084	2,007,155	485,458	7	13	12,760,041
D.C.	8	9,969	0	16,923	1,307	1	0	3,052,390
Florida	9	1,161,725	1,420,194	2,077,261	4,092,215	15	61	123,198,571
Georgia	10	1,000,118	2,274,252	764,420	1,600,512	10	27	102,322,451
Idaho	11	424,275	376,840	592,935	690,707	2	12	12,314,953
Illinois	12	2,135,484	4,231,454	1,601,903	2,790,938	17	64	107,478,411
Indiana	13	495,246	369,241	839,568	1,269,566	8	20	84,006,044
Iowa	14	1,121,370	1,125,766	1,034,214	579,737	10	16	30,950,797
Kansas	15	390,336	153,201	182,771	213,772	5	5	33,642,693
Kentucky	16	27,706	399,548	137,663	448,808	2	9	34,757,772
Louisiana	17	840,296	1,427,803	843,456	1,855,688	16	65	232,812,412
Maine	18	245,999	0	1,554,354	157,397	2	0	3,342,029
Maryland	19	456,817	936,008	948,568	416,860	3	12	16,617,673
Michigan	21	1,450,215	1,320,215	1,213,947	860,228	7	26	42,853,126
Minnesota	22	173	556,072	729	772,243	1	14	17,352,589
Mississippi	23	103,971	342,699	41,765	370,315	2	13	53,047,343
Missouri	24	1,646,668	1,440,391	1,459,456	1,798,294	10	41	35,868,523
Montana	25	0	320,142	0	403,931	0	6	6,215,247
Nebraska	26	144,451	166,284	269,195	409,482	3	10	18,721,142
Nevada	27	344,797	332,122	609,662	397,341	2	10	18,750,656
New Hampshire	28	281,885	265,007	241,748	400,745	2	5	5,346,741
New Mexico	30	40,728	232,576	1,039,940	184,336	1	5	9,736,413
North Carolina	32	424,737	3,064,658	253,494	2,663,462	5	43	126,845,762
Oklahoma	35	363,929	642,567	907,311	1,029,896	5	13	17,195,345
Oregon	36	196,113	394,382	72,782	504,507	2	16	30,106,762
Rhode Island	38	507,317	35,117	139,097	36,511	3	3	2,355,075
South Carolina	39	554,808	1,537,797	393,214	1,179,921	4	34	135,663,038
South Dakota	40	34,218	136,206	280,969	460,311	1	4	7,671,503
Tennessee	41	536,867	695,551	1,127,069	618,034	8	22	40,051,309
Utah	43	349,019	363,421	936,241	594,911	2	12	30,632,314
Vermont	44	0	152,158	0	202,125	0	5	4,107,205
Virginia	45	650,969	902,677	462,763	1,142,292	6	8	63,766,212
West Virginia	47	12,997	144,823	20,860	210,870	1	10	26,612,314
Wisconsin	48	759,899	1,280,084	1,132,389	2,207,410	7	31	38,598,328
Hawaii	52	125,611	24,600	59,281	25,194	1	5	7,344,208
Alaska	54	93,256	57,255	86,910	237,194	2	2	24,099,714
<b>Total</b>		<b>20,309,219</b>	<b>29,436,243</b>	<b>26,657,213</b>	<b>34,890,121</b>	<b>188</b>	<b>707</b>	<b>1,738,101,793</b>

Note:  
 Data are total for latest three policy years. See Section IX - D, Exhibit 3 for years used.

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Section IX - M  
 Exhibit 2  
 Page 4

Pricing Example for Class 5040  
 Iron Or Steel: Erection: Erection-Frame Structures

Calculation of Countrywide Relativity

State (1)	State Code (2)	Construction Pitch Factors		Pure Premiums, on MA Level		Total (7)
		Indemnity (3)	Medical (4)	Indemnity (5)	Medical (6)	
Alabama	1	2.387	0.367	3.028	0.609	
Arizona	2	2.387	0.402	3.819	1.143	
Arkansas	3	3.606	0.854	3.896	3.565	
Colorado	5	1.323	0.451	5.720	3.413	
Connecticut	6	0.724	0.290	12.065	5.672	
D.C.	8	1.074	0.656	0.351	0.392	
Florida	9	1.601	0.303	3.356	1.517	
Georgia	10	0.673	0.327	2.153	0.755	
Idaho	11	1.491	0.352	9.696	3.667	
Illinois	12	0.832	0.419	4.927	1.712	
Indiana	13	4.311	0.719	4.436	1.806	
Iowa	14	1.239	0.406	8.999	2.115	
Kansas	15	2.567	0.615	4.148	0.725	
Kentucky	16	1.833	0.613	2.253	1.034	
Louisiana	17	1.654	0.502	1.612	0.582	
Maine	18	1.037	0.437	7.635	22.359	
Maryland	19	1.387	0.515	11.623	4.229	
Michigan	21	2.071	0.835	13.389	4.041	
Minnesota	22	2.058	0.749	6.597	3.337	
Mississippi	23	1.702	0.523	1.433	0.406	
Missouri	24	1.454	0.509	12.517	4.627	
Montana	25	1.291	0.307	6.649	1.997	
Nebraska	26	1.901	0.429	3.156	1.554	
Nevada	27	1.369	0.540	4.943	2.899	
New Hampshire	28	1.327	0.312	13.570	3.751	
New Mexico	30	1.714	0.419	4.812	5.270	
North Carolina	32	1.133	0.453	3.116	1.041	
Oklahoma	35	1.394	0.571	8.160	6.428	
Oregon	36	1.552	0.611	3.044	1.172	
Rhode Island	38	0.845	0.698	19.471	5.208	
South Carolina	39	0.736	0.349	1.135	0.405	
South Dakota	40	2.075	0.392	4.610	3.790	
Tennessee	41	1.989	0.424	6.122	1.846	
Utah	43	3.171	0.479	7.376	2.392	
Vermont	44	1.018	0.416	3.771	2.049	
Virginia	45	2.041	0.414	4.973	1.042	
West Virginia	47	2.991	0.839	1.774	0.731	
Wisconsin	48	1.399	0.348	7.394	3.015	
Hawaii	52	1.613	0.787	3.299	0.905	
Alaska	54	2.229	0.309	1.392	0.416	
(8)	Average of (5), (6) weighted by Payroll from Page 1, respectively			4.143	1.624	5.767
(9)	CW Construction Pure Premium			2.448	1.071	3.518
(10)	CW Relativity = (8) / (9)			1.693	1.517	1.639
(11)	CW Relativity, balanced to unity			1.617	1.434	

Notes:

- (3), (4) = (MA Total Unlimited Losses) / [(State Pure Premium) x (MA Total Exposure)] for Industry Code 2. See Section IX - D, Exhibit 2.
- (5) = 100 x [ State Indemnity Losses / State Payroll ] x (3), where State Indemnity Losses and State Payroll from page 3.
- (6) = 100 x [ State Medical Losses / State Payroll ] x (4), where State Medical Losses and State Payroll from page 3.
- (9) = (8) weighted by MA five year Construction Exposure
- (11): Relativities balanced to unity (weighted by MA exposure) over Construction Industry Group.

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 Exhibit 2  
 Page 5

## Pricing Example for Class 5040 Iron Or Steel: Erection: Erection-Frame Structures

Calculation of Credibility and Balanced Formula Relativity:

- (1) MA Indicated Relativity
- (2) Countrywide Indicated Relativity
- (3) Relativity to Underlying Present Rate

Injury Type	
Indemnity	Medical
5.696	4.180
1.617	1.434
6.586	4.905

Calculation of MA Credibility:

The MA Credibilities are calculated using the formula  $Z=(E / F)^{0.4}$  where E are expected losses for that injury type.

- (4) Adopted Relativity
- (5) Industry Group Pure Premium Underlying Present Rate Factor
- (6) Pure Premium Underlying Present Rate  
= (4) x (5)
- (7) Expected Losses  
= (6) x [(Total Exposure from Exhibit 1)]
- (8) Full Credibility Standards
- (9) MA Credibility  
= Minimum of {100%, [(7) / (8)]<sup>0.4</sup>}

Injury Type	
Indemnity	Medical
6.672	4.948
2.709	1.329
18.074	6.576
18,915,110	6,882,121
27,200,000	6,000,000
86.0%	100.0%

Calculation of Countrywide Credibility

The Countrywide Credibilities are calculated using the formula  $Z=(E / F)^{0.4}$  where E are the countrywide claim counts for that injury type. The countrywide credibility is limited to no more than half of the complement of the credibility assigned to the Massachusetts data.

- (10) Countrywide Lost-Time Claims
- (11) Countrywide Claim Count Standard
- (12) Countrywide Credibility  
= Minimum of {[ (10) / (11) ]<sup>0.4</sup>, 0.5 x [100% - (9)]}
- (13) Credibility to Underlying Present Rate  
= 100% - (9) - (12)
- (14) Formula Relativity  
= [(1) x (9)] + [(2) x (12)] + [(3) x (13)]
- (15) Off Balance Factor

Injury Type	
Indemnity	Medical
895	895
1,150	1,000
7%	0%
7%	0%
5.472	4.180
0.995	0.999

- (16) Balanced Formula Relativity

Injury Type		
Indemnity	Medical	Total
5.503	4.182	5.092

Notes:

- (1): Page 2.
- (2): Page 4.
- (3): Relativity of (5) to Industry Group average, using 5 year Schedule Z exposure as weights.
- (4): Exhibit 1.
- (5): Section IX - E, Exhibit 1.
- (8), (11): Section IX - D, Exhibit 1, Page 1.
- (10): Page 3.
- (15): Factor to balance Formula relativities across industry group to unity using 5 year Schedule Z exposure by injury type.
- (16) = (14) / (15) , Total Balanced Formula Relativity is the weighted average of Partial Relativities using the MA Industry Group Pure Premium as weights.

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Exhibit 2  
Page 6

## Pricing Example for Class 5040 Iron Or Steel: Erection: Erection-Frame Structures

Calculation of Proposed Average Rate and Proposed Manual Rate:

(1) Total Balanced Formula Relativity	5.092
(2) Capped Rate Level Factor	4.762
(3) Proposed Average Capped Rate = (1) x (2)	24.25
(4) Offset for Merit Rating	0.997
(5) Offset for ARAP	1.051
(6) Offset for Construction Classification Premium Adjustment Program	0.967
(7) Provision for Insolvency Fund Assessment Recoupment	0.0026
(8) Proposed Manual Rate = {(3) / [(4) x (5) x (6)]} x {1.000 / [1.000 - (7)]}	24.00
(9) Minimum Premium	500
(10) Loss Constant	50.00
(11) Expected Loss Rate	7.64
(12) D-Ratio	0.14

Notes:

(1): Page 5.

(2): Section IX - H, Exhibit 1. Proposed average uncapped rates are capped by an iterative process using rate levels to determine if the required change is achieved. Class 5040 is in the Construction Industry Group.

(4), (5), (6), (7): Section IX - K. Class 5040 is eligible for the Construction Credit program.

(9) = {[ (8) x 35.0] + (10) + Expense Constant} subject to a maximum of \$500

Where Expense Constant = 159 if (8) x 35 + (10) < 200

= 250 if (8) x 35 + (10) >= 200 and < 1000.

= 338 if (8) x 35 + (10) >= 1000.

(10): No loss constant for Manufacturing classes, \$50 for Construction classes, \$20 for all other classes.

(11) = (3) x Ratio of Experience Rating ELR to Average Rate, from Section X - A, Exhibit 1. Class 5040 is in Hazard Group G.

(12): Section X. See text of this section for an explanation of the calculation of D-Ratios.

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 Exhibit 3  
 Page 1

## Pricing Example for Class 5059 Iron Or Steel: Erection: Frame Struct Not Over 2 Strs In Hgt

### Calculation of MA Indicated Relativity

		(A). Limited Losses (Unit Statistical Plan data, excluding Large Deductibles)							
	Policy Year	Fatal		Permanent	Permanent Partial		Temporary Total		Medical Only
		LD	NLD	Total	LD	NLD	LD	NLD	
Indemnity	2011	0	0	0	0	27,169	72,614	56,140	0
	2012	0	0	0	6,918	175,127	0	17,461	0
	2013	0	0	0	0	441,006	0	116,708	0
	2014	0	0	0	238,976	0	0	80,628	0
	2015	0	0	0	504,720	167,372	0	146,417	0
Medical	2011	0	0	0	0	9,717	25,447	16,671	5,848
	2012	0	0	0	166,531	64,040	0	12,948	6,464
	2013	0	0	0	0	150,781	0	30,249	706
	2014	0	0	0	28,714	0	0	32,431	11,875
	2015	0	0	0	209,058	247,231	0	24,801	8,056

		(B). Primary Conversion Factors (Section IX - B, Exhibit 1, Page 1)							
	Policy Year	Fatal		Permanent	Permanent Partial		Temporary Total		Medical Only
		LD	NLD	Total	LD	NLD	LD	NLD	
Indemnity	2011	0.878	0.881	0.878	0.902	0.906	0.864	0.867	0.000
	2012	0.921	0.928	0.919	0.940	0.947	0.907	0.914	0.000
	2013	1.010	1.004	1.008	1.029	1.023	0.995	0.990	0.000
	2014	1.071	1.060	1.070	1.089	1.078	1.059	1.047	0.000
	2015	1.674	1.494	1.681	1.703	1.521	1.667	1.488	0.000
Medical	2011	0.778	0.789	0.778	0.778	0.789	0.778	0.789	0.641
	2012	0.765	0.779	0.765	0.765	0.779	0.765	0.779	0.673
	2013	0.835	0.847	0.835	0.835	0.847	0.835	0.847	0.702
	2014	0.796	0.798	0.796	0.796	0.798	0.796	0.798	0.774
	2015	0.931	0.927	0.931	0.931	0.927	0.931	0.927	0.828

		(C). Converted Limited Losses							
	Policy Year	Fatal		Permanent	Permanent Partial		Temporary Total		Medical Only
		LD	NLD	Total	LD	NLD	LD	NLD	
Indemnity	2011	0	0	0	0	24,542	62,708	48,118	0
	2012	0	0	0	6,502	165,843	0	15,952	0
	2013	0	0	0	0	450,937	0	115,489	0
	2014	0	0	0	260,296	0	0	84,445	0
	2015	0	0	0	859,782	254,521	0	217,893	0
Medical	2011	0	0	0	0	7,620	19,798	12,996	3,707
	2012	0	0	0	127,436	49,867	0	10,082	4,348
	2013	0	0	0	0	127,729	0	25,624	496
	2014	0	0	0	22,860	0	0	25,892	9,186
	2015	0	0	0	194,538	229,146	0	22,987	6,672

**Notes:**

- (A) : The combined total of Remainder of Industry and AIG losses.
- (B): Separate Primary Conversion Factors are applied to AIG data (factors also from Section IX-B, Exhibit 1, Page 1). The Remainder of Industry factors are displayed here.
- (C): = (A) x (B) with Primary Conversion Factors for AIG (Section IX-B, Exhibit 1, Page 1) applied to AIG's losses instead of the factors displayed in (B).

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 Page 2

Pricing Example for Class 5059  
 Iron Or Steel: Erection: Frame Struct Not Over 2 Strs In Hgt

Calculation of MA Indicated Relativity:

(D). Unadjusted Excess Losses [ (Excess Factor -1.0) x (C) ]									
	Policy Year	Fatal		Permanent Total	Permanent Partial		Temporary Total		Medical Only
		LD	NLD		LD	NLD	LD	NLD	
Indemnity	2011	0	0	0	0	11,924	30,469	23,380	0
	2012	0	0	0	3,159	80,580	0	7,751	0
	2013	0	0	0	0	219,103	0	56,114	0
	2014	0	0	0	126,473	0	0	41,031	0
	2015	0	0	0	417,754	123,668	0	105,871	0
Medical	2011	0	0	0	0	3,703	9,619	6,314	1,801
	2012	0	0	0	61,919	24,230	0	4,899	2,113
	2013	0	0	0	0	62,062	0	12,451	241
	2014	0	0	0	11,107	0	0	12,580	4,463
	2015	0	0	0	94,523	111,338	0	11,169	3,242

(E). Adjusted Excess Losses									
	Policy Year	Fatal		Permanent Total	Permanent Partial		Temporary Total		Medical Only
		LD	NLD		LD	NLD	LD	NLD	
Indemnity	2011	0	0	0	0	8,347	21,328	16,366	0
	2012	0	0	0	2,211	56,406	0	5,426	0
	2013	0	0	0	0	153,372	0	39,280	0
	2014	0	0	0	88,531	0	0	28,721	0
	2015	0	0	0	292,428	86,567	0	74,109	0
Medical	2011	0	0	0	0	7,280	18,760	13,328	1,801
	2012	0	0	0	62,867	48,404	0	7,224	2,113
	2013	0	0	0	0	127,793	0	29,285	241
	2014	0	0	0	49,049	0	0	24,890	4,463
	2015	0	0	0	219,849	148,439	0	42,930	3,242

(F). Secondary Conversion Factors					
	Fatal	Permanent Total	Permanent Partial	Temporary Total	Medical
Indemnity	0.963	0.903	1.220	1.231	0.000
Medical	1.185	0.904	1.221	1.232	1.185

(G). Converted Unlimited Losses									
	Policy Year	Fatal		Permanent Total	Permanent Partial		Temporary Total		Medical Only
		LD	NLD		LD	NLD	LD	NLD	
Indemnity	2011	0	0	0	0	40,140	103,452	79,383	0
	2012	0	0	0	10,635	271,250	0	26,317	0
	2013	0	0	0	0	737,547	0	190,528	0
	2014	0	0	0	425,736	0	0	139,313	0
	2015	0	0	0	1,406,247	416,291	0	359,468	0
Medical	2011	0	0	0	0	18,199	47,501	32,429	6,527
	2012	0	0	0	232,429	120,025	0	21,321	7,656
	2013	0	0	0	0	312,085	0	67,645	873
	2014	0	0	0	87,827	0	0	62,560	16,174
	2015	0	0	0	506,118	461,167	0	81,206	11,748

(H). Total					
Policy Year	Exposure	Indemnity		Medical	
		LD	NLD	LD	NLD
2011	73,350	103,452	119,523	47,501	57,155
2012	66,671	10,635	297,567	232,429	149,001
2013	65,252	0	928,075	0	380,603
2014	67,619	425,736	139,313	87,827	78,733
2015	103,546	1,406,247	775,759	506,118	554,121
<b>Total</b>	<b>376,438</b>	<b>1,946,070</b>	<b>2,260,237</b>	<b>873,875</b>	<b>1,219,613</b>

	Indemnity	Medical
(I). Indicated Pure Premium	11.174	5.561
(J). Construction Industry Group Pure Premium	2.623	1.182
(K). MA Indicated Relativity	4.260	4.707

Notes:

(E): Indemnity Adjusted Excess Losses = Indemnity Unadjusted Excess Losses x 0.7

Medical Adjusted Excess Losses = Medical Unadjusted Excess Losses + 0.3 x Indemnity Unadjusted Excess Losses

(F): Section IX-B, Exhibit 1, Page 3.

(G) = [ (C) + (E) ] x (F)

(I) = Total Losses / Total Exposure

(J): Industry Group Pure Premium from Section IX - C, Exhibit 1, Page 2.

(K) = (I) / (J)

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Pricing Example for Class 5059  
 Iron Or Steel: Erection: Frame Struct Not Over 2 Strs In Hgt

Calculation of Countrywide Relativity

State (1)	State Code (2)	Losses				Lost-Time Claims		Payroll (9)
		Indemnity		Medical		Likely (7)	Not-Likely (8)	
		Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)			
Alabama	1	181,580	98,354	995,929	479,697	1	7	8,704,202
Arizona	2	203,748	93,996	2,137,288	544,552	4	9	11,594,465
Arkansas	3	596,677	432,588	637,318	172,808	4	9	29,531,213
Colorado	5	233,225	1,626,291	309,383	350,032	3	11	7,886,523
Connecticut	6	776,249	231,988	837,909	206,594	3	8	6,710,645
D.C.	8	10,384	412,655	14,078	215,214	1	1	3,803,079
Florida	9	20,535	381,241	53,407	1,171,523	1	15	4,497,097
Georgia	10	47,534	914,628	48,566	739,164	1	8	8,728,807
Idaho	11	0	128,519	0	604,058	0	10	5,117,457
Illinois	12	1,684,076	1,501,535	863,363	1,285,135	6	18	17,835,903
Indiana	13	27,948	195,099	150,621	548,966	1	7	18,681,345
Iowa	14	33,132	470,648	33,960	592,255	1	17	10,587,431
Kansas	15	5,628	53,981	21,844	190,512	1	9	4,656,171
Kentucky	16	0	146,933	0	176,135	0	3	13,500,805
Louisiana	17	667,764	332,390	2,279,442	489,935	6	12	33,314,691
Maine	18	0	1,193	0	24,452	0	1	1,007,002
Maryland	19	817,236	76,328	965,243	65,296	2	5	4,271,027
Michigan	21	57,732	591,746	44,053	765,844	2	14	9,971,948
Minnesota	22	0	29,039	0	138,603	0	10	3,805,378
Mississippi	23	437,964	261,429	1,635,052	430,640	3	8	11,740,448
Missouri	24	384,195	652,743	1,109,001	901,854	5	25	5,962,568
Montana	25	15,063	21,754	14,719	222,499	1	2	2,322,824
Nebraska	26	286,693	527,166	590,885	972,551	1	9	5,332,051
Nevada	27	0	922	0	18,999	0	1	2,648,547
New Hampshire	28	0	87,831	0	49,385	0	2	1,354,601
New Mexico	30	227,418	12,039	136,621	16,333	3	1	2,354,095
North Carolina	32	92,439	1,046,099	73,249	1,057,152	3	14	16,046,325
Oklahoma	35	112,213	47,976	124,548	60,841	3	5	2,755,208
Oregon	36	0	220,370	0	351,201	0	14	12,726,215
Rhode Island	38	0	398	0	1,002	0	1	561,578
South Carolina	39	385,234	368,301	497,133	299,682	2	10	11,753,540
South Dakota	40	122,677	66,345	186,009	261,990	2	8	4,134,587
Tennessee	41	285,232	83,391	461,142	184,973	3	6	9,890,950
Utah	43	31,719	274,655	38,840	843,270	1	11	9,042,549
Vermont	44	126,199	0	123,655	0	1	0	832,320
Virginia	45	606,929	213,413	1,460,876	1,034,127	2	7	12,912,061
West Virginia	47	0	0	0	13,040	0	0	2,971,224
Wisconsin	48	0	287,499	0	622,236	0	10	12,316,695
Hawaii	52	279,861	542	501,556	11,251	2	2	9,119,246
Alaska	54	80,885	23,327	448,500	57,194	1	2	2,272,150
<b>Total</b>		<b>8,838,169</b>	<b>11,915,352</b>	<b>16,794,190</b>	<b>16,170,995</b>	<b>70</b>	<b>312</b>	<b>343,254,971</b>

Note:  
 Data are total for latest three policy years. See Section IX - D, Exhibit 3 for years used.

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Pricing Example for Class 5059  
 Iron Or Steel: Erection: Frame Struct Not Over 2 Strs In Hgt

Calculation of Countrywide Relativity

State (1)	State Code (2)	Construction Pitch Factors		Pure Premiums, on MA Level		Total (7)
		Indemnity (3)	Medical (4)	Indemnity (5)	Medical (6)	
Alabama	1	2.387	0.367	7.676	6.215	
Arizona	2	2.387	0.402	6.130	9.294	
Arkansas	3	3.606	0.854	12.568	2.342	
Colorado	5	1.323	0.451	31.203	3.771	
Connecticut	6	0.724	0.290	10.872	4.519	
D.C.	8	1.074	0.656	11.951	3.958	
Florida	9	1.601	0.303	14.306	8.250	
Georgia	10	0.673	0.327	7.415	2.949	
Idaho	11	1.491	0.352	3.743	4.153	
Illinois	12	0.832	0.419	14.855	5.046	
Indiana	13	4.311	0.719	5.147	2.693	
Iowa	14	1.239	0.406	5.898	2.399	
Kansas	15	2.567	0.615	3.287	2.805	
Kentucky	16	1.833	0.613	1.995	0.800	
Louisiana	17	1.654	0.502	4.966	4.173	
Maine	18	1.037	0.437	0.123	1.060	
Maryland	19	1.387	0.515	29.013	12.419	
Michigan	21	2.071	0.835	13.489	6.780	
Minnesota	22	2.058	0.749	1.571	2.728	
Mississippi	23	1.702	0.523	10.141	9.205	
Missouri	24	1.454	0.509	25.292	17.180	
Montana	25	1.291	0.307	2.046	3.137	
Nebraska	26	1.901	0.429	29.019	12.569	
Nevada	27	1.369	0.540	0.048	0.387	
New Hampshire	28	1.327	0.312	8.602	1.138	
New Mexico	30	1.714	0.419	17.438	2.723	
North Carolina	32	1.133	0.453	8.038	3.189	
Oklahoma	35	1.394	0.571	8.105	3.839	
Oregon	36	1.552	0.611	2.687	1.686	
Rhode Island	38	0.845	0.698	0.060	0.125	
South Carolina	39	0.736	0.349	4.719	2.366	
South Dakota	40	2.075	0.392	9.486	4.250	
Tennessee	41	1.989	0.424	7.414	2.768	
Utah	43	3.171	0.479	10.745	4.668	
Vermont	44	1.018	0.416	15.435	6.186	
Virginia	45	2.041	0.414	12.969	8.000	
West Virginia	47	2.991	0.839	0.000	0.368	
Wisconsin	48	1.399	0.348	3.266	1.760	
Hawaii	52	1.613	0.787	4.960	4.425	
Alaska	54	2.229	0.309	10.223	6.881	
(8)	Average of (5), (6) weighted by Payroll from Page 1, respectively			9.146	4.458	13.604
(9)	CW Construction Pure Premium			2.448	1.071	3.518
(10)	CW Relativity = (8) / (9)			3.737	4.164	3.867
(11)	CW Relativity, balanced to unity			3.570	3.937	

**Notes:**

- (3), (4) = (MA Total Unlimited Losses) / [(State Pure Premium) x (MA Total Exposure)] for Industry Code 2. See Section IX - D, Exhibit 2.
- (5) = 100 x [ State Indemnity Losses / State Payroll ] x (3), where State Indemnity Losses and State Payroll from page 3.
- (6) = 100 x [ State Medical Losses / State Payroll ] x (4), where State Medical Losses and State Payroll from page 3.
- (9) = (8) weighted by MA five year Construction Exposure
- (11): Relativities balanced to unity (weighted by MA exposure) over Construction Industry Group.



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## Pricing Example for Class 5059 Iron Or Steel: Erection: Frame Struct Not Over 2 Strs In Hgt

Calculation of Credibility and Balanced Formula Relativity:

- (1) MA Indicated Relativity
- (2) Countrywide Indicated Relativity
- (3) Relativity to Underlying Present Rate

Injury Type	
Indemnity	Medical
4.260	4.707
3.570	3.937
2.141	2.063

Calculation of MA Credibility:

The MA Credibilities are calculated using the formula  $Z=(E / F)^{0.4}$  where E are expected losses for that injury type.

- (4) Adopted Relativity
- (5) Industry Group Pure Premium Underlying Present Rate Factor
- (6) Pure Premium Underlying Present Rate  
= (4) x (5)
- (7) Expected Losses  
= (6) x [(Total Exposure from Exhibit 1)]
- (8) Full Credibility Standards
- (9) MA Credibility  
= Minimum of {100%, [(7) / (8)]<sup>0.4</sup>}

Injury Type	
Indemnity	Medical
2.168	2.081
2.709	1.329
5.874	2.766
2,211,351	1,041,152
27,200,000	6,000,000
37.0%	50.0%

Calculation of Countrywide Credibility

The Countrywide Credibilities are calculated using the formula  $Z=(E / F)^{0.4}$  where E are the countrywide claim counts for that injury type. The countrywide credibility is limited to no more than half of the complement of the credibility assigned to the Massachusetts data.

- (10) Countrywide Lost-Time Claims
- (11) Countrywide Claim Count Standard
- (12) Countrywide Credibility  
= Minimum of {[ (10) / (11) ]<sup>0.4</sup>, 0.5 x [100% - (9)]}
- (13) Credibility to Underlying Present Rate  
= 100% - (9) - (12)
- (14) Formula Relativity  
= [(1) x (9)] + [(2) x (12)] + [(3) x (13)]
- (15) Off Balance Factor

Injury Type	
Indemnity	Medical
382	382
1,150	1,000
32%	25%
31%	25%
3.382	3.853
0.994	0.999

- (16) Balanced Formula Relativity

Injury Type		
Indemnity	Medical	Total
3.401	3.857	3.543

Notes:

- (1): Page 2.
- (2): Page 4.
- (3): Relativity of (5) to Industry Group average, using 5 year Schedule Z exposure as weights.
- (4): Exhibit 1.
- (5): Section IX - E, Exhibit 1.
- (8), (11): Section IX - D, Exhibit 1, Page 1.
- (10): Page 3.
- (15): Factor to balance Formula relativities across industry group to unity using 5 year Schedule Z exposure by injury type.
- (16) = (14) / (15) , Total Balanced Formula Relativity is the weighted average of Partial Relativities using the MA Industry Group Pure Premium as weights.

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## Pricing Example for Class 5059 Iron Or Steel: Erection: Frame Struct Not Over 2 Strs In Hgt

Calculation of Proposed Average Rate and Proposed Manual Rate:

(1) Total Balanced Formula Relativity	3.543
(2) Capped Rate Level Factor	4.762
(3) Proposed Average Capped Rate = (1) x (2)	16.871
(4) Offset for Merit Rating	0.997
(5) Offset for ARAP	1.051
(6) Offset for Construction Classification Premium Adjustment Program	0.967
(7) Provision for Insolvency Fund Assessment Recoupment	0.0026
(8) Proposed Manual Rate = {(3) / [(4) x (5) x (6)]} x {1.000 / [1.000 - (7)]}	16.69
(9) Minimum Premium	500
(10) Loss Constant	50.00
(11) Expected Loss Rate	5.31
(12) D-Ratio	0.16

Notes:

(1): Page 5.

(2): Section IX - H, Exhibit 1. Proposed average uncapped rates are capped by an iterative process using rate levels to determine if the required change is achieved. Class 5059 is in the Construction Industry Group.

(4), (5), (6), (7): Section IX - K. Class 5059 is eligible for the Construction Credit program.

(9) = {[ (8) x 35.0] + (10) + Expense Constant} subject to a maximum of \$500

Where Expense Constant = 159 if (8) x 35 + (10) < 200

= 250 if (8) x 35 + (10) >= 200 and < 1000.

= 338 if (8) x 35 + (10) >= 1000.

(10): No loss constant for Manufacturing classes, \$50 for Construction classes, \$20 for all other classes.

(11) = (3) x Ratio of Experience Rating ELR to Average Rate, from Section X - A, Exhibit 1. Class 5059 is in Hazard Group G.

(12): Section X. See text of this section for an explanation of the calculation of D-Ratios.

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Section IX - Classification Pricing  
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 Exhibit 4  
 Page 1

## Pricing Example for Class 5538 Sheet Metal Work-Shop & Outside-Noc & Drivers

Calculation of MA Indicated Relativity

		(A). Limited Losses (Unit Statistical Plan data, excluding Large Deductibles)							
Policy Year	Fatal		Permanent Total	Permanent Partial		Temporary Total		Medical Only	
	LD	NLD		LD	NLD	LD	NLD		
Indemnity	2011	0	0	71,253	565,580	673,063	199,858	848,246	
	2012	0	499,636	383,779	33,410	1,720,361	149,720	293,406	
	2013	0	0	352,565	840,527	512,176	270,886	536,667	
	2014	414,411	0	0	721,677	1,281,321	1,023,661	747,621	
	2015	0	0	0	257,970	532,845	266,257	889,675	
Medical	2011	0	0	20,396	113,384	173,008	77,478	652,630	131,854
	2012	0	364	116,221	13,105	485,065	41,804	227,896	185,784
	2013	0	0	147,435	253,854	260,206	110,170	315,081	140,575
	2014	0	0	0	346,880	617,806	469,201	664,727	163,893
	2015	0	0	0	28,145	258,147	86,247	722,687	186,911

		(B). Primary Conversion Factors (Section IX - B, Exhibit 1, Page 1)							
Policy Year	Fatal		Permanent Total	Permanent Partial		Temporary Total		Medical Only	
	LD	NLD		LD	NLD	LD	NLD		
Indemnity	2011	0.878	0.881	0.878	0.902	0.906	0.864	0.867	0.000
	2012	0.921	0.928	0.919	0.940	0.947	0.907	0.914	0.000
	2013	1.010	1.004	1.008	1.029	1.023	0.995	0.990	0.000
	2014	1.071	1.060	1.070	1.089	1.078	1.059	1.047	0.000
	2015	1.674	1.494	1.681	1.703	1.521	1.667	1.488	0.000
Medical	2011	0.778	0.789	0.778	0.778	0.789	0.778	0.789	0.641
	2012	0.765	0.779	0.765	0.765	0.779	0.765	0.779	0.673
	2013	0.835	0.847	0.835	0.835	0.847	0.835	0.847	0.702
	2014	0.796	0.798	0.796	0.796	0.798	0.796	0.798	0.774
	2015	0.931	0.927	0.931	0.931	0.927	0.931	0.927	0.828

		(C). Converted Limited Losses							
Policy Year	Fatal		Permanent Total	Permanent Partial		Temporary Total		Medical Only	
	LD	NLD		LD	NLD	LD	NLD		
Indemnity	2011	0	0	62,580	510,401	609,553	172,593	735,096	0
	2012	0	463,417	359,684	31,402	1,629,184	135,755	268,051	0
	2013	0	0	355,377	864,537	523,099	269,641	531,021	0
	2014	443,973	0	0	817,803	1,396,778	1,083,728	783,941	0
	2015	0	0	0	439,447	810,292	443,864	1,332,727	0
Medical	2011	0	0	15,868	87,198	136,425	60,278	514,388	84,407
	2012	0	283	78,833	10,028	377,100	31,990	177,157	124,830
	2013	0	0	123,059	211,884	219,629	91,956	266,771	98,506
	2014	0	0	0	275,053	490,836	373,539	530,514	126,519
	2015	0	0	0	26,190	239,263	80,257	670,585	154,961

Notes:

- (A) : The combined total of Remainder of Industry and AIG losses.
- (B): Separate Primary Conversion Factors are applied to AIG data (factors also from Section IX-B, Exhibit 1, Page 1). The Remainder of Industry factors are displayed here.
- (C): = (A) x (B) with Primary Conversion Factors for AIG (Section IX-B, Exhibit 1, Page 1) applied to AIG's losses instead of the factors displayed in (B).

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Page 2

## Pricing Example for Class 5538 Sheet Metal Work-Shop & Outside-Noc & Drivers

Calculation of MA Indicated Relativity:

(D). Unadjusted Excess Losses [ (Excess Factor -1.0) x (C) ]									
	Policy Year	Fatal		Permanent Total	Permanent Partial		Temporary Total		Medical Only
		LD	NLD		LD	NLD	LD	NLD	
Indemnity	2011	0	0	14,394	117,399	140,205	39,699	169,081	0
	2012	0	106,592	82,732	7,223	374,732	31,225	61,655	0
	2013	0	0	81,741	198,854	120,319	62,021	122,141	0
	2014	102,119	0	0	188,105	321,276	249,271	180,316	0
	2015	0	0	0	101,078	186,377	102,094	306,544	0
Medical	2011	0	0	3,650	20,057	31,379	13,865	118,316	19,415
	2012	0	65	18,132	2,307	86,738	7,358	40,748	28,712
	2013	0	0	28,305	48,736	50,517	21,151	61,361	22,658
	2014	0	0	0	63,266	112,898	85,919	122,025	29,101
	2015	0	0	0	6,024	55,033	18,460	154,243	35,643

(E). Adjusted Excess Losses									
	Policy Year	Fatal		Permanent Total	Permanent Partial		Temporary Total		Medical Only
		LD	NLD		LD	NLD	LD	NLD	
Indemnity	2011	0	0	10,076	82,179	98,143	27,789	118,357	0
	2012	0	74,614	57,912	5,056	262,313	21,858	43,159	0
	2013	0	0	57,219	139,198	84,223	43,415	85,499	0
	2014	71,483	0	0	131,673	224,893	174,490	126,221	0
	2015	0	0	0	70,755	130,464	71,466	214,581	0
Medical	2011	0	0	7,968	55,276	73,441	25,774	169,040	19,415
	2012	0	32,043	42,952	4,473	199,157	16,726	59,245	28,712
	2013	0	0	52,828	108,392	86,613	39,757	98,003	22,658
	2014	30,636	0	0	119,697	209,281	160,700	176,120	29,101
	2015	0	0	0	36,348	110,947	49,088	246,206	35,643

(F). Secondary Conversion Factors					
	Fatal	Permanent Total	Permanent Partial	Temporary Total	Medical
Indemnity	0.963	0.903	1.220	1.231	0.000
Medical	1.185	0.904	1.221	1.232	1.185

(G). Converted Unlimited Losses									
	Policy Year	Fatal		Permanent Total	Permanent Partial		Temporary Total		Medical Only
		LD	NLD		LD	NLD	LD	NLD	
Indemnity	2011	0	0	65,631	723,231	863,728	246,679	1,050,640	0
	2012	0	517,960	377,220	44,496	2,308,530	194,029	383,113	0
	2013	0	0	372,703	1,225,037	741,223	385,386	758,964	0
	2014	496,227	0	0	1,158,816	1,979,215	1,548,925	1,120,452	0
	2015	0	0	0	622,691	1,148,173	634,394	1,904,807	0
Medical	2011	0	0	21,547	174,013	256,322	106,011	841,941	123,029
	2012	0	38,306	110,089	17,712	703,819	60,015	291,233	181,948
	2013	0	0	158,996	391,173	374,033	162,262	449,378	143,579
	2014	36,303	0	0	482,133	855,096	658,149	870,528	184,410
	2015	0	0	0	76,381	427,733	159,345	1,129,430	225,865

(H). Total (Remainder of Industry + Company A)					
Policy Year	Exposure	Indemnity		Medical	
		LD	NLD	LD	NLD
2011	1,519,463	1,035,541	1,914,368	301,571	1,221,291
2012	1,797,265	615,744	3,209,604	187,816	1,215,305
2013	1,969,517	1,983,126	1,500,187	712,431	966,990
2014	2,229,874	3,203,967	3,099,667	1,176,586	1,910,035
2015	2,512,692	1,257,085	3,052,980	235,727	1,783,028
<b>Total</b>	<b>10,028,811</b>	<b>8,095,464</b>	<b>12,776,806</b>	<b>2,614,131</b>	<b>7,096,650</b>

	Indemnity	Medical
(I). Indicated Pure Premium	2.081	0.968
(J). Construction Industry Group Pure Premium	2.623	1.182
(K). MA Indicated Relativity	0.793	0.820

Notes:

(E): Indemnity Adjusted Excess Losses = Indemnity Unadjusted Excess Losses x 0.7

Medical Adjusted Excess Losses = Medical Unadjusted Excess Losses + 0.3 x Indemnity Unadjusted Excess Losses

(F): Section IX-B, Exhibit 1, Page 3.

(G) = [ (C) + (E) ] x (F)

(I) = Total Losses / Total Exposure

(J): Industry Group Pure Premium from Section IX - C, Exhibit 1, Page 2.

(K) = (I) / (J)

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Section IX - Classification Pricing  
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Section IX - M  
 Exhibit 4  
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Pricing Example for Class 5538  
 Sheet Metal Work-Shop & Outside-Noc & Drivers

Calculation of Countrywide Relativity

State (1)	State Code (2)	Losses				Lost-Time Claims		Payroll (9)
		Indemnity		Medical		Likely (7)	Not-Likely (8)	
		Likely (3)	Not-Likely (4)	Likely (5)	Not-Likely (6)			
Alabama	1	0	0	0	0	0	0	0
Arizona	2	0	0	0	0	0	0	0
Arkansas	3	0	0	0	0	0	0	0
Colorado	5	0	0	0	0	0	0	0
Connecticut	6	0	0	0	0	0	0	0
D.C.	8	0	0	0	0	0	0	0
Florida	9	0	0	0	0	0	0	0
Georgia	10	0	0	0	0	0	0	0
Idaho	11	0	0	0	0	0	0	0
Illinois	12	0	0	0	0	0	0	0
Indiana	13	0	0	0	0	0	0	0
Iowa	14	0	0	0	0	0	0	0
Kansas	15	0	0	0	0	0	0	0
Kentucky	16	0	0	0	0	0	0	0
Louisiana	17	0	0	0	0	0	0	0
Maine	18	0	0	0	0	0	0	0
Maryland	19	0	0	0	0	0	0	0
Michigan	21	1,147,958	2,819,706	1,332,976	3,301,226	19	119	397,062,692
Minnesota	22	2,152,380	1,669,811	1,723,923	2,389,713	29	125	253,526,165
Mississippi	23	0	0	0	0	0	0	0
Missouri	24	0	0	0	0	0	0	0
Montana	25	0	0	0	0	0	0	0
Nebraska	26	0	0	0	0	0	0	0
Nevada	27	0	0	0	0	0	0	0
New Hampshire	28	0	0	0	0	0	0	0
New Mexico	30	0	0	0	0	0	0	0
North Carolina	32	0	0	0	0	0	0	0
Oklahoma	35	0	0	0	0	0	0	0
Oregon	36	0	0	0	0	0	0	0
Rhode Island	38	0	0	0	0	0	0	0
South Carolina	39	0	0	0	0	0	0	0
South Dakota	40	0	0	0	0	0	0	0
Tennessee	41	0	0	0	0	0	0	0
Utah	43	0	0	0	0	0	0	0
Vermont	44	0	0	0	0	0	0	0
Virginia	45	0	0	0	0	0	0	0
West Virginia	47	0	0	0	0	0	0	0
Wisconsin	48	0	0	0	0	0	0	0
Hawaii	52	0	0	0	0	0	0	0
Alaska	54	0	0	0	0	0	0	0
<b>Total</b>		<b>3,300,338</b>	<b>4,489,517</b>	<b>3,056,899</b>	<b>5,690,939</b>	<b>48</b>	<b>244</b>	<b>650,588,857</b>

Note:  
 Data are total for latest three policy years. See Section IX - D, Exhibit 3 for years used.

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 Exhibit 4  
 Page 4

Pricing Example for Class 5538  
 Sheet Metal Work-Shop & Outside-Noc & Drivers

Calculation of Countrywide Relativity

State (1)	State Code (2)	Construction Pitch Factors		Pure Premiums, on MA Level		Total (7)
		Indemnity (3)	Medical (4)	Indemnity (5)	Medical (6)	
Alabama	1	2.387	0.367	0.000	0.000	
Arizona	2	2.387	0.402	0.000	0.000	
Arkansas	3	3.606	0.854	0.000	0.000	
Colorado	5	1.323	0.451	0.000	0.000	
Connecticut	6	0.724	0.290	0.000	0.000	
D.C.	8	1.074	0.656	0.000	0.000	
Florida	9	1.601	0.303	0.000	0.000	
Georgia	10	0.673	0.327	0.000	0.000	
Idaho	11	1.491	0.352	0.000	0.000	
Illinois	12	0.832	0.419	0.000	0.000	
Indiana	13	4.311	0.719	0.000	0.000	
Iowa	14	1.239	0.406	0.000	0.000	
Kansas	15	2.567	0.615	0.000	0.000	
Kentucky	16	1.833	0.613	0.000	0.000	
Louisiana	17	1.654	0.502	0.000	0.000	
Maine	18	1.037	0.437	0.000	0.000	
Maryland	19	1.387	0.515	0.000	0.000	
Michigan	21	2.071	0.835	2.070	0.974	
Minnesota	22	2.058	0.749	3.103	1.215	
Mississippi	23	1.702	0.523	0.000	0.000	
Missouri	24	1.454	0.509	0.000	0.000	
Montana	25	1.291	0.307	0.000	0.000	
Nebraska	26	1.901	0.429	0.000	0.000	
Nevada	27	1.369	0.540	0.000	0.000	
New Hampshire	28	1.327	0.312	0.000	0.000	
New Mexico	30	1.714	0.419	0.000	0.000	
North Carolina	32	1.133	0.453	0.000	0.000	
Oklahoma	35	1.394	0.571	0.000	0.000	
Oregon	36	1.552	0.611	0.000	0.000	
Rhode Island	38	0.845	0.698	0.000	0.000	
South Carolina	39	0.736	0.349	0.000	0.000	
South Dakota	40	2.075	0.392	0.000	0.000	
Tennessee	41	1.989	0.424	0.000	0.000	
Utah	43	3.171	0.479	0.000	0.000	
Vermont	44	1.018	0.416	0.000	0.000	
Virginia	45	2.041	0.414	0.000	0.000	
West Virginia	47	2.991	0.839	0.000	0.000	
Wisconsin	48	1.399	0.348	0.000	0.000	
Hawaii	52	1.613	0.787	0.000	0.000	
Alaska	54	2.229	0.309	0.000	0.000	
(8)	Average of (5), (6) weighted by Payroll from Page 1, respectively			2.472	1.068	3.541
(9)	CW Construction Pure Premium			2.448	1.071	3.518
(10)	CW Relativity = (8) / (9)			1.010	0.998	1.006
(11)	CW Relativity, balanced to unity			0.965	0.943	

**Notes:**

- (3), (4) = (MA Total Unlimited Losses) / [(State Pure Premium) x (MA Total Exposure)] for Industry Code 2. See Section IX - D, Exhibit 2.
- (5) = 100 x [ State Indemnity Losses / State Payroll ] x (3), where State Indemnity Losses and State Payroll from page 3.
- (6) = 100 x [ State Medical Losses / State Payroll ] x (4), where State Medical Losses and State Payroll from page 3.
- (9) = (8) weighted by MA five year Construction Exposure
- (11): Relativities balanced to unity (weighted by MA exposure) over Construction Industry Group.

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Section IX - Classification Pricing  
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Section IX - M  
 Exhibit 4  
 Page 5

## Pricing Example for Class 5538 Sheet Metal Work-Shop & Outside-Noc & Drivers

Calculation of Credibility and Balanced Formula Relativity:

- (1) MA Indicated Relativity
- (2) Countrywide Indicated Relativity
- (3) Relativity to Underlying Present Rate

Injury Type	
Indemnity	Medical
0.793	0.820
0.965	0.943
0.771	0.760

Calculation of MA Credibility:

The MA Credibilities are calculated using the formula  $Z=(E / F)^{0.4}$  where E are expected losses for that injury type.

- (4) Adopted Relativity
- (5) Industry Group Pure Premium Underlying Present Rate Factor
- (6) Pure Premium Underlying Present Rate  
 = (4) x (5)
- (7) Expected Losses  
 = (6) x [(Total Exposure from Exhibit 1)]
- (8) Full Credibility Standards
- (9) MA Credibility  
 = Minimum of {100%, [(7) / (8)]<sup>0.4</sup>}

Injury Type	
Indemnity	Medical
0.781	0.767
2.709	1.329
2.115	1.019
21,214,895	10,223,311
27,200,000	6,000,000
91.0%	100.0%

Calculation of Countrywide Credibility

The Countrywide Credibilities are calculated using the formula  $Z=(E / F)^{0.4}$  where E are the countrywide claim counts for that injury type. The countrywide credibility is limited to no more than half of the complement of the credibility assigned to the Massachusetts data.

- (10) Countrywide Lost-Time Claims
- (11) Countrywide Claim Count Standard
- (12) Countrywide Credibility  
 = Minimum of {[ (10) / (11) ]<sup>0.4</sup>, 0.5 x [100% - (9)]}
- (13) Credibility to Underlying Present Rate  
 = 100% - (9) - (12)
- (14) Formula Relativity  
 = [(1) x (9)] + [(2) x (12)] + [(3) x (13)]
- (15) Off Balance Factor

Injury Type	
Indemnity	Medical
292	292
1,150	1,000
5%	0%
4%	0%
0.801	0.820
0.995	0.999

- (16) Balanced Formula Relativity

Injury Type		
Indemnity	Medical	Total
0.805	0.820	0.810

Notes:

- (1): Page 2.
- (2): Page 4.
- (3): Relativity of (5) to Industry Group average, using 5 year Schedule Z exposure as weights.
- (4): Section IX - F, Exhibit 4.
- (5): Section IX - E, Exhibit 1.
- (8), (11): Section IX - D, Exhibit 1, Page 1.
- (10): Page 5.
- (15): Factor to balance Formula relativities across industry group to unity using 5 year Schedule Z exposure by injury type.
- (16) = (14) / (15) , Total Balanced Formula Relativity is the weighted average of Partial Relativities using the MA Industry Group Pure Premium as weights.

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Section IX - Classification Pricing  
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Exhibit 4  
Page 6

## Pricing Example for Class 5538 Sheet Metal Work-Shop & Outside-Noc & Drivers

Calculation of Proposed Average Rate and Proposed Manual Rate:

(1) Total Balanced Formula Relativity	0.810
(2) Capped Rate Level Factor	4.762
(3) Proposed Average Capped Rate = (1) x (2)	3.86
(4) Offset for Merit Rating	0.997
(5) Offset for ARAP	1.051
(6) Offset for Construction Classification Premium Adjustment Program	0.967
(7) Provision for Insolvency Fund Assessment Recoupment	0.0026
(8) Proposed Manual Rate = {(3) / [(4) x (5) x (6)]} x {1.000 / [1.000 - (7)]}	3.82
(9) Minimum Premium	343
(10) Loss Constant	50.00
(11) Expected Loss Rate	1.65
(12) D-Ratio	0.15

### Notes:

- (1): Page 5.
- (2): Section IX - H, Exhibit 1. Proposed average uncapped rates are capped by an iterative process using rate levels to determine if the required change is achieved. Class 5538 is in the Construction Industry Group.
- (4), (5), (6), (7): Section IX - K. Class 5538 is eligible for the Construction Credit program.
- (9) = {[ (8) x 35.0] + (10) + Expense Constant} subject to a maximum of \$500  
Where Expense Constant = 159 if (8) x 35 + (10) < 200  
= 250 if (8) x 35 + (10) >= 200 and < 1000.  
= 338 if (8) x 35 + (10) >= 1000.
- (10): No loss constant for Manufacturing classes, \$50 for Construction classes, \$20 for all other classes.
- (11) = (3) x Ratio of Experience Rating ELR to Average Rate, from Section X - A, Exhibit 1. Class 5538 is in Hazard Group E.
- (12): Section X. See text of this section for an explanation of the calculation of D-Ratios.



Calculation of ELR Factors

Unit Report / Policy Effective Dates (1)	Hazard Group (2)	Permissible Loss Ratio (3)	Exp Rating LER by Hazard Group (4)	Law Factor (5)	Loss Trend / Payroll Trend (6)	Loss Development to 10th Report (7)	Loss Development from 10th Report to Ult (8)	Investment Income Offset (9)	Ratio of Exp Rating ELR to Average Rate (10)
1st Report 7/1/2016 to 6/30/2017	A	0.646	0.025	1.011	0.946	1.405	1.051	1.027	0.435
	B	0.646	0.060	1.011	0.946	1.406	1.054	1.021	0.420
	C	0.646	0.079	1.011	0.946	1.418	1.059	1.023	0.405
	D	0.646	0.077	1.011	0.946	1.436	1.057	1.026	0.400
	E	0.646	0.173	1.011	0.946	1.429	1.063	0.991	0.371
	F	0.646	0.189	1.011	0.946	1.441	1.064	0.993	0.360
	G	0.646	0.357	1.011	0.946	1.400	1.067	0.974	0.299
2nd Report 7/1/2015 to 6/30/2016	A	0.646	0.033	1.017	0.920	1.156	1.051	1.027	0.536
	B	0.646	0.079	1.017	0.920	1.156	1.054	1.021	0.512
	C	0.646	0.104	1.017	0.920	1.167	1.059	1.023	0.490
	D	0.646	0.102	1.017	0.920	1.181	1.057	1.026	0.485
	E	0.646	0.228	1.017	0.920	1.176	1.063	0.991	0.431
	F	0.646	0.248	1.017	0.920	1.186	1.064	0.993	0.415
	G	0.646	0.468	1.017	0.920	1.152	1.067	0.974	0.307
3rd Report 7/1/2014 to 6/30/2015	A	0.646	0.033	1.023	0.895	1.062	1.051	1.027	0.596
	B	0.646	0.079	1.023	0.895	1.062	1.054	1.021	0.569
	C	0.646	0.105	1.023	0.895	1.072	1.059	1.023	0.545
	D	0.646	0.102	1.023	0.895	1.085	1.057	1.026	0.539
	E	0.646	0.229	1.023	0.895	1.080	1.063	0.991	0.479
	F	0.646	0.250	1.023	0.895	1.089	1.064	0.993	0.460
	G	0.646	0.471	1.023	0.895	1.059	1.067	0.974	0.339
1st - 3rd Report Average	A								0.522
	B								0.500
	C								0.480
	D								0.475
	E								0.427
	F								0.412
	G								0.315

Notes:

- (1): Unit Stat Reports used to experience rate a policy taking effect during the prospective effective period.
- (3): Section VI-J, Exhibit 1, (10).
- (4): Exhibit 2, (10) - (12).
- (5): Section IV-A, Exhibit 1.
- (6): Section V-A, Exhibit 1. Net Trend applied from USR policy effective period to prospective effective period.
- (7): Exhibit 4, Page 1, (6).
- (8): Exhibit 5, Page 1, (7).
- (9): Exhibit 6, (7).
- (10) = { (3) x [ 1.0 - (4) ] } / [ (5) x (6) x (7) x (8) x (9) ]

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Loss Elimination Ratios for Losses in Excess of Experience Rating Caps  
 By Hazard Group

Hazard Group	Adjusted Total Losses	Adjusted Excess Losses	Implied Loss Elimination Ratio = (3) / (2)	Expected Losses	Expected Losses Wgtd LER	Balanced LER Differential	Selected LER Differential
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
A	68,933,812	2,124,445	0.031	87,632,574	0.031	0.19	0.19
B	217,129,050	16,026,151	0.074	295,970,337	0.074	0.46	0.46
C	431,707,501	42,137,209	0.098	590,170,889	0.098	0.61	0.61
D	198,901,159	18,962,120	0.095	286,150,947	0.095	0.59	0.59
E	307,159,035	65,584,408	0.214	440,491,927	0.214	1.33	1.33
F	383,132,570	89,246,227	0.233	563,665,207	0.233	1.45	1.45
G	79,663,234	34,990,270	0.439	101,234,342	0.439	2.74	2.74
Total	1,686,626,361	269,070,830	0.160	2,365,316,224	0.160	1.00	1.00

Loss Elimination Ratio by Hazard Group

Hazard Group	First Report	Second Report	Third Report
(9)	(10)	(11)	(12)
A	0.025	0.033	0.033
B	0.060	0.079	0.079
C	0.079	0.104	0.105
D	0.077	0.102	0.102
E	0.173	0.228	0.229
F	0.189	0.248	0.250
G	0.357	0.468	0.471
Total	0.130	0.171	0.172

Notes:

- (2): Unit Statistical Plan losses, PYs 2013 - 2015. Adjusted by factors from Section X - B, Exhibit 1, Page 2.
- (3): Adjusted losses above per claim limit of \$250,000
- (5): PYs 2013 - 2015, exposure times pure premium underlying present rates.
- (6): Total = (6) Weighted by (5)
- (7) = (6) / [ Total for (6) ]
- (10) - (12) = [ Exhibit 3, (5) ] x (8)

Loss Elimination Ratio  
 Factor to Reflect the State Accident Limitation of \$250,000

Report (1)	Injury Type (2)	Adjusted Total Losses (3)	Adjusted Excess Losses (4)	Loss Elimination Ratio = (4) / (3) (5)
1st	Fatal	17,472,560	11,043,529	0.632
1st	Permanent Total	17,083,842	14,095,575	0.825
1st	Permanent Partial	170,841,182	16,026,498	0.094
1st	Temporary Total	256,827,969	22,500,497	0.088
1st	Medical Only	26,758,176	0	0.000
1st	Total	488,983,729	63,666,099	0.130
2nd	Fatal	5,669,412	2,486,621	0.439
2nd	Permanent Total	48,280,460	33,751,329	0.699
2nd	Permanent Partial	301,803,853	46,045,089	0.153
2nd	Temporary Total	228,803,330	22,057,267	0.096
2nd	Medical Only	25,778,913	0	0.000
2nd	Total	610,335,967	104,340,306	0.171
3rd	Fatal	11,218,091	5,091,675	0.454
3rd	Permanent Total	63,711,364	42,146,619	0.662
3rd	Permanent Partial	294,700,526	46,834,235	0.159
3rd	Temporary Total	191,234,631	6,991,895	0.037
3rd	Medical Only	26,442,051	0	0.000
3rd	Total	587,306,664	101,064,425	0.172

Notes:

Unit Statistical Plan losses have been adjusted by multiplying by law amendment changes and severity trend factors from Section X - B, Exhibit 1, Page 2.

(4): Adjusted losses above per claim limit of \$250,000

# X 000009 STIP

Section X - Experience Rating  
 Subsection A - Expected Loss Rates  
 7/1/2018

Section X - A  
 Exhibit 4  
 Page 1

## Hazard Group Development Factors to Tenth Report

Development to 10th Report (1)	Hazard Group (2)	Losses at Latest Report (3)	Selected Relativity (4)	Balanced Relativity = (4) / TT(4) (5)	Selected Dev. Factor to 10th Report (6)
1st to 10th	A	20,830,786	0.987	0.987	1.405
1st to 10th	B	59,532,207	0.987	0.987	1.406
1st to 10th	C	117,081,517	0.996	0.996	1.418
1st to 10th	D	55,334,657	1.009	1.009	1.436
1st to 10th	E	83,487,225	1.004	1.004	1.429
1st to 10th	F	103,478,179	1.012	1.012	1.441
1st to 10th	G	31,439,386	0.984	0.984	1.400
1st to 10th	Total	471,183,957	1.000	1.000	1.424
2nd to 10th	A	23,525,148	0.987	0.986	1.156
2nd to 10th	B	75,993,179	0.987	0.987	1.156
2nd to 10th	C	158,125,373	0.996	0.996	1.167
2nd to 10th	D	67,771,660	1.009	1.008	1.181
2nd to 10th	E	100,786,541	1.004	1.003	1.176
2nd to 10th	F	132,642,164	1.012	1.012	1.186
2nd to 10th	G	28,699,286	0.984	0.983	1.152
2nd to 10th	Total	587,543,351	1.000	1.000	1.172
3rd to 10th	A	22,102,116	0.987	0.986	1.062
3rd to 10th	B	73,752,362	0.987	0.986	1.062
3rd to 10th	C	140,724,174	0.996	0.995	1.072
3rd to 10th	D	68,465,361	1.009	1.008	1.085
3rd to 10th	E	110,793,693	1.004	1.003	1.080
3rd to 10th	F	132,822,152	1.012	1.011	1.089
3rd to 10th	G	17,422,031	0.984	0.983	1.059
3rd to 10th	Total	566,081,889	1.001	1.000	1.077

**Notes:**

(3): See Exhibit 4 Pages 3-5.

(4): See Page 2 for State Classifications for selection. The entry in the "Total" row is the weighted average using incurred losses at latest report in column (3) as the weights.

(6) = (5) x (Total LDF from page (3) - (5))

Hazard Group Reported Loss Development Relativities to Tenth Report

Relativities for State Classification Rates

Hazard Group (1)	Development			Average Relativity (5)	Selected (6)
	3rd Report to 10th Report (2)	2nd Report to 10th Report (3)	1st Report to 10th Report (4)		
A	0.994	0.992	0.975	0.987	0.987
B	0.997	0.991	0.974	0.987	0.987
C	1.000	0.995	0.993	0.996	0.996
D	0.998	1.004	1.023	1.009	1.009
E	1.000	1.009	1.002	1.004	1.004
F	1.003	1.005	1.029	1.012	1.012
G	1.007	0.994	0.950	0.984	0.984

Relativities for F-Class Rates

Hazard Group (7)	Development			Average Relativity (11)	Selected (12)
	3rd Report to 10th Report (8)	2nd Report to 10th Report (9)	1st Report to 10th Report (10)		
C	0.999	0.994	0.991	0.994	0.994
E	0.999	1.007	1.000	1.002	1.002
F	1.001	1.003	1.027	1.011	1.011
G	1.006	0.993	0.948	0.982	0.982

Notes:

(2) - (4): Pages 3 through 5. = [(12) for Hazard Group] / [(12) for Hazard Groups A-G Total]

(5): Average of (2) - (4)

(8) - (10): Pages 3 through 5. = [(12) for Hazard Group] / [(12) for Hazard Groups C,E,F,G Total]

(11): Average of (8) - (10)

Loss Development of Schedule Z to Tenth Report by Hazard Group

Policy Year 2015 at 18 Months  
 First Report to Tenth Report

Hazard Group	Indemnity Losses Likely To Develop		Indemnity Losses Not Likely To Develop		Medical Losses Likely To Develop		Medical Losses Not Likely To Develop		Total Losses		
	Reported Losses	Losses Developed to 10th Report	Reported Losses	Losses Developed to 10th Report	Reported Losses	Losses Developed to 10th Report	Reported Losses	Losses Developed to 10th Report	Total Reported Losses =(2)+(4)+(6)+(8) (10)	Total Developed Losses =(3)+(5)+(7)+(9) (11)	Develop. Factor = (11) / (10) (12)
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
A	3,098,317	5,685,191	7,299,197	12,161,733	2,372,698	2,608,021	8,060,574	8,451,904	20,830,786	28,906,849	1.388
B	8,736,065	16,240,805	19,790,051	32,854,117	9,243,815	10,656,632	21,762,276	22,807,978	59,532,207	82,559,533	1.387
C	21,403,499	38,783,498	42,080,652	70,036,367	12,013,653	13,146,273	41,583,713	43,583,778	117,081,517	165,549,916	1.414
D	10,013,898	18,627,756	21,743,017	36,741,004	6,179,495	6,989,779	17,398,247	18,251,947	55,334,657	80,610,487	1.457
E	15,294,176	28,368,736	29,025,941	48,790,363	17,158,692	18,829,997	22,008,416	23,116,452	83,487,225	119,105,549	1.427
F	20,736,748	38,204,990	41,514,523	69,356,110	13,491,774	15,041,433	27,735,134	29,026,632	103,478,179	151,629,165	1.465
G	6,410,174	11,759,999	6,714,964	11,136,155	15,038,857	16,200,767	3,275,391	3,430,728	31,439,386	42,527,650	1.353
A, B, C, D, E, F, G	85,692,877	157,670,975	168,168,345	281,075,851	75,498,984	83,472,902	141,823,751	148,669,420	471,183,957	670,889,148	1.424
C, E, F, G	63,844,597	117,117,223	119,336,080	199,318,996	57,702,976	63,218,470	94,602,654	99,157,591	335,486,307	478,812,279	1.427

Notes:

(2), (4), (6), (8): Unit Statistical Plan Data.

(3), (5), (7), (9): Unit Statistical Plan Data x Loss Development Factors to 10th report from Exhibit 5, Pages 5 and 6.

X 000011 STIP

Loss Development of Schedule Z to Tenth Report by Hazard Group

Policy Year 2014 at 30 Months  
 Second Report to Tenth Report

Hazard Group	Indemnity Losses Likely To Develop		Indemnity Losses Not Likely To Develop		Medical Losses Likely To Develop		Medical Losses Not Likely To Develop		Total Losses		
	Reported Losses	Losses Developed to 10th Report	Reported Losses	Losses Developed to 10th Report	Reported Losses	Losses Developed to 10th Report	Reported Losses	Losses Developed to 10th Report	Total Reported Losses =(2)+(4)+(6)+(8) (10)	Total Developed Losses =(3)+(5)+(7)+(9) (11)	Develop. Factor = (11) / (10) (12)
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
A	5,267,971	6,707,653	8,121,479	10,162,443	2,089,621	2,239,625	8,046,077	8,227,089	23,525,148	27,336,809	1.162
B	16,244,926	20,586,254	26,999,432	33,763,216	9,361,769	9,987,512	23,387,052	23,921,897	75,993,179	88,258,879	1.161
C	35,615,648	45,338,210	55,623,965	69,480,506	24,644,276	26,360,198	42,241,484	43,209,536	158,125,373	184,388,450	1.166
D	15,405,189	19,797,923	26,289,572	32,935,714	6,790,723	7,285,809	19,286,176	19,722,730	67,771,660	79,742,176	1.177
E	26,893,905	34,252,176	36,922,281	46,305,684	16,016,408	17,142,595	20,953,947	21,400,825	100,786,541	119,101,280	1.182
F	35,368,082	44,868,360	47,124,003	58,962,089	24,477,246	26,080,337	25,672,833	26,249,081	132,642,164	156,159,866	1.177
G	9,661,368	12,212,155	5,638,421	7,064,436	10,487,618	11,168,080	2,911,879	2,977,000	28,699,286	33,421,672	1.165
A, B, C, D, E, F, G	144,457,089	183,762,731	206,719,153	258,674,088	93,867,661	100,264,156	142,499,448	145,708,157	587,543,351	688,409,132	1.172
C, E, F, G	107,539,003	136,670,901	145,308,670	181,812,715	75,625,548	80,751,211	91,780,143	93,836,441	420,253,364	493,071,268	1.173

Notes:

(2), (4), (6), (8): Unit Statistical Plan Data.

(3), (5), (7), (9): Unit Statistical Plan Data x Loss Development Factors to 10th report from Exhibit 5, Pages 5 and 6.

X 000012 STIP

Loss Development of Schedule Z to Tenth Report by Hazard Group

Policy Year 2013 at 42 Months  
 Third Report to Tenth Report

Hazard Group	Indemnity Losses Likely To Develop		Indemnity Losses Not Likely To Develop		Medical Losses Likely To Develop		Medical Losses Not Likely To Develop		Total Losses		
	Reported Losses	Losses Developed to 10th Report	Reported Losses	Losses Developed to 10th Report	Reported Losses	Losses Developed to 10th Report	Reported Losses	Losses Developed to 10th Report	Total Reported Losses =(2)+(4)+(6)+(8) (10)	Total Developed Losses =(3)+(5)+(7)+(9) (11)	Develop. Factor = (11) / (10) (12)
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)			
A	3,446,468	3,835,018	9,316,403	10,337,755	1,522,254	1,583,621	7,816,991	7,908,077	22,102,116	23,664,471	1.071
B	17,508,246	19,472,087	26,327,659	29,219,576	7,310,534	7,609,245	22,605,923	22,873,358	73,752,362	79,174,265	1.074
C	35,945,559	39,972,991	51,880,191	57,577,657	15,865,752	16,519,745	37,032,672	37,485,782	140,724,174	151,556,176	1.077
D	15,007,645	16,695,341	27,324,539	30,311,028	6,538,672	6,786,993	19,594,505	19,838,538	68,465,361	73,631,900	1.075
E	30,300,881	33,785,723	36,238,695	40,163,516	23,638,659	24,623,730	20,615,458	20,824,110	110,793,693	119,397,080	1.078
F	36,158,560	40,196,668	48,985,696	54,326,440	22,155,127	23,104,798	25,522,769	25,822,705	132,822,152	143,450,612	1.080
G	3,775,989	4,196,295	8,965,448	9,945,666	804,237	838,596	3,876,357	3,914,693	17,422,031	18,895,251	1.085
A, B, C, D, E, F, G	142,143,348	158,154,124	209,038,631	231,881,638	77,835,235	81,066,729	137,064,675	138,667,265	566,081,889	609,769,755	1.077
C, E, F, G	106,180,989	118,151,678	146,070,030	162,013,279	62,463,775	65,086,869	87,047,256	88,047,291	401,762,050	433,299,118	1.078

Notes:

(2), (4), (6), (8): Unit Statistical Plan Data.

(3), (5), (7), (9): Unit Statistical Plan Data x Loss Development Factors to 10th report from Exhibit 5, Pages 5 and 6.

X 000013 STIP



Loss Development Factors From 10th to Ultimate

Hazard Group	Losses Developed to 10th Report				Indicated Development Factor to Ultimate	Balanced Selected Factor
	Indemnity		Medical			
	Likely to Develop	Not Likely to Develop	Likely to Develop	Not Likely to Develop		
(1)	(2)	(3)	(4)	(5)	(6)	(7)
A	16,227,862	32,661,931	6,431,267	24,587,070	1.051	1.051
B	56,299,146	95,836,908	28,253,390	69,603,233	1.054	1.054
C	124,094,699	197,094,530	56,026,216	124,279,096	1.059	1.059
D	55,121,020	99,987,747	21,062,581	57,813,215	1.057	1.057
E	96,406,635	135,259,563	60,596,323	65,341,387	1.063	1.063
F	123,270,018	182,644,639	64,226,568	81,098,418	1.064	1.064
G	28,168,449	28,146,257	28,207,444	10,322,422	1.067	1.067
TOTAL	499,587,830	771,631,576	264,803,787	433,044,842	1.060	1.060

Notes:

(2) - (5): Exhibit 4, Pages 3-5.

(6): Weighted Average of Development Factors from Page 2.

(Likely to Dev. Ind. 1.182, Not Likely to Dev. Ind.1.030, Likely to Dev. Med. 1.013, Not Likely to Dev. Med. 1.002)

(7): Factors are balanced to the total development factor from Page 2.

X 000014 STIP

# X 000015 STIP

Section X - Experience Rating  
 Subsection A - Expected Loss Rates  
 7/1/2018

Section X - A  
 Exhibit 5  
 Page 2

## Calculation of Development Category Development Factors from 10th to Ultimate

Policy Year (1)	Unit Stat Plan Losses Developed to 10th Rept. (2)	Aggregate Financial Develop. Factor 10th to Ult. (3)	Differential in Loss Development (4)	Unit Stat Plan Losses Adjusted to Financial Agg. Ult. Loss Level = (2) x (3) x (4) (5)	Development Factor 10th to Ult. = (5) / (2) (6)
<b>Indemnity</b>					
2015	438,746,826	1.064	1.024	478,046,554	1.090
2014	442,436,819	1.064	1.024	482,067,070	1.090
2013	390,035,762	1.064	1.024	424,972,310	1.090
Total	1,271,219,406			1,385,085,934	1.090
<b>Medical</b>					
2015	232,142,323	1.006	1.000	233,533,812	1.006
2014	245,972,313	1.006	1.000	247,446,701	1.006
2013	219,733,994	1.006	1.000	221,051,106	1.006
Total	697,848,629			702,031,620	1.006
<b>Ind.+ Med.</b>					
2015	670,889,148			711,580,367	1.061
2014	688,409,132			729,513,771	1.060
2013	609,769,755			646,023,416	1.059
Total	1,969,068,035			2,087,117,554	1.060

(7)	Unit Stat Plan Indem. Losses Developed to 10th Report (8)	Development Factor 10th to Ult. (9)	(10)	Unit Stat Plan Med. Losses Developed to 10th Report (11)	Development Factor 10th to Ult. (12)
a. Likely to Develop	499,587,830	1.182	a. Likely to Develop	264,803,787	1.013
b. Not Likely to Develop	771,631,576	1.030	b. Not Likely to Devel	433,044,842	1.002
c. Total	1,271,219,406	1.090	c. Total	697,848,629	1.006

**Notes:**

(2): Page 4.

(3): Page 3.

(4): Page 11.

(8),(11): Page 4.

(9), (12): Likely to Develop Factor = 1 + (Total Losses/Likely to Develop Losses) x ("Appropriate Column 6 Factor" - 1) x 0.8

(9), (12): Not Likely to Develop Factor = 1 + (Total Losses/Not Likely to Develop Losses) x ("Appropriate Column 6 Factor" - 1) x (1 - 0.8)

# X 000016 STIP

Section X - Experience Rating  
 Subsection A - Expected Loss Rates  
 7/1/2018

Section X - A  
 Exhibit 5  
 Page 3

Calculation of Development Factor from USR at 10th report to Aggregate Financial Ultimate Level

	<u>Indemnity</u>	<u>Medical</u>
(1) PY2015 Paid + Case Losses Developed to 10th report		
(a) Remainder of Industry	381,412,371	206,022,269
(b) AIG	57,334,455	26,120,054
(c) Total	438,746,826	232,142,323
 (2) Development Factor based on Paid + Case 132 Months to Ult.		
(a) Remainder of Industry	1.033	1.018
(b) AIG	1.049	1.065
(c) Weighted Average	1.035	1.023
 (3) Est. Ultimate Losses (Prior to Escalation Adj.) based on Paid + Case Develop. Method		
(a) PY2014	444,738,707	247,021,225
(b) PY2015	440,205,264	226,992,687
(c) Average	442,471,985	237,006,956
 (4) Est. Ultimate Losses (Prior to Escalation Adj.) based on Paid Develop. Method		
(a) PY2014	459,921,788	231,165,614
(b) PY2015	475,317,332	226,662,866
(c) Average	467,619,560	228,914,240
 (5) Ratio of Est. Ultimate Losses based on average of Paid and Paid + Case indications to Est. Ultimate Losses based on Paid + Case = { [ (3c) + (4c) ] / 2.000 } / (3c)	1.028	0.983
 (6) Development Factor to bring Unit Statistical Plan Data 10th report to Aggregate Financial Ultimate Level = (2c) x (5)	1.064	1.006

**Notes:**

- (1): Unit Statistical Plan Losses and LDFs from Pages 5 and 6.
- (2): 132 Months to 252 Months LDF from Section II-B, Exhibit 1, Pages 1 and 2.  
    x 252 Months to Ult LDF from Section II-C, Exhibit 2, Page 1.
- (3),(4): Section II-A, Exhibit 1.

Losses Developed to 10th Report

Policy Year	Loss Development Category	Paid + Case			
		Reported Schedule Z Losses		Losses Developed to 10th Report	
		Indemnity	Medical	Indemnity	Medical
(1)	(2)	(3)	(4)	(5)	(6)
2015	Likely	85,692,877	75,498,984	157,670,975	83,472,902
2015	Not Likely	168,168,345	141,823,751	281,075,851	148,669,420
2015	TOTALS	253,861,222	217,322,735	438,746,826	232,142,323
2014	Likely	144,457,089	93,867,661	183,762,731	100,264,156
2014	Not Likely	206,719,153	142,499,448	258,674,088	145,708,157
2014	TOTALS	351,176,242	236,367,109	442,436,819	245,972,313
2013	Likely	142,143,348	77,835,235	158,154,124	81,066,729
2013	Not Likely	209,038,631	137,064,675	231,881,638	138,667,265
2013	TOTALS	351,181,979	214,899,910	390,035,762	219,733,994

Notes:

(3),(4): Sum of Unit Statistical Plan Data.

(5),(6): Unit Statistical Plan Data x Loss Development Factors to 10th report from Exhibit 5, Pages 5 and 6.

# X 000018 STIP

Section X - Experience Rating  
 Subsection A - Expected Loss Rates  
 7/1/2018

Section X - A  
 Exhibit 5  
 Page 5

## Summary of Development Factors Remainder of Industry

		Likely to Develop								
		Development Factors From:								
		18-30	30-42	42-54	54-66	66-78	78-90	90-102	102-114	114-126
		<b>(1) Indemnity Paid + Case Losses</b>								
2Yr Weighted Average		1.428	1.134	1.085	1.012	1.004	0.997	0.999	1.006	1.005
Cumulative		1.797	1.258	1.110	1.023	1.011	1.007	1.011	1.011	1.005
		<b>(2) Medical Paid + Case Losses</b>								
2Yr Weighted Average		1.010	1.018	1.035	1.010	1.004	0.998	0.995	1.009	0.993
Cumulative		1.074	1.063	1.044	1.009	0.999	0.995	0.997	1.002	0.993
		Not-Likely to Develop								
		Development Factors From:								
		18-30	30-42	42-54	54-66	66-78	78-90	90-102	102-114	114-126
		<b>(3) Indemnity Paid + Case Losses</b>								
2Yr Weighted Average		1.311	1.121	1.058	1.025	1.015	1.002	1.003	1.001	1.003
Cumulative		1.633	1.246	1.112	1.050	1.025	1.009	1.007	1.003	1.003
		<b>(4) Medical Paid + Case Losses</b>								
2Yr Weighted Average		1.019	1.009	1.007	1.005	1.002	1.002	0.999	1.000	1.000
Cumulative		1.044	1.024	1.015	1.008	1.003	1.002	1.000	1.001	1.000

Notes:  
 (1),(2): Page 7.  
 (3),(4): Page 9.

# X 000019 STIP

Section X - Experience Rating  
 Subsection A - Expected Loss Rates  
 7/1/2018

Section X - A  
 Exhibit 5  
 Page 6

## Summary of Development Factors AIG

		Likely to Develop								
		Development Factors From:								
		18-30	30-42	42-54	54-66	66-78	78-90	90-102	102-114	114-126
		<b>(1) Indemnity Paid + Case Losses</b>								
5Yr Weighted Average		1.595	1.238	1.072	1.029	1.016	0.998	1.006	1.004	1.002
Cumulative		2.236	1.402	1.132	1.056	1.026	1.010	1.012	1.006	1.002
		<b>(2) Medical Paid + Case Losses</b>								
5Yr Weighted Average		1.255	1.130	1.015	0.997	0.995	0.963	1.066	0.990	0.995
Cumulative		1.445	1.152	1.019	1.003	1.006	1.011	1.050	0.985	0.995
		Not-Likely to Develop								
		Development Factors From:								
		18-30	30-42	42-54	54-66	66-78	78-90	90-102	102-114	114-126
		<b>(3) Indemnity Paid + Case Losses</b>								
5Yr Weighted Average		1.524	1.177	1.050	1.035	1.006	0.998	1.004	0.998	1.001
Cumulative		1.964	1.289	1.095	1.042	1.007	1.002	1.004	1.000	1.001
		<b>(4) Medical Paid + Case Losses</b>								
5Yr Weighted Average		1.078	1.023	1.002	0.992	0.995	0.999	0.997	1.002	0.999
Cumulative		1.086	1.008	0.986	0.984	0.992	0.997	0.998	1.001	0.999

Notes:  
 (1),(2): Page 8.  
 (3),(4): Page 10.

# X 000020 STIP

Section X - Experience Rating  
 Subsection A - Expected Loss Rates  
 7/1/2018

Section X - A  
 Exhibit 5  
 Page 7

## Calculation of Likely to Develop Development Factors Remainder of Industry

Policy Year	Likely to Develop					
	Unlimited Indemnity Paid + Case Losses			Unlimited Medical Paid + Case Losses		
	Evaluated at month		Link Ratio	Evaluated at month		Link Ratio
	18	30		18	30	
2014	84,188,062	121,938,123	1.448	84,149,606	85,094,610	1.011
2013	68,555,672	96,254,571	1.404	64,331,054	64,932,001	1.009
Weighted Average			1.428			1.010
	30	42		30	42	
2013	103,098,024	115,997,950	1.125	67,332,208	68,956,838	1.024
2012	102,982,037	117,630,725	1.142	76,550,773	77,531,264	1.013
Weighted Average			1.134			1.018
	42	54		42	54	
2012	125,014,971	133,874,098	1.071	80,164,934	83,183,523	1.038
2011	105,103,602	115,753,471	1.101	59,757,055	61,572,237	1.030
Weighted Average			1.085			1.035
	54	66		54	66	
2011	121,978,662	123,761,119	1.015	64,124,429	63,621,854	0.992
2010	109,049,300	109,936,249	1.008	63,138,943	64,854,949	1.027
Weighted Average			1.012			1.010
	66	78		66	78	
2010	112,910,893	112,295,332	0.995	66,074,078	67,671,811	1.024
2009	115,357,728	116,858,291	1.013	56,815,189	55,753,123	0.981
Weighted Average			1.004			1.004
	78	90		78	90	
2009	118,074,519	117,831,725	0.998	56,084,911	55,954,145	0.998
2008	107,283,435	106,760,975	0.995	47,015,371	46,960,465	0.999
Weighted Average			0.997			0.998
	90	102		90	102	
2008	107,451,873	107,942,364	1.005	47,357,255	47,136,891	0.995
2007	110,616,839	109,968,798	0.994	63,652,032	63,285,157	0.994
Weighted Average			0.999			0.995
	102	114		102	114	
2007	109,968,798	110,324,703	1.003	63,265,924	62,669,470	0.991
2006	107,531,322	108,567,373	1.010	54,680,528	56,333,830	1.030
Weighted Average			1.006			1.009
	114	126		114	126	
2006	107,837,189	108,342,253	1.005	56,118,160	55,239,712	0.984
2005	98,565,003	99,086,874	1.005	51,905,660	52,056,536	1.003
Weighted Average			1.005			0.993

Note:  
 Unit Statistical Plan Data, Excluding Large Deductible Policies.





# X 000022 STIP

Section X - Experience Rating  
 Subsection A - Expected Loss Rates  
 7/1/2018

Section X - A  
 Exhibit 5  
 Page 9

## Calculation of Not-Likely to Develop Development Factors Remainder of Industry

Policy Year	Not-Likely to Develop					
	Unlimited Indemnity Paid + Case Losses			Unlimited Medical Paid + Case Losses		
	Evaluated at month		Link Ratio	Evaluated at month		Link Ratio
	18	30		18	30	
2014	140,431,242	188,663,212	1.343	126,255,920	129,011,971	1.022
2013	134,452,499	171,586,883	1.276	122,928,578	124,850,080	1.016
Weighted Average			1.311			1.019
2013	164,743,430	184,705,792	1.121	122,449,873	123,001,259	1.005
2012	159,464,120	178,601,625	1.120	117,353,787	119,004,475	1.014
Weighted Average			1.121			1.009
2012	171,217,379	181,896,878	1.062	116,370,805	116,969,489	1.005
2011	166,638,473	175,683,845	1.054	111,012,506	111,996,171	1.009
Weighted Average			1.058			1.007
2011	169,458,654	173,392,372	1.023	109,443,979	109,424,090	1.000
2010	150,573,911	154,621,342	1.027	101,694,068	102,690,480	1.010
Weighted Average			1.025			1.005
2010	151,600,648	153,297,030	1.011	101,412,818	101,075,637	0.997
2009	144,729,558	147,615,946	1.020	99,729,955	100,381,815	1.007
Weighted Average			1.015			1.002
2009	146,399,718	146,755,950	1.002	100,050,027	99,961,230	0.999
2008	136,001,666	136,347,010	1.003	89,574,000	90,071,715	1.006
Weighted Average			1.002			1.002
2008	135,656,112	136,004,808	1.003	89,674,925	89,460,902	0.998
2007	130,216,671	130,760,782	1.004	94,103,213	94,148,677	1.000
Weighted Average			1.003			0.999
2007	130,760,782	130,793,668	1.000	94,167,910	93,607,759	0.994
2006	121,092,400	121,198,301	1.001	82,532,087	83,125,723	1.007
Weighted Average			1.001			1.000
2006	121,928,485	122,786,409	1.007	83,341,393	83,450,301	1.001
2005	124,161,309	124,002,523	0.999	82,690,385	82,656,183	1.000
Weighted Average			1.003			1.000

Note:  
 Unit Statistical Plan Data, Excluding Large Deductible Policies.

# X 000023 STIP

Section X - Experience Rating  
 Subsection A - Expected Loss Rates  
 7/1/2018

Section X - A  
 Exhibit 5  
 Page 10

## Calculation of Not-Likely to Develop Development Factors AIG

Not-Likely to Develop						
Policy Year	Unlimited Indemnity Paid + Case Losses			Unlimited Medical Paid + Case Losses		
	Evaluated at month		Link Ratio	Evaluated at month		Link Ratio
	18	30		18	30	
2014	17,302,800	26,911,061	1.555	15,262,146	16,699,304	1.094
2013	18,039,922	28,181,595	1.562	15,017,602	16,330,510	1.087
2012	15,596,069	23,041,013	1.477	13,740,393	14,557,090	1.059
2011	21,700,096	32,191,965	1.483	19,627,323	21,064,950	1.073
2010	24,143,989	37,141,106	1.538	22,154,888	23,801,481	1.074
Weighted Average			1.524			1.078
	30	42		30	42	
2013	26,664,072	31,204,024	1.170	16,009,203	15,929,622	0.995
2012	21,855,851	27,186,623	1.244	14,298,939	14,995,683	1.049
2011	31,874,918	36,798,879	1.154	20,951,255	21,256,770	1.015
2010	36,568,662	41,504,074	1.135	23,574,449	24,456,738	1.037
2009	30,434,028	36,837,638	1.210	21,320,307	21,690,743	1.017
Weighted Average			1.177			1.023
	42	54		42	54	
2012	26,544,629	28,425,294	1.071	14,539,472	14,454,028	0.994
2011	35,988,203	37,642,426	1.046	21,091,862	21,277,847	1.009
2010	41,779,939	44,142,114	1.057	24,536,117	24,575,733	1.002
2009	36,108,799	36,896,428	1.022	21,398,258	22,024,251	1.029
2008	48,695,120	51,543,621	1.058	28,331,947	27,760,357	0.980
Weighted Average			1.050			1.002
	54	66		54	66	
2011	37,592,461	39,092,642	1.040	21,086,293	21,074,697	0.999
2010	44,403,347	45,716,327	1.030	24,603,382	24,527,604	0.997
2009	35,334,200	36,577,100	1.035	21,326,252	20,792,373	0.975
2008	50,942,368	52,138,602	1.023	27,350,446	27,194,978	0.994
2007	48,121,538	50,401,813	1.047	30,331,812	30,126,586	0.993
Weighted Average			1.035			0.992
	66	78		66	78	
2010	46,219,075	47,067,995	1.018	24,580,648	24,698,886	1.005
2009	36,749,108	36,891,535	1.004	20,848,406	20,766,193	0.996
2008	50,968,463	51,323,517	1.007	27,039,314	26,966,870	0.997
2007	49,426,315	49,251,613	0.996	29,760,758	29,524,200	0.992
2006	47,110,020	47,261,121	1.003	30,747,161	30,338,431	0.987
Weighted Average			1.006			0.995
	78	90		78	90	
2009	36,711,815	37,164,658	1.012	20,717,620	20,741,933	1.001
2008	50,969,930	50,501,119	0.991	26,847,575	26,648,652	0.993
2007	49,122,089	49,065,303	0.999	29,486,567	29,346,699	0.995
2006	45,991,342	45,973,773	1.000	29,751,896	29,646,865	0.996
2005	55,131,327	54,716,045	0.992	32,803,975	33,076,995	1.008
Weighted Average			0.998			0.999
	90	102		90	102	
2008	50,501,119	50,460,912	0.999	26,648,652	26,428,046	0.992
2007	49,065,303	49,208,839	1.003	29,376,480	29,414,639	1.001
2006	45,958,366	46,144,371	1.004	29,623,761	29,367,738	0.991
2005	53,912,506	53,928,233	1.000	32,573,016	32,405,416	0.995
2004	49,347,187	50,065,661	1.015	29,521,302	29,722,208	1.007
Weighted Average			1.004			0.997
	102	114		102	114	
2007	48,871,177	48,936,610	1.001	29,374,499	29,420,311	1.002
2006	46,144,371	46,124,585	1.000	29,367,738	29,245,085	0.996
2005	52,607,639	52,500,976	0.998	31,835,589	31,898,461	1.002
2004	47,227,562	47,442,232	1.005	28,633,337	28,820,474	1.007
2003	38,273,755	37,703,446	0.985	21,481,129	21,564,692	1.004
Weighted Average			0.998			1.002
	114	126		114	126	
2006	46,124,585	46,127,911	1.000	29,261,231	29,216,271	0.998
2005	52,500,976	52,792,780	1.006	31,898,461	31,909,447	1.000
2004	47,442,232	47,628,451	1.004	28,820,474	28,702,755	0.996
2003	37,121,974	37,191,827	1.002	21,381,177	21,285,684	0.996
2002	32,500,748	32,240,915	0.992	16,975,043	17,069,364	1.006
Weighted Average			1.001			0.999

Note:  
 Unit Statistical Plan Data, Excluding Large Deductible Policies.

Escalation Adjustment for Indemnity Losses Only

Loss Development Method (1)	Policy Year (2)	Differential in Loss Development (3)
Paid Plus Case	2015	1.006
	2014	1.006
	2013	1.006
Paid	2015	1.042
	2014	1.042
	2013	1.042
Average of Paid and Paid Plus Case	2015	1.024
	2014	1.024
	2013	1.024

Notes:  
 (3): Section II-D, Exhibit 1, Page 1 and Exhibit 2, Page 1.

# X 00025 STIP

Section X - Experience Rating  
 Subsection A - Expected Loss Rates  
 7/1/2018

Section X - A  
 Exhibit 6

## Investment Income Offset

Hazard Code (1)	Injury Type (2)	Indemnity		Medical		Total Investment Income Offset (7)
		Developed Losses at Ultimate (3)	Investment Income Offset (4)	Developed Losses at Ultimate (5)	Investment Income Offset (6)	
A	Fatal	1,464,277	0.812	66,968	1.000	
A	Permanent Total	549,453	0.762	56,524	0.763	
A	Permanent Partial	23,232,848	1.030	9,480,905	1.031	
A	Temporary Total	27,576,544	1.039	14,890,875	1.040	
A	Medical Only	0		6,655,846	1.000	
A	TOTAL	52,823,122	1.026	31,151,118	1.028	1.027
B	Fatal	1,961,102	0.812	48,242	1.000	
B	Permanent Total	7,075,332	0.762	2,364,152	0.763	
B	Permanent Partial	80,358,915	1.030	33,064,577	1.031	
B	Temporary Total	75,862,257	1.039	44,554,723	1.040	
B	Medical Only	0		18,331,429	1.000	
B	TOTAL	165,257,606	1.020	98,363,124	1.023	1.021
C	Fatal	5,393,114	0.812	156,515	1.000	
C	Permanent Total	11,176,418	0.762	2,962,396	0.763	
C	Permanent Partial	178,879,560	1.030	65,521,420	1.031	
C	Temporary Total	154,238,209	1.039	85,356,706	1.040	
C	Medical Only	0		27,285,175	1.000	
C	TOTAL	349,687,301	1.022	181,282,211	1.026	1.023
D	Fatal	3,686,735	0.812	552,250	1.000	
D	Permanent Total	3,059,709	0.762	388,235	0.763	
D	Permanent Partial	90,858,547	1.030	35,816,765	1.031	
D	Temporary Total	70,535,434	1.039	34,351,900	1.040	
D	Medical Only	0		8,156,086	1.000	
D	TOTAL	168,140,425	1.024	79,265,237	1.030	1.026
E	Fatal	6,938,641	0.812	212,233	1.000	
E	Permanent Total	20,257,089	0.762	33,197,027	0.763	
E	Permanent Partial	126,377,802	1.030	39,754,799	1.031	
E	Temporary Total	99,696,460	1.039	43,929,676	1.040	
E	Medical Only	0		9,762,409	1.000	
E	TOTAL	253,269,993	1.006	126,856,145	0.961	0.991
F	Fatal	19,027,160	0.812	2,162,746	1.000	
F	Permanent Total	31,901,726	0.762	23,802,745	0.763	
F	Permanent Partial	167,799,121	1.030	60,372,032	1.031	
F	Temporary Total	115,101,132	1.039	52,272,633	1.040	
F	Medical Only	0		7,711,973	1.000	
F	TOTAL	333,829,140	0.995	146,322,128	0.988	0.993
G	Fatal	4,992,347	0.812	420,015	1.000	
G	Permanent Total	9,002,892	0.762	9,001,120	0.763	
G	Permanent Partial	32,545,504	1.030	10,940,476	1.031	
G	Temporary Total	15,745,010	1.039	17,675,463	1.040	
G	Medical Only	0		880,133	1.000	
G	TOTAL	62,285,752	0.976	38,917,207	0.972	0.974

**Notes:**

(3),(5): From Exhibit 4, Pages 3-5, Developed to Ultimate.

(4),(6): Section IX-B, Exhibit 4.

(7) = Average of (4) and (6) weighted by (3) and (5).

Calculation of Statewide Partial "D" Ratios by Benefit Type

Benefit Type (1)	Adjusted Primary Losses (2)	Adjusted Total Losses (3)	Partial D-Ratio = (2) / (3) (4)
Indemnity	91,659,458	871,092,669	0.105
Medical	142,574,937	546,462,862	0.261

Notes:

Data at the individual claim level for PYs 2013 - 2015 have been adjusted by the factors shown on Page 2. The Adjusted Primary Losses are capped at \$5,000 per claim. The Adjusted Total Losses are capped at \$250,000 per claim. If losses are capped, the proportions for capped indemnity and capped medical losses are consistent with the proportions for unlimited indemnity and unlimited medical.

Severity Trend and State Benefit Level Adjustment Factors

Policy Year	Indemnity By Injury Type				Medical by Injury Type				
	Fatal	Permanent Total	Permanent Partial	Temporary Total	Fatal	Permanent Total	Permanent Partial	Temporary Total	Medical Only

(1) Severity Trend Factors

2013	1.031	1.031	1.031	1.031	1.032	1.032	1.032	1.032	1.032
2014	1.031	1.031	1.031	1.031	1.032	1.032	1.032	1.032	1.032
2015	1.031	1.031	1.031	1.031	1.032	1.032	1.032	1.032	1.032

(2) State Benefit Level Adjustment Factors

2013	1.012	1.007	1.012	1.004	1.000	1.000	1.000	1.000	1.000
2014	1.014	1.010	1.016	1.005	1.000	1.000	1.000	1.000	1.000
2015	1.009	1.011	1.017	1.007	1.000	1.000	1.000	1.000	1.000

(3) Combined Severity Trend and State Benefit Level Adjustment Factors

2013	1.044	1.038	1.044	1.035	1.032	1.032	1.032	1.032	1.032
2014	1.046	1.041	1.048	1.037	1.032	1.032	1.032	1.032	1.032
2015	1.040	1.042	1.048	1.038	1.032	1.032	1.032	1.032	1.032

Notes:

(1): Exhibit 2.

(2): Section IV-A, Exhibit 1. PY 2013 to CPY 2014\_07. PY 2014 to CPY 2015\_07. PY 2015 to CPY 2016\_07.

(3) = (1) x (2)

Severity Trend Factors

Schedule Z Policy Year (1)			Policy Effective Period (2)		
01/01/2015	-	12/31/2015	07/01/2016	-	06/30/2017
01/01/2014	-	12/31/2014	07/01/2015	-	06/30/2016
01/01/2013	-	12/31/2013	07/01/2014	-	06/30/2015

Avg Acc Date	Avg Acc Date
12/31/2014	06/29/2016

(3) Indemnity Severity Trend	2.1%
(4) Medical Severity Trend	2.2%
(5) Trend Period Length = Years between (1) and (2)	1.495
(6) Indemnity Trend Factor = [ 1.000 + (3) ] ^ (5)	1.031
(7) Medical Trend Factor = [ 1.000 + (4) ] ^ (5)	1.032

Notes:

(3),(4): Section V-A Exhibit 1.

Medical Severity Trend is a weighted average using Injury Type Weights at Ultimate from Section IV.

Calculation of ELR Factors

Unit Report / Policy Effective Dates (1)	Hazard Group (2)	Permissible Loss and LBA Ratio (3)	Weighted LBA (4)	Exp Rating LER by Hazard Group (5)	Law Factor (6)	Loss Trend / Payroll Trend (7)	Loss Development to Ultimate Report (8)	Investment Income Offset (9)	Ratio of Exp Rating ELR to Average Rate (10)
1st Report	C	0.646	0.070	0.079	1.002	0.946	1.678	1.023	0.342
7/1/2016	E	0.646	0.070	0.173	1.002	0.946	1.683	0.991	0.316
to	F	0.646	0.070	0.189	1.002	0.946	1.689	0.993	0.308
6/30/2017	G	0.646	0.070	0.357	1.002	0.946	1.670	0.974	0.252
2nd Report	C	0.646	0.070	0.104	1.003	0.920	1.250	1.023	0.459
7/1/2015	E	0.646	0.070	0.228	1.003	0.920	1.252	0.991	0.408
to	F	0.646	0.070	0.248	1.003	0.920	1.254	0.993	0.395
6/30/2016	G	0.646	0.070	0.468	1.003	0.920	1.247	0.974	0.287
3rd Report	C	0.646	0.070	0.105	1.004	0.895	1.149	1.023	0.512
7/1/2014	E	0.646	0.070	0.229	1.004	0.895	1.150	0.991	0.455
to	F	0.646	0.070	0.250	1.004	0.895	1.151	0.993	0.441
6/30/2015	G	0.646	0.070	0.471	1.004	0.895	1.147	0.974	0.318
1st - 3rd Report Average	C E F G								0.438 0.393 0.382 0.286

Notes:

- (1): Unit Stat Reports used to experience rate a policy taking effect during the prospective effective period.
- (3), (5), (7), (9): Section X-A, Exhibit 1.
- (4): Loss Based Assessment weighted by federal indemnity losses as a % of losses.
- (6): State Factors from Section IV-A, Exhibit 1 and Federal Factors from Section IV-F, Exhibit 1 weighted by Adjusted Reported Losses from Section VIII-C, Exhibit 1, Pages 2 and 4.
- (8): Exhibit 2.
- (10) =  $[(3) / \{ 1.0 + (4) \}] \times [ 1.0 - (5) ] / [ (6) \times (7) \times (8) \times (9) ]$

X 000029 STIP



# X 000030 STIP

Section X - Experience Rating  
 Subsection C - Expected Loss Rates for F-Class  
 7/1/2018

Section X - C  
 Exhibit 2

## Hazard Group Development Factors to Ultimate

Development to Ultimate (1)	Hazard Group (2)	Losses at Latest Report (3)	Selected Relativity (4)	Balanced Relativity = (4) / TT(4) (5)	Selected Dev. Factor to Ultimate (6)
1st	C	117,081,517	0.994	0.994	1.678
1st	E	83,487,225	1.002	1.002	1.683
1st	F	103,478,179	1.011	1.010	1.689
1st	G	31,439,386	0.982	0.982	1.670
1st	Total	335,486,307	1.000	1.000	1.682
2nd	C	158,125,373	0.994	0.994	1.250
2nd	E	100,786,541	1.002	1.002	1.252
2nd	F	132,642,164	1.011	1.010	1.254
2nd	G	28,699,286	0.982	0.982	1.247
2nd	Total	420,253,364	1.000	1.000	1.251
3rd	C	140,724,174	0.994	0.993	1.149
3rd	E	110,793,693	1.002	1.001	1.150
3rd	F	132,822,152	1.011	1.009	1.151
3rd	G	17,422,031	0.982	0.981	1.147
3rd	Total	401,762,050	1.001	1.000	1.150

**Notes:**

(3): See Section X-A, Exhibit 4, Page 1.

(4): See Section X-A, Exhibit 4, Page 2 for F-Classes for selection. The entry in the "Total" row is the weighted average using incurred losses at latest report in column (3) as the weights.

(6) = 1.00 + (5) x (Total LDF from Exhibit 3 - 1.00)

Loss Development Factors For Use in Calculation of Reciprocals

Report (1)	Benefit Type (2)	Injury Type (3)	State Loss Development Factor to Ultimate (4)	Federal Loss Development Factor to Ultimate (5)	Average Loss Development Factor to Ultimate (6)	Distribution of Ultimate Losses (7)	Adjusted Distribution = (7) / (6) (8)	LDF to Ultimate to Derive ELR = TT(7) / TT(8) (9)
1st	Indemnity	Likely to Develop	2.124	2.500	2.500	29.7%	11.9%	
1st	Indemnity	Not Likely to Develop	1.681	1.747	1.747	35.6%	20.4%	
1st	Medical	Likely to Develop	1.087	1.680	1.680	13.2%	7.8%	
1st	Medical	Not Likely to Develop	1.046	1.113	1.113	21.6%	19.4%	
1st	Total					100.0%	59.4%	1.682
2nd	Indemnity	Likely to Develop	1.487	1.455	1.455	29.7%	20.4%	
2nd	Indemnity	Not Likely to Develop	1.283	1.214	1.214	35.6%	29.3%	
2nd	Medical	Likely to Develop	1.076	1.365	1.365	13.2%	9.6%	
2nd	Medical	Not Likely to Develop	1.026	1.049	1.049	21.6%	20.6%	
2nd	Total					100.0%	79.9%	1.251
3rd	Indemnity	Likely to Develop	1.312	1.260	1.260	29.7%	23.6%	
3rd	Indemnity	Not Likely to Develop	1.145	1.097	1.097	35.6%	32.4%	
3rd	Medical	Likely to Develop	1.057	1.277	1.277	13.2%	10.3%	
3rd	Medical	Not Likely to Develop	1.017	1.044	1.044	21.6%	20.6%	
3rd	Total					100.0%	87.0%	1.150

Notes:

(4): Section X-A, Exhibit 5, Page 5 and Section X-A, Exhibit 5, Page 2.

(5): Section VIII-E, Exhibit 1, Page 1.

(6): Average of (4) and (5) weighted by % of Total Reported Losses from Section VIII-C, Exhibit 1 Page 2 and Page 4.

Federal losses are 100.0% of total reported indemnity losses and 100.0% of total reported medical losses.

(7): Section IV-E, Exhibit 2, Page 1.

X 000031 STIP

# X 000032 STIP

Section X - Experience Rating  
Subsection D - State Reference Point  
7/1/2018

Section X - D  
Exhibit 1

## State Reference Point

Report (1)	Policy Year (2)	Reported Claims (3)	Reported Losses (4)	Average Claim Cost = (4) / (3) (5)
1st	2015	42,679	471,183,957	11,040
2nd	2014	44,018	587,543,351	13,348
3rd	2013	44,057	566,081,889	12,849
Total		130,754	1,624,809,197	12,426
(6)	Indicated State Reference Point = [ Total (5) ] x 250			3,106,615
(7)	Average Annual Severity Trend			2.10%
(8)	Length of Trending Period in Years			1.495
(9)	Trend Factor = [ 1.000 + (7) ] ^ (8)			1.032
(10)	Trended State Reference Point = (6) x (9)			3,204,671
(11)	Selected State Reference Point			2,500,000
(12)	G = (11) / 250,000			10.00
(13)	State Per Claim Accident Limitation = (11) x 0.1			250,000
(14)	Multiple State Claim Accident Limitation = (13) x 2			500,000

### Notes:

(3), (4): Unit Statistical Plan Data, Excluding Large Deductible Policies.

(7): Credibility Weighted Severity Trends from Section V-A, Exhibit 1 weighted by Injury Type Weights at Ultimate from Section IV-E, Exhibit 2.

(8): Section X-B, Exhibit 2.



# X 000034 STIP

Section X - Experience Rating  
 Subsection E - Manual Pages  
 7/1/2018

Section X - E  
 Exhibit 2

**MASSACHUSETTS**  
 Page 2

**EXPERIENCE RATING PLAN MANUAL**

*Proposed Effective July 1, 2018*

**TABLE OF EXPECTED LOSS RATES AND DISCOUNT RATIOS**

CLASS CODE	EXP LOSS RATE	DISC RATIO	CLASS CODE	EXP LOSS RATE	DISC RATIO	CLASS CODE	EXP LOSS RATE	DISC RATIO	CLASS CODE	EXP LOSS RATE	DISC RATIO	CLASS CODE	EXP LOSS RATE	DISC RATIO
5443	1.57	.15	7016M	1.12	.79	7704	1.04	.17	8719	0.97	.15	9179	14.87	.17
5445	2.53	.15	7024M	1.40	.79	7720	0.60	.16	8720	0.37	.16	9180	1.92	.19
5462	2.67	.15	7038M	2.12	.76	7855	1.83	.15	8721	0.10	.18	9182	1.42	.17
5472	2.79	.15	7046M	3.02	.58	8001	0.88	.17	8726F	2.16	.17	9186	1.86	.19
5473	3.36	.16	7047M	1.76	.69	8002	0.68	.17	8734M	0.21	.54	9220	1.34	.16
5474	1.77	.16	7050M	3.32	.67	8006	0.59	.17	8737M	0.17	.54	9402	1.75	.15
5478	1.80	.14	7090M	2.65	.76	8008	0.37	.16	8738M	0.26	.53	9403	3.75	.15
5479	3.32	.15	7098M	3.55	.58	8010	0.78	.17	8742	0.05	.17	9410	1.31	.17
5480	1.68	.15	7099M	4.45	.51	8013	0.16	.16	8745	2.21	.18	9501	0.98	.16
5506	1.65	.15	7133	(a)	(a)	8017	0.46	.17	8747	0.41	.15	9505	0.98	.16
5507	2.33	.15	7151M	3.96	.52	8018	1.55	.16	8748	0.30	.16	9519	1.48	.16
5508D	1.95	.15	7152M	6.22	.52	8021	1.47	.16	8800	0.56	.16	9521	1.22	.16
5509	1.59	.16	7153M	4.96	.52	8031	0.86	.16	8803	0.02	.16	9522	0.84	.16
5538	1.65	.15	7219	3.62	.15	8032	0.65	.16	8805M	0.09	.60	9533	5.57	.15
5545	11.36	.17	7230	4.15	.16	8033	0.80	.17	8810	0.03	.16	9534	2.20	.15
5547	3.64	.17	7231	4.21	.16	8034	1.60	.16	8814M	0.07	.60	9549	2.19	.14
5606	0.61	.16	7309F	4.39	.16	8039	0.58	.17	8815M	0.11	.59	9552	3.18	.16
5610	2.75	.14	7313F	4.63	.13	8044	1.40	.16	8820	0.04	.16	9586	0.16	.15
5645	2.96	.16	7317F	4.58	.15	8046	0.85	.17	8824	0.78	.16	9620	0.33	.17
5701	7.00	.17	7327F	8.26	.16	8048	1.32	.15	8826	0.78	.16			
5703	6.29	.15	7333M	4.51	.70	8058	1.09	.17	8829	0.98	.16			
5705	5.36	.15	7335M	5.30	.70	8103	1.31	.16	8831	0.45	.19			
6003	3.95	.15	7337M	6.65	.61	8105	2.88	.15	8832	0.13	.16			
6005	1.95	.15	7350F	7.23	.15	8106	2.43	.16	8833	0.56	.16			
6204	2.44	.15	7360	1.94	.16	8107	1.08	.16	8835	0.94	.15			
6217	1.68	.15	7370	1.57	.17	8111	1.25	.16	8837	(a)	(a)			
6229	1.57	.15	7380	2.96	.16	8203	2.76	.16	8868	0.35	.17			
6233	1.20	.14	7382	1.69	.16	8204	2.00	.18	8901	0.03	.16			
6251D	2.17	.14	7394M	5.80	.84	8215	1.49	.17	9014	1.10	.16			
6252D	2.64	.15	7395M	7.41	.84	8227	1.52	.16	9015	1.45	.16			
6306	3.37	.15	7398M	9.29	.74	8232	2.59	.16	9016	0.99	.18			
6319	1.48	.16	7403	2.06	.16	8233	2.69	.16	9019	1.15	.15			
6325	1.42	.15	7405	0.49	.15	8235	1.93	.16	9033	1.39	.16			
6400	2.26	.15	7420	2.09	.13	8263	1.91	.17	9040	1.46	.16			
6504	1.41	.15	7421	0.54	.15	8264	2.06	.16	9044	0.70	.14			
6702M	(a)	(a)	7422	0.41	.15	8265	2.60	.16	9052	0.78	.16			
6703M	(a)	(a)	7425	0.77	.14	8279	1.81	.17	9058	0.75	.16			
6704M	(a)	(a)	7431	0.41	.15	8291	1.64	.16	9060	0.48	.17			
6801F	2.57	.17	7445	.	.	8292	1.53	.16	9061	0.49	.17			
6811	2.21	.17	7453	.	.	8293	3.46	.16	9062	0.49	.17			
6824F	3.87	.17	7502	0.93	.16	8350	2.35	.16	9063	0.33	.17			
6826F	3.07	.16	7515	0.75	.19	8380	1.23	.16	9077F	2.29	.20			
6834	1.06	.16	7520	1.39	.16	8381	0.83	.17	9079	0.56	.17			
6836	1.46	.17	7538	1.94	.15	8385	1.14	.16	9089	0.44	.17			
6843F	3.73	.15	7539	0.49	.16	8392	0.67	.17	9093	0.56	.18			
6854	3.21	.15	7580	1.39	.16	8393	0.79	.15	9101	1.49	.17			
6872F	4.90	.17	7590	1.73	.16	8500	2.69	.16	9102	1.25	.16			
6874F	4.48	.15	7600	1.32	.15	8601	0.11	.16	9154	0.81	.17			
6882	4.22	.17	7601	2.31	.16	8709F	1.47	.16	9156	0.71	.18			
6884	3.86	.15	7610	0.12	.15	8710	1.32	.15	9178	6.65	.20			

(a) Expected Loss Rates and Discount Ratios for each individual risk must be obtained by Home Office from the WCRIBMA  
 D Supplement Disease Loading  
 F Expected Loss Rates and Discount Ratios for risks covered under the United States Longshore and Harbor Workers' Compensation Act.  
 M Expected Loss Rates and Discount Ratios for risks subject to Admiralty Law or Federal Employers Liability Act (FELA).

# X 000035 STIP

*Proposed Effective July 1, 2018*

**TABLE OF WEIGHTING VALUES**

Expected Losses	Weighting Values	Expected Losses	Weighting Values	Expected Losses	Weighting Values
0 - 2,094	0.04	592,434 - 639,201	0.24	2,442,140 - 2,640,313	0.44
2,095 - 8,465	0.05	639,202 - 688,454	0.25	2,640,314 - 2,861,317	0.45
8,466 - 14,973	0.06	688,455 - 740,399	0.26	2,861,318 - 3,109,338	0.46
14,974 - 61,441	0.07	740,400 - 795,268	0.27	3,109,339 - 3,389,655	0.47
61,442 - 89,440	0.08	795,269 - 853,318	0.28	3,389,656 - 3,709,015	0.48
89,441 - 116,140	0.09	853,319 - 914,835	0.29	3,709,016 - 4,076,189	0.49
116,141 - 142,901	0.10	914,836 - 980,144	0.30	4,076,190 - 4,502,785	0.50
142,902 - 170,187	0.11	980,145 - 1,049,608	0.31	4,502,786 - 5,004,499	0.51
170,188 - 198,237	0.12	1,049,609 - 1,123,639	0.32	5,004,500 - 5,603,090	0.52
198,238 - 227,209	0.13	1,123,640 - 1,202,704	0.33	5,603,091 - 6,329,619	0.53
227,210 - 257,226	0.14	1,202,705 - 1,287,337	0.34	6,329,620 - 7,230,011	0.54
257,227 - 288,398	0.15	1,287,338 - 1,378,150	0.35	7,230,012 - 8,375,165	0.55
288,399 - 320,826	0.16	1,378,151 - 1,475,847	0.36	8,375,166 - 9,880,584	0.56
320,827 - 354,616	0.17	1,475,848 - 1,581,242	0.37	9,880,585 - 11,948,018	0.57
354,617 - 389,873	0.18	1,581,243 - 1,695,284	0.38	11,948,019 - 14,864,429	0.58
389,874 - 426,711	0.19	1,695,285 - 1,819,085	0.39	14,964,430 - 19,777,840	0.59
426,712 - 465,250	0.20	1,819,086 - 1,953,956	0.40	19,777,841 - 28,675,343	0.60
465,251 - 505,620	0.21	1,953,957 - 2,101,450	0.41	28,675,344 - 50,684,928	0.61
505,621 - 547,963	0.22	2,101,451 - 2,263,429	0.42	50,684,929 - 195,948,101	0.62
547,964 - 592,433	0.23	2,263,430 - 2,442,139	0.43	195,948,102 - 999,999,999	0.63

- |   |           |
|---|-----------|
| (a) State Per Claim Accident Limitation   | \$250,000 |
| (b) State Multiple Claim Accident Limitation  | \$500,000 |
| (c) U.S. Longshore and Harbor Workers' Act Per Claim Accident Limitation                      | \$130,000 |
| (d) U.S. Longshore and Harbor Workers' Act Multiple Claim Accident Limitation                 | \$260,000 |
| (e) Employers Liability Accident Limitation   | \$55,000  |
| (f) USL&HW Act-Expected Loss Factor-Non-F Classes   | 16.2%     |
| (g) Cap on Modifications = $1 + (0.00005) [(Expected Losses) + (2) (Expected Losses) / (10)]$ |           |

# X 000036 STIP

*Proposed Effective July 1, 2018*

**TABLE OF BALLAST VALUES**

Expected Losses	Ballast Values	Expected Losses	Ballast Values	Expected Losses	Ballast Values
0 - 53,788	25,000	1,726,010 - 1,775,981	200,000	3,475,503 - 3,525,495	375,000
53,789 - 92,574	30,000	1,775,982 - 1,825,954	205,000	3,525,496 - 3,575,488	380,000
92,575 - 137,140	35,000	1,825,955 - 1,875,929	210,000	3,575,489 - 3,625,481	385,000
137,141 - 184,154	40,000	1,875,930 - 1,925,905	215,000	3,625,482 - 3,675,475	390,000
184,155 - 232,312	45,000	1,925,906 - 1,975,882	220,000	3,675,476 - 3,725,468	395,000
232,313 - 281,074	50,000	1,975,883 - 2,025,860	225,000	3,725,469 - 3,775,462	400,000
281,075 - 330,189	55,000	2,025,861 - 2,075,840	230,000	3,775,463 - 3,825,456	405,000
330,190 - 379,527	60,000	2,075,841 - 2,125,820	235,000	3,825,457 - 3,875,450	410,000
379,528 - 429,013	65,000	2,125,821 - 2,175,801	240,000	3,875,451 - 3,925,445	415,000
429,014 - 478,603	70,000	2,175,802 - 2,225,783	245,000	3,925,446 - 3,975,439	420,000
478,604 - 528,269	75,000	2,225,784 - 2,275,766	250,000	3,975,440 - 4,025,433	425,000
528,270 - 577,991	80,000	2,275,767 - 2,325,750	255,000	4,025,434 - 4,075,428	430,000
577,992 - 627,756	85,000	2,325,751 - 2,375,734	260,000	4,075,429 - 4,125,423	435,000
627,757 - 677,556	90,000	2,375,735 - 2,425,719	265,000	4,125,424 - 4,175,418	440,000
677,557 - 727,382	95,000	2,425,720 - 2,475,704	270,000	4,175,419 - 4,225,413	445,000
727,383 - 777,231	100,000	2,475,705 - 2,525,690	275,000	4,225,414 - 4,275,408	450,000
777,232 - 827,098	105,000	2,525,691 - 2,575,677	280,000	4,275,409 - 4,325,403	455,000
827,099 - 876,979	110,000	2,575,678 - 2,625,664	285,000	4,325,404 - 4,375,399	460,000
876,980 - 926,873	115,000	2,625,665 - 2,675,652	290,000	4,375,400 - 4,425,394	465,000
926,874 - 976,778	120,000	2,675,653 - 2,725,640	295,000	4,425,395 - 4,475,390	470,000
976,779 - 1,026,692	125,000	2,725,641 - 2,775,628	300,000	4,475,391 - 4,525,386	475,000
1,026,693 - 1,076,614	130,000	2,775,629 - 2,825,617	305,000	4,525,387 - 4,575,381	480,000
1,076,615 - 1,126,543	135,000	2,825,618 - 2,875,607	310,000	4,575,382 - 4,625,377	485,000
1,126,544 - 1,176,478	140,000	2,875,608 - 2,925,596	315,000	4,625,378 - 4,675,373	490,000
1,176,479 - 1,226,418	145,000	2,925,597 - 2,975,586	320,000	4,675,374 - 4,725,369	495,000
1,226,419 - 1,276,363	150,000	2,975,587 - 3,025,577	325,000	4,725,370 - 4,775,365	500,000
1,276,364 - 1,326,312	155,000	3,025,578 - 3,075,567	330,000		
1,326,313 - 1,376,265	160,000	3,075,568 - 3,125,558	335,000		
1,376,266 - 1,426,221	165,000	3,125,559 - 3,175,549	340,000		
1,426,222 - 1,476,179	170,000	3,175,550 - 3,225,541	345,000		
1,476,180 - 1,526,141	175,000	3,225,542 - 3,275,533	350,000		
1,526,142 - 1,576,105	180,000	3,275,534 - 3,325,525	355,000		
1,576,106 - 1,626,071	185,000	3,325,526 - 3,375,517	360,000		
1,626,072 - 1,676,039	190,000	3,375,518 - 3,425,509	365,000		
1,676,040 - 1,726,009	195,000	3,425,510 - 3,475,502	370,000		

For Expected Losses (E) greater than \$4,775,365, the Ballast Value is calculated using the following formula (rounded to the nearest 1):

$$\text{Ballast} = (0.1E + 2,500GE / (E + 700G))$$

G = 10

# XI 000004 STIP

Section XI - Miscellaneous Rating Values  
Subsection B - Massachusetts Benefits Deductible Program Credits  
7/1/2018

Section XI-B  
Exhibit 1

## Massachusetts Benefits Deductible Program Premium Credits

Deductible Level (1)	Loss Elimination Ratio (2)	Expected Loss Ratio (3)	Safety Factor (4)	Variable Expense Ratio (5)	Underwriting Profit Provision (6)	Premium Credit (7)
500	2.8%	0.646	0.90	0.199	-0.014	2.0%
1,000	4.6%	0.646	0.90	0.199	-0.014	3.2%
2,000	6.9%	0.646	0.90	0.199	-0.014	4.9%
2,500	7.9%	0.646	0.90	0.199	-0.014	5.6%
5,000	11.6%	0.646	0.90	0.199	-0.014	8.3%

Notes:

(2): Based on Unit Statistical Data

(3): Section VI-J, Exhibit 1.

(4) = 0.9 from 9/1/2007 Stipulation.

(5): Section VI-A, Exhibit 1.

(6): Section VII-A, Exhibit 1.

(7) = [ (2) x (3) x (4) ] / [ 1.0 - (5) - (6) ]



# XI 000007 STIP

Section XI - Miscellaneous Rating Values  
 Subsection C - Massachusetts Benefits Claim and Aggregate Deductible Program Credits  
 7/1/2018

Section XI-C  
 Exhibit 1

## Massachusetts Benefits Claim and Aggregate Deductible Program Premium Credit for \$2,500 Per Claim Deductible with Aggregate Limit

Estimated Annual Standard Premium (1)	Expected Number of Claims Per Year = Midpoint of (1) / \$22,496 (2)	Aggregate Limit (3)	Selected Adjustment Factor for Aggregate Limit (4)	Premium Credit = (4) x 5.6% (5)
0 - 75,000	1.7	\$10,000	0.98	5.5%
75,000 - 100,000	3.9	\$10,000	0.96	5.4%
100,000 - 125,000	5.0	\$10,000	0.94	5.3%
125,000 - 150,000	6.1	\$10,000	0.92	5.2%
150,000 - 200,000	7.8	\$10,000	0.88	5.0%
Over 200,000	9 or more	5% of the 'Basis for the Aggregate Limit at Policy Inception'	0.83	4.7%

Notes:

(2): Based on \$22,496 in standard premium (no ARAP) per expected claim.

(4): Selected based on the simulation results shown in Exhibit 2.

(5): The 5.6% is based on the \$2,500 per claim deductible without any aggregate limit, from Section XI-B, Exhibit 1.

# XI 000008 STIP

Section XI - Miscellaneous Rating Values  
 Subsection C - Massachusetts Benefits Claim and Aggregate Deductible Program Credits  
 7/1/2018

Section XI-C  
 Exhibit 2

## Results of Simulation Model

Expected Number of Claims Per Year (1)	Number of Simulated Risks (2)	LER with No Aggregate Limit (3)	LER with \$10,000 Aggregate Limit (4)	LER with 5% of the Basis for Aggregate Limit (5)	Ratio of LERs (\$10,000 limit) = (4) / (3) (6)	Ratio of LERs (5% limit) = (5) / (3) (7)
1	1,000,000	7.80%	7.79%	3.60%	1.00	0.46
2	1,000,000	7.82%	7.80%	4.79%	1.00	0.61
3	1,000,000	7.89%	7.82%	5.36%	0.99	0.68
4	1,000,000	7.86%	7.67%	5.63%	0.98	0.72
5	1,000,000	7.86%	7.49%	5.84%	0.95	0.74
6	1,000,000	7.88%	7.25%	6.00%	0.92	0.76
7	1,000,000	7.88%	6.96%	6.12%	0.88	0.78
8	1,000,000	7.89%	6.62%	6.23%	0.84	0.79
9	1,000,000	7.87%	6.24%	6.28%	0.79	0.80
10	1,000,000	7.88%	5.89%	6.36%	0.75	0.81
12	1,000,000	7.86%	5.17%	6.44%	0.66	0.82
14	1,000,000	7.89%	4.58%	6.55%	0.58	0.83
16	1,000,000	7.88%	4.05%	6.61%	0.51	0.84
18	1,000,000	7.87%	3.61%	6.66%	0.46	0.85
20	1,000,000	7.88%	3.27%	6.71%	0.41	0.85
25	1,000,000	7.88%	2.62%	6.80%	0.33	0.86
30	1,000,000	7.86%	2.18%	6.85%	0.28	0.87
40	1,000,000	7.88%	1.64%	6.96%	0.21	0.88
50	1,000,000	7.87%	1.31%	7.01%	0.17	0.89
75	1,000,000	7.88%	0.87%	7.11%	0.11	0.90
100	1,000,000	7.87%	0.65%	7.16%	0.08	0.91
150	1,000,000	7.87%	0.44%	7.22%	0.06	0.92
200	1,000,000	7.88%	0.33%	7.26%	0.04	0.92
300	1,000,000	7.88%	0.22%	7.29%	0.03	0.93
400	1,000,000	7.88%	0.16%	7.31%	0.02	0.93
500	1,000,000	7.88%	0.13%	7.32%	0.02	0.93

**Notes:**

(5): The Aggregate Limit is based on the average claim severity of the simulated losses, \$15,291 and the permissible loss ratio of 0.646. One claim is assumed to be expected for each \$22,496 of standard premium.

# XI 000009 STIP

Section XI - Miscellaneous Rating Values  
 Subsection C - Massachusetts Benefits Claim and Aggregate Deductible Program Credits  
 7/1/2018

Section XI-C  
 Exhibit 3

## Law Amendments, Loss Development Factors, and Severity Trend

(1) Law Amendment Factors to Prospective Effective Period

Policy Year	Indemnity Losses				Medical Losses
	Death	Permanent Total	Permanent Partial	Temporary Total	All Injury Types
PY 2007	1.056	1.061	1.102	1.036	1.032
PY 2008	1.050	1.052	1.087	1.031	1.024
PY 2009	1.047	1.049	1.081	1.029	1.002
PY 2010	1.048	1.050	1.082	1.029	1.000
PY 2011	1.044	1.045	1.073	1.027	1.000

(2) Loss Development Factors - Fifth Report to Ultimate

Loss Development Category	Indemnity	Medical
Likely to Develop	1.073	1.024
Not Likely to Develop	1.014	1.004

(3) Severity Trend Factors

We apply three distinct trend factors.

Trend to PY 2011 is based on empirical USR data at 5th report.

Trend from PY 2011 to PY 2015 is based on severities from Section V-A.

Trend from PY 2015 to the Prospective Effective Period is based on the projected severity trends from Section V-A.

Trend Period		Indemnity	Lost Time Medical	Medical Only
From	To			
PY 2007	PY 2011	1.127	1.146	1.014
PY 2008	PY 2011	1.057	1.169	0.999
PY 2009	PY 2011	1.014	1.013	1.025
PY 2010	PY 2011	1.063	1.079	1.020
PY 2011	PY 2015	1.109	1.063	1.102
PY 2015	Prosp. Eff. Period	1.074	1.079	1.068

Notes:

(1): Section IV-A, Exhibit 1.

(2): Section IV-E, Exhibit 1, Pages 1 and 2.

(3): Section V-A, Exhibits 1 and 2.

# XI 000010 STIP

<b>MASSACHUSETTS WORKERS COMPENSATION AND EMPLOYERS LIABILITY INSURANCE MANUAL</b>	<b>RATES</b>
<i>Proposed Effective July 1, 2018</i>	Page RA-5

### MISCELLANEOUS VALUES

<b>Basis of Premium</b> applicable in accordance with the footnote instructions for Code 7370 - "Taxicab Co.":	
Employee operated vehicles.....	\$104,400.00
Leased or rented vehicles.....	\$69,600.00
<b>Basis of Premium</b> for Sole Proprietors, Partners of Legal Partnerships, Members of Limited Liability Companies or Partners of Limited Liability Partnerships in accordance with Rule IX-B-3-a.....	
	\$48,700.00
<b>Payroll Limitations:</b>	
For Executive Officers - in accordance with Rule IX-A-3-a and b	
Minimum individual payroll for an executive officer per week.....	\$210.00
Maximum individual payroll for an executive officer per week.....	\$1,060.00
For Spouses of Individuals, Co-Partners or Corporate Officers - in accordance with Rule IX-A-4	
Minimum individual payroll for a spouse per week.....	\$210.00
For Elected or Appointed Officers of a City or Town - in accordance with Rule IX-A-5	
Minimum individual payroll for an elected or appointed officer per week.....	\$210.00
Maximum individual payroll for an elected or appointed officer per week.....	\$1,060.00
Applicable with footnote instructions detailing the maximum average weekly wage per employee for the following three classification codes:	
Code 9186 - Amusement Device Operator, Carnival or Circus Traveling - All Employees & Drivers.....	\$320.00
Code 9179 - Athletic Sports Or Park: Contact Sports.....	\$320.00
Code 9178 - Athletic Sports Or Park: Non-Contact Sports.....	\$320.00
<b>Terrorism Insurance Program</b> —Certified Loss.....	0.03

#### BENEFITS DEDUCTIBLE COVERAGE PROGRAM

Medical and Indemnity Deductible Amount	Premium Reduction Percentage
\$500	2.0%
\$1,000	3.2%
\$2,000	4.9%
\$2,500	5.6%
\$5,000	8.3%

#### BENEFITS CLAIM AND AGGREGATE DEDUCTIBLE PROGRAM

Basis for the Aggregate Limit	Claim Deductible Amount	Aggregate Deductible Amount	Premium Reduction Percentage
\$ 0 to \$75,000	\$2,500	\$10,000	5.5%
\$75,001 to \$100,000	\$2,500	\$10,000	5.4%
\$100,001 to \$125,000	\$2,500	\$10,000	5.3%
\$125,001 to \$150,000	\$2,500	\$10,000	5.2%
\$150,001 to \$200,000	\$2,500	\$10,000	5.0%
over \$200,000	\$2,500	5% of Basis for the Aggregate Limit	4.7%

<b>Expense Constant</b> applicable in accordance with Basic Manual Rule VI-E-2:	
Policies which develop earned Standard Premium of less than \$200.....	\$159.00
Policies which develop earned Standard Premium of at least \$200 and less than \$1,000.....	\$250.00
Policies which develop earned Standard Premium of \$1,000 or more.....	\$338.00

The expense constant for private residence per capita classifications is \$64, up to a maximum of 4.

**Notes:**

- Benefit Deductible Coverage Program - Section XI-B, Exhibit 1.
- Benefit Claim and Aggregate Deductible Program - Section XI-C, Exhibit 1.
- Expense Constant - Section VI-D, Exhibit 1.
- Expense Constant for private residences - Section I-A, Exhibit 1.

# XI 000011 STIP

Section XI - Miscellaneous Rating Values  
Subsection C - Massachusetts Benefits Claim and Aggregate Deductible Program Credits  
7/1/2018

Section XI-C  
Exhibit 4  
Page 2

RATES		MASSACHUSETTS WORKERS COMPENSATION AND EMPLOYERS LIABILITY INSURANCE MANUAL	
Page RA-6		Proposed Effective July 1, 2018	
<b>Premium Discount Percentages</b> —(See Basic Manual Rule VII). The following premium discounts are applicable to Standard Premiums. Note: Premium Discount is not applicable to Assigned Risk policies.			
		<b>Type A Discount</b>	<b>Type B Discount</b>
First	\$ 10,000.....	0.0%	0.0%
Next	190,000.....	9.1%	5.1%
Next	1,550,000.....	11.3%	6.5%
Over	1,750,000.....	12.3%	7.5%
<b>United States Longshore and Harbor Workers' Compensation Coverage</b> Percentage applicable only in connection with Rule XII-D-3-b "U.S. Longshore and Harbor Workers' Compensation Act" of the MA Manual.....			22.6%
(Multiply an eligible Non-F classification rate by a factor of 1.226)			
<b>EXPERIENCE RATING ELIGIBILITY</b>			
A risk is eligible for intrastate experience rating when the payrolls or other exposures developed in the last year or last two years of the experience period produced a subject premium of at least \$11,000. If more than two years, an average annual premium of at least \$5,500 is required. The Experience Rating Plan Manual should be referenced for the latest eligibility amounts by state.			

Notes:

USL&H factor - Section VIII-J, Exhibit 1.

# XII 000004 STIP

**RETROSPECTIVE RATING PLAN MANUAL  
 STATE SPECIAL RATING VALUES**

**MASSACHUSETTS  
 RR1**

*Proposed Effective July 1, 2018*

**1. Hazard Group Differentials**

A	B	C	D	E	F	G
1.93	1.60	1.38	1.17	0.95	0.76	0.59

**2. Tax Multipliers**

a. State (non-F Classes)	1.029*
b. Federal Classes, or non-F classes where rate is increased by the USL&HW Act Percentage	1.078*

\* Includes -0.17% residual market subsidy provision and 0.26% insolvency fund assessment provision

**3. Expected Loss Ratio**

0.645

**Expected Loss and Allocated Loss Adjustment Expense Ratio (ALAE Option)**

0.706

**4. Loss Conversion Factor**

1.185

**Loss Conversion Factor for Allocated Loss Adjustment Expense Option (ALAE Option)**

1.083

**5. Table of Expense Ratios Excluding Taxes and Including Profit**

**Type A Company**

Massachusetts  
 Effective July 1, 2018

**Type B Company**

Massachusetts  
 Effective July 1, 2018

**Table of Expense Ratios Excluding Allocated Loss Adjustment Expense and Taxes and Including Profit (ALAE Option)**

**Type A Company**

Massachusetts  
 Effective July 1, 2018

**Type B Company**

Massachusetts  
 Effective July 1, 2018

**6. 2013—Table of Expected Loss Ranges**

April 1, 2014

**7a.**

**Excess Loss Factors**

(Applicable to New and Renewal Policies)

<u>Per Accident Limitation</u>	<u>Hazard Groups</u>						
	A	B	C	D	E	F	G
\$25,000	0.404	0.430	0.455	0.477	0.497	0.527	0.561
30,000	0.386	0.413	0.438	0.462	0.483	0.514	0.551
35,000	0.369	0.397	0.423	0.449	0.470	0.502	0.542
40,000	0.354	0.382	0.410	0.436	0.458	0.491	0.534
50,000	0.328	0.357	0.385	0.414	0.437	0.471	0.518
75,000	0.277	0.306	0.336	0.370	0.393	0.428	0.485
100,000	0.239	0.267	0.298	0.334	0.358	0.392	0.456
125,000	0.209	0.235	0.266	0.304	0.327	0.361	0.429
150,000	0.186	0.209	0.240	0.278	0.300	0.332	0.406
175,000	0.166	0.187	0.217	0.255	0.276	0.307	0.384
200,000	0.150	0.169	0.197	0.236	0.255	0.285	0.364
250,000	0.124	0.140	0.166	0.203	0.220	0.247	0.329
300,000	0.104	0.118	0.142	0.177	0.192	0.217	0.299
500,000	0.062	0.070	0.086	0.113	0.122	0.141	0.214
1,000,000	0.028	0.032	0.041	0.055	0.060	0.071	0.118
2,000,000	0.013	0.014	0.018	0.026	0.028	0.033	0.059
3,000,000	0.008	0.009	0.011	0.016	0.017	0.020	0.038
4,000,000	0.005	0.006	0.008	0.011	0.012	0.014	0.027
5,000,000	0.004	0.005	0.006	0.008	0.009	0.011	0.021

# XII 00005 STIP

**MASSACHUSETTS  
 RR2**

**RETROSPECTIVE RATING PLAN MANUAL  
 STATE SPECIAL RATING VALUES**

*Proposed Effective July 1, 2018*

**7b. ALAE Option Excess Loss and Allocated Loss Adjustment Expense Factors  
 (Applicable to New and Renewal Policies)**

Per Accident Limitation	Hazard Groups						
	A	B	C	D	E	F	G
\$25,000	0.453	0.481	0.507	0.530	0.552	0.584	0.619
30,000	0.433	0.462	0.489	0.514	0.537	0.571	0.609
35,000	0.415	0.445	0.473	0.500	0.523	0.558	0.599
40,000	0.399	0.430	0.459	0.487	0.511	0.546	0.591
50,000	0.371	0.402	0.433	0.464	0.488	0.525	0.575
75,000	0.316	0.348	0.381	0.416	0.442	0.480	0.540
100,000	0.274	0.306	0.340	0.378	0.405	0.442	0.510
125,000	0.242	0.272	0.306	0.346	0.372	0.409	0.482
150,000	0.216	0.243	0.277	0.318	0.344	0.380	0.457
175,000	0.195	0.219	0.252	0.294	0.318	0.353	0.435
200,000	0.176	0.198	0.231	0.273	0.295	0.329	0.414
250,000	0.147	0.166	0.195	0.237	0.256	0.288	0.376
300,000	0.125	0.141	0.168	0.208	0.225	0.254	0.344
500,000	0.074	0.084	0.103	0.134	0.146	0.168	0.250
1,000,000	0.035	0.039	0.049	0.067	0.073	0.085	0.141
2,000,000	0.015	0.017	0.022	0.031	0.034	0.040	0.071
3,000,000	0.009	0.011	0.014	0.019	0.021	0.025	0.046
4,000,000	0.007	0.007	0.010	0.014	0.015	0.018	0.033
5,000,000	0.005	0.006	0.007	0.010	0.011	0.013	0.025

**8. Retrospective Development Factors**

With Loss Limit				Without Loss Limit			
1st	2nd	3rd	4th & Subsequent	1st	2nd	3rd	4th & Subsequent
<u>Adj.</u>	<u>Adj.</u>	<u>Adj.</u>	<u>Adj.</u>	<u>Adj.</u>	<u>Adj.</u>	<u>Adj.</u>	<u>Adj.</u>
0.11	0.07	0.05	0.00	0.14	0.09	0.06	0.00

**9. State Special Classifications by Hazard Group**

All Massachusetts Hazard Group assignments can be found in Appendix G of the 2008 Edition of the Massachusetts Workers' Compensation & Employers Liability Insurance Manual.

## XII 000006 STIP

Section XII - Retrospective Rating  
Subsection A - Expenses  
7/1/2018

Section XII - A  
Exhibit 3

### Expense Provisions Underlying the Proposed Retrospective Rating Plans

#### Total Expenses:

(1) Commission and Other Acquisition Expenses	12.6%
(2) Fixed Expenses	4.5%
(3) Premium Discount	5.1%
(4) Underwriting Profit Provision	<u>-1.4%</u>
(5) Total Expenses Excluding Taxes and Assessments ( = (1) + (2) + (3) + (4) )	20.8%
(6) Current Premium Tax Rate	2.28%
(7) Miscellaneous Taxes	0.42%
(8) Retro Provision for the Residual Market Subsidy	-0.17%
(9) Insolvency Fund Assessment	<u>0.26%</u>
(10) Tax Multiplier ( = $1.0 / \{ 1.0 - [ (6) + (7) + (8) + (9) ] \}$ )	1.029
(11) Expected Loss and LAE Ratio (adjusted for Residual Market Subsidy) ( = $[ 1.0 / (10) ] - (5)$ )	76.4%
(12) Loss Adjustment Expense (as percentage of losses)	18.5%
(13) Loss Conversion Factor ( = $1.0 + (12)$ )	1.185
(14) Expected Loss without LAE ( = $(11) / (13)$ )	64.5%
(15) Expenses excluding Premium Taxes but including LAE ( = $(5) + [ (12) \times (14) ]$ )	32.7%

#### Notes:

- (1): Section VI-J, Exhibit 1, line (1).
- (2): Section VI-J, Exhibit 1, line (7), less the provision for miscellaneous taxes, see line (7) below.
- (3): Section VI-A, Exhibit 1, line (2).
- (4): Section VII-A, Exhibit 1, line (14).
- (6): Section VI-J, Exhibit 1, Note (3).
- (7): Section VI-B, Exhibit 1, the average of the results of columns (13) x (15) / (17).
- (8): Section XII-B, Exhibit 1, line (3).
- (9): Section IX-K, Exhibit 5, page 1, line (9).
- (12): Section VI-J, Exhibit 1, line (9).



## XII 000007 STIP

Section XII - Retrospective Rating  
Subsection A - Expenses  
7/1/2018

Section XII - A  
Exhibit 4

### Expense Provisions Underlying the ALAE Option of the Recommended Retrospective Rating Plans

(1) Expected Loss without Defense and Cost Containment Expense (as percentage of Standard Premium plus ARAP)	64.5%
(2) Provision for ALAE Expenses (as percentage of losses)	9.4%
(3) Expected Loss plus ALAE Ratio ( = (1) x [ 1.0 + (2) ] )	70.6%
(4) Loss Adjustment Expense (as percentage of losses)	18.5%
(5) Loss Conversion Factor ( = [ 1.0 + (4) ] / [ 1.0 + (2) ] )	1.083
(6) Tax Multiplier	1.029
(7) Expenses excluding Premium Taxes but including LAE (as percentage of Standard Premium plus ARAP)	32.7%
(8) Expenses including all AO Expenses but excluding ALAE Expenses and Premium Taxes ( = (7) - [ (1) x (2) ] )	26.6%

#### Notes:

(1): Exhibit 3, line (14)

(2): Section VI-H, Exhibit 1, line (5), DCC assumed a proxy for ALAE.

(4), (6), (7): Exhibit 3, lines (12), (10) and (15) respectively.

## XII 000008 STIP

Section XII - Retrospective Rating  
Subsection B - Residual Market Subsidy  
7/1/2018

Section XII - B  
Exhibit 1

### Calculation of the Provision for the Residual Market Subsidy

(1) Voluntary Market Implied Rate Factor Equivalent	1.002
(2) Factor to Take into Account Basic Premium	0.800
(3) Retro Provision for the Residual Market Subsidy	-0.17%

Notes:

(1): Section I-E, Exhibit 1, page 1.

(2): From the filing for the provision for the Residual Market Subsidy effective 1/1/89.

(3) =  $[ 1.0 - (1) ] \times (2)$

*Proposed Effective July 1, 2018*

**TABLE OF EXPENSE RATIOS—EXCLUDING TAXES AND INCLUDING PROFIT**

**TYPE A COMPANY—MASSACHUSETTS**

Standard Premium From	To	Expense Ratio	Standard Premium From	To	Expense Ratio	Standard Premium From	To	Expense Ratio
0	10,057	0.327	18,073	18,449	0.287	98,973	111,444	0.247
10,058	10,173	0.326	18,450	18,842	0.286	111,445	127,513	0.246
10,174	10,291	0.325	18,843	19,252	0.285	127,514	148,997	0.245
10,292	10,412	0.324	19,253	19,681	0.284	148,998	179,187	0.244
10,413	10,536	0.323	19,682	20,129	0.283	179,188	203,843	0.243
10,537	10,663	0.322	20,130	20,597	0.282	203,844	212,226	0.242
10,664	10,793	0.321	20,598	21,088	0.281	212,227	221,328	0.241
10,794	10,927	0.320	21,089	21,604	0.280	221,329	231,247	0.240
10,928	11,063	0.319	21,605	22,145	0.279	231,248	242,095	0.239
11,064	11,204	0.318	22,146	22,713	0.278	242,096	254,012	0.238
11,205	11,347	0.317	22,714	23,312	0.277	254,013	267,163	0.237
11,348	11,495	0.316	23,313	23,943	0.276	267,164	281,750	0.236
11,496	11,646	0.315	23,944	24,610	0.275	281,751	298,022	0.235
11,647	11,802	0.314	24,611	25,314	0.274	298,023	316,288	0.234
11,803	11,961	0.313	25,315	26,060	0.273	316,289	336,940	0.233
11,962	12,125	0.312	26,061	26,851	0.272	336,941	360,477	0.232
12,126	12,294	0.311	26,852	27,692	0.271	360,478	387,549	0.231
12,295	12,467	0.310	27,693	28,587	0.270	387,550	419,018	0.230
12,468	12,645	0.309	28,588	29,542	0.269	419,019	456,048	0.229
12,646	12,829	0.308	29,543	30,563	0.268	456,049	500,259	0.228
12,830	13,018	0.307	30,564	31,657	0.267	500,260	553,962	0.227
13,019	13,212	0.306	31,658	32,832	0.266	553,963	620,581	0.226
13,213	13,412	0.305	32,833	34,098	0.265	620,582	705,413	0.225
13,413	13,619	0.304	34,099	35,466	0.264	705,414	817,112	0.224
13,620	13,832	0.303	35,467	36,948	0.263	817,113	970,838	0.223
13,833	14,052	0.302	36,949	38,559	0.262	970,839	1,195,811	0.222
14,053	14,279	0.301	38,560	40,316	0.261	1,195,812	1,556,500	0.221
14,280	14,513	0.300	40,317	42,242	0.260	1,556,501	1,842,116	0.220
14,514	14,755	0.299	42,243	44,361	0.259	1,842,117	2,009,072	0.219
14,756	15,005	0.298	44,362	46,704	0.258	2,009,073	2,209,308	0.218
15,006	15,264	0.297	46,705	49,308	0.257	2,209,309	2,453,876	0.217
15,265	15,533	0.296	49,309	52,219	0.256	2,453,877	2,759,330	0.216
15,534	15,810	0.295	52,220	55,496	0.255	2,759,331	3,151,641	0.215
15,811	16,098	0.294	55,497	59,212	0.254	3,151,642	3,673,995	0.214
16,099	16,397	0.293	59,213	63,461	0.253	3,673,996	4,403,900	0.213
16,398	16,706	0.292	63,462	68,367	0.252	4,403,901	5,495,723	0.212
16,707	17,028	0.291	68,368	74,095	0.251	5,495,724	7,307,384	0.211
17,029	17,362	0.290	74,096	80,871	0.250	7,307,385	10,900,836	0.210
17,363	17,710	0.289	80,872	89,011	0.249	10,900,837	21,448,049	0.209
17,711	18,072	0.288	89,012	98,972	0.248	21,448,050	OVER	0.208

Table based on the following discounts:

Standard Premium	Discount	
First	10,000	0.0%
Next	190,000	9.1%
Next	1,550,000	11.3%
Over	1,750,000	12.3%

Expected Loss Ratio

0.645

Tax Multiplier

1.029

# XII 000010 STIP

**MASSACHUSETTS  
 RR6**

**RETROSPECTIVE RATING PLAN MANUAL  
 STATE SPECIAL RATING VALUES**

*Proposed Effective July 1, 2018*

## TABLE OF EXPENSE RATIOS—EXCLUDING TAXES AND INCLUDING PROFIT

### TYPE B COMPANY—MASSACHUSETTS

Standard Premium		Expense Ratio	Standard Premium		Expense Ratio	Standard Premium		Expense Ratio
From	To		From	To		From	To	
0	- 10,102	0.327	19,776	- 20,597	0.302	235,345	- 253,922	0.277
10,103	- 10,312	0.326	20,598	- 21,490	0.301	253,923	- 275,684	0.276
10,313	- 10,531	0.325	21,491	- 22,464	0.300	275,685	- 301,526	0.275
10,532	- 10,760	0.324	22,465	- 23,531	0.299	301,527	- 332,713	0.274
10,761	- 10,999	0.323	23,532	- 24,704	0.298	332,714	- 371,097	0.273
11,000	- 11,248	0.322	24,705	- 26,000	0.297	371,098	- 419,492	0.272
11,249	- 11,509	0.321	26,001	- 27,439	0.296	419,493	- 482,402	0.271
11,510	- 11,783	0.320	27,440	- 29,047	0.295	482,403	- 567,510	0.270
11,784	- 12,070	0.319	29,048	- 30,856	0.294	567,511	- 689,081	0.269
12,071	- 12,371	0.318	30,857	- 32,904	0.293	689,082	- 876,937	0.268
12,372	- 12,688	0.317	32,905	- 35,244	0.292	876,938	- 1,205,609	0.267
12,689	- 13,021	0.316	35,245	- 37,942	0.291	1,205,610	- 1,776,128	0.266
13,022	- 13,373	0.315	37,943	- 41,088	0.290	1,776,129	- 1,947,135	0.265
13,374	- 13,743	0.314	41,089	- 44,802	0.289	1,947,136	- 2,154,579	0.264
13,744	- 14,135	0.313	44,803	- 49,254	0.288	2,154,580	- 2,411,495	0.263
14,136	- 14,550	0.312	49,255	- 54,689	0.287	2,411,496	- 2,737,978	0.262
14,551	- 14,991	0.311	54,690	- 61,472	0.286	2,737,979	- 3,166,705	0.261
14,992	- 15,458	0.310	61,473	- 70,175	0.285	3,166,706	- 3,754,623	0.260
15,459	- 15,956	0.309	70,176	- 81,750	0.284	3,754,624	- 4,610,613	0.259
15,957	- 16,486	0.308	81,751	- 97,898	0.283	4,610,614	- 5,972,162	0.258
16,487	- 17,054	0.307	97,899	- 121,995	0.282	5,972,163	- 8,474,852	0.257
17,055	- 17,661	0.306	121,996	- 161,828	0.281	8,474,853	- 14,588,153	0.256
17,662	- 18,314	0.305	161,829	- 205,303	0.280	14,588,154	- OVER	0.255
18,315	- 19,017	0.304	205,304	- 219,300	0.279			
19,018	- 19,775	0.303	219,301	- 235,344	0.278			

Table based on the following discounts:

Standard Premium	Discount
First	10,000 0.0%
Next	190,000 5.1%
Next	1,550,000 6.5%
Over	1,750,000 7.5%

Expected Loss Ratio

0.645

Tax Multiplier

1.029

**XII 00011 STIP**

**RETROSPECTIVE RATING PLAN MANUAL** **MASSACHUSETTS**  
**STATE SPECIAL RATING VALUES** **RR7**

*Proposed Effective July 1, 2018*

**TABLE OF EXPENSE RATIOS—EXCLUDING ALLOCATED LOSS ADJUSTMENT EXPENSE  
 AND TAXES AND INCLUDING PROFIT**

**TYPE A COMPANY—MASSACHUSETTS**

Standard Premium		Expense Ratio	Standard Premium		Expense Ratio	Standard Premium		Expense Ratio
From	To		From	To		From	To	
0	10,057	0.266	18,073	18,449	0.226	98,973	111,444	0.186
10,058	10,173	0.265	18,450	18,842	0.225	111,445	127,513	0.185
10,174	10,291	0.264	18,843	19,252	0.224	127,514	148,997	0.184
10,292	10,412	0.263	19,253	19,681	0.223	148,998	179,187	0.183
10,413	10,536	0.262	19,682	20,129	0.222	179,188	203,843	0.182
10,537	10,663	0.261	20,130	20,597	0.221	203,844	212,226	0.181
10,664	10,793	0.260	20,598	21,088	0.220	212,227	221,328	0.180
10,794	10,927	0.259	21,089	21,604	0.219	221,329	231,247	0.179
10,928	11,063	0.258	21,605	22,145	0.218	231,248	242,095	0.178
11,064	11,204	0.257	22,146	22,713	0.217	242,096	254,012	0.177
11,205	11,347	0.256	22,714	23,312	0.216	254,013	267,163	0.176
11,348	11,495	0.255	23,313	23,943	0.215	267,164	281,750	0.175
11,496	11,646	0.254	23,944	24,610	0.214	281,751	298,022	0.174
11,647	11,802	0.253	24,611	25,314	0.213	298,023	316,288	0.173
11,803	11,961	0.252	25,315	26,060	0.212	316,289	336,940	0.172
11,962	12,125	0.251	26,061	26,851	0.211	336,941	360,477	0.171
12,126	12,294	0.250	26,852	27,692	0.210	360,478	387,549	0.170
12,295	12,467	0.249	27,693	28,587	0.209	387,550	419,018	0.169
12,468	12,645	0.248	28,588	29,542	0.208	419,019	456,048	0.168
12,646	12,829	0.247	29,543	30,563	0.207	456,049	500,259	0.167
12,830	13,018	0.246	30,564	31,657	0.206	500,260	553,962	0.166
13,019	13,212	0.245	31,658	32,832	0.205	553,963	620,581	0.165
13,213	13,412	0.244	32,833	34,098	0.204	620,582	705,413	0.164
13,413	13,619	0.243	34,099	35,466	0.203	705,414	817,112	0.163
13,620	13,832	0.242	35,467	36,948	0.202	817,113	970,838	0.162
13,833	14,052	0.241	36,949	38,559	0.201	970,839	1,195,811	0.161
14,053	14,279	0.240	38,560	40,316	0.200	1,195,812	1,556,500	0.160
14,280	14,513	0.239	40,317	42,242	0.199	1,556,501	1,842,116	0.159
14,514	14,755	0.238	42,243	44,361	0.198	1,842,117	2,009,072	0.158
14,756	15,005	0.237	44,362	46,704	0.197	2,009,073	2,209,308	0.157
15,006	15,264	0.236	46,705	49,308	0.196	2,209,309	2,453,876	0.156
15,265	15,533	0.235	49,309	52,219	0.195	2,453,877	2,759,330	0.155
15,534	15,810	0.234	52,220	55,496	0.194	2,759,331	3,151,641	0.154
15,811	16,098	0.233	55,497	59,212	0.193	3,151,642	3,673,995	0.153
16,099	16,397	0.232	59,213	63,461	0.192	3,673,996	4,403,900	0.152
16,398	16,706	0.231	63,462	68,367	0.191	4,403,901	5,495,723	0.151
16,707	17,028	0.230	68,368	74,095	0.190	5,495,724	7,307,384	0.150
17,029	17,362	0.229	74,096	80,871	0.189	7,307,385	10,900,836	0.149
17,363	17,710	0.228	80,872	89,011	0.188	10,900,837	21,448,049	0.148
17,711	18,072	0.227	89,012	98,972	0.187	21,448,050	OVER	0.147

Table based on the following discounts:

Standard Premium	Discount	
First	10,000	0.0%
Next	190,000	9.1%
Next	1,550,000	11.3%
Over	1,750,000	12.3%

Expected Loss and Allocated Loss Adjustment  
 Expense Ratio (ALAE Option)

0.706

Tax Multiplier

1.029

# XII 00012 STIP

**MASSACHUSETTS** **RETROSPECTIVE RATING PLAN MANUAL**  
**RR8** **STATE SPECIAL RATING VALUES**

*Proposed Effective July 1, 2018*

**TABLE OF EXPENSE RATIOS—EXCLUDING ALLOCATED LOSS ADJUSTMENT EXPENSE  
 AND TAXES AND INCLUDING PROFIT**

**TYPE B COMPANY—MASSACHUSETTS**

Standard Premium From	To	Expense Ratio	Standard Premium From	To	Expense Ratio	Standard Premium From	To	Expense Ratio
0	10,102	0.266	19,776	20,597	0.241	235,345	253,922	0.216
10,103	10,312	0.265	20,598	21,490	0.240	253,923	275,684	0.215
10,313	10,531	0.264	21,491	22,464	0.239	275,685	301,526	0.214
10,532	10,760	0.263	22,465	23,531	0.238	301,527	332,713	0.213
10,761	10,999	0.262	23,532	24,704	0.237	332,714	371,097	0.212
11,000	11,248	0.261	24,705	26,000	0.236	371,098	419,492	0.211
11,249	11,509	0.260	26,001	27,439	0.235	419,493	482,402	0.210
11,510	11,783	0.259	27,440	29,047	0.234	482,403	567,510	0.209
11,784	12,070	0.258	29,048	30,856	0.233	567,511	689,081	0.208
12,071	12,371	0.257	30,857	32,904	0.232	689,082	876,937	0.207
12,372	12,688	0.256	32,905	35,244	0.231	876,938	1,205,609	0.206
12,689	13,021	0.255	35,245	37,942	0.230	1,205,610	1,776,128	0.205
13,022	13,373	0.254	37,943	41,088	0.229	1,776,129	1,947,135	0.204
13,374	13,743	0.253	41,089	44,802	0.228	1,947,136	2,154,579	0.203
13,744	14,135	0.252	44,803	49,254	0.227	2,154,580	2,411,495	0.202
14,136	14,550	0.251	49,255	54,689	0.226	2,411,496	2,737,978	0.201
14,551	14,991	0.250	54,690	61,472	0.225	2,737,979	3,166,705	0.200
14,992	15,458	0.249	61,473	70,175	0.224	3,166,706	3,754,623	0.199
15,459	15,956	0.248	70,176	81,750	0.223	3,754,624	4,610,613	0.198
15,957	16,486	0.247	81,751	97,898	0.222	4,610,614	5,972,162	0.197
16,487	17,054	0.246	97,899	121,995	0.221	5,972,163	8,474,852	0.196
17,055	17,661	0.245	121,996	161,828	0.220	8,474,853	14,588,153	0.195
17,662	18,314	0.244	161,829	205,303	0.219	14,588,154	OVER	0.194
18,315	19,017	0.243	205,304	219,300	0.218			
19,018	19,775	0.242	219,301	235,344	0.217			

Table based on the following discounts:

Standard Premium	Discount
First	10,000 0.0%
Next	190,000 5.1%
Next	1,550,000 6.5%
Over	1,750,000 7.5%

Expected Loss and Allocated Loss Adjustment  
 Expense Ratio (ALAE Option)

0.706

Tax Multiplier

1.029

# XII 000013 STIP

Section XII - Retrospective Rating  
 Subsection D - NCCI's Item R-1413  
 7/1/2018

Section XII - D  
 Exhibit 1  
 Page 1

**NATIONAL COUNCIL ON COMPENSATION INSURANCE, INC.**

**R-1413  
 PAGE 26**

**ITEM R-1413—2017 UPDATE TO THE RETROSPECTIVE RATING PLAN PARAMETERS—HAZARD GROUP DIFFERENTIALS, EXCESS LOSS PURE PREMIUM FACTORS AND EXCESS LOSS AND ALLOCATED EXPENSE PURE PREMIUM FACTORS**

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**EXHIBIT 2-HG  
 DEVELOPMENT OF MICHIGAN HAZARD GROUP DIFFERENTIALS  
 FOR HAZARD GROUPS A TO G**

- Step 1.** Five years of historical experience is trended, on-leveled, and developed to estimate the severities for each hazard group. For a given hazard group, state severities are calculated by weighting the severities by claim group together using claim counts. The severities and claim counts have been adjusted using countrywide relativities from NCCI's excess loss factor methodology.
- Step 2.** The severities are weighted with the countrywide severities by hazard group using a credibility that is based on the number of claims in the state's experience period. For this purpose, 155,000 claims are regarded as fully credible and the square root rule is used to compute partial credibilities.
- Step 3.** Credibility weighted severities for each hazard group are produced. A countrywide average severity is calculated by taking the weighted average of the state severities using claim counts as weights.
- Step 4.** The differentials are calculated by dividing the countrywide severity by the individual state hazard group severities.

<u>Step 1</u>	<u>Hazard Group</u>	<u>Michigan</u>	<u>Countrywide</u>
Severities	A	27,361	37,292
	B	33,796	45,689
	C	36,053	51,116
	D	42,308	60,165
	E	49,253	71,093
	F	58,989	87,212
	G	65,830	100,004
 <u>Step 2</u>	Claim Count	=	78,533
	Credibility	=	$(78,533 / 155,000)^{0.5} = 0.712$
 <u>Step 3</u>	<u>Hazard Group</u>	<u>Michigan</u>	
Credibility Weighted Severities	A	30,223	= $(0.712)(27,361) + (0.288)(37,292)$
	B	37,223	
	C	40,394	
	D	47,453	
	E	55,547	
	F	67,122	
	G	75,679	
	Countrywide Overall:	59,736	
 <u>Step 4</u>	<u>Hazard Group</u>	<u>Differentials</u>	
Differentials	A	1.98	= $59,736 / 30,223$
	B	1.60	
	C	1.48	
	D	1.28	
	E	1.08	
	F	0.89	
	G	0.79	

**Note:** The underlying data source for the above calculations is NCCI's Unit Statistical data, excluding medical-only claims. The Unit Statistical data for each state is adjusted accordingly, as reflected in the data underlying the Excess Loss Factor (ELF) calculation.

## XII 000014 STIP

Section XII - Retrospective Rating  
 Subsection E - State Hazard Group Relativities  
 7/1/2018

Section XII - E  
 Exhibit 1

### Development of State Hazard Group Differentials

Step 1, Severities:

Hazard Group (1)	Massachusetts Severities (2)	Countrywide Severities (3)	Massachusetts Overall Severity Split Using CW Severity Relativities = Overall (2) x (3) / Overall (3) (4)
A	26,188	37,292	30,584
B	30,014	45,689	37,471
C	39,149	51,116	41,922
D	46,029	60,165	49,343
E	65,151	71,093	58,306
F	86,391	87,212	71,525
G	155,635	100,004	82,016
Overall	48,991	59,736	48,991

Step 2, Credibility:

(5) Massachusetts Claim Count =	44,671
(6) Requirement for Full Credibility =	155,000
(7) Massachusetts Credibility = = [ (5) / (6) ] <sup>0.5</sup>	0.54

Step 3, Credibility Weighted Severities:

Hazard Group (8)	Massachusetts Credibility Weighted Severities (9)
A	31,331
B	37,274
C	44,692
D	52,576
E	67,903
F	86,771
G	129,869

Step 4, Relativities:

Hazard Group (10)	Indicated Relativities = Overall (3) / (9) (11)	Indicated Relativities Based on MA Severity Split Using CW Relativities = Overall (3) / (4) (12)	Average of the Two Indicated Relativities = [ (11) + (12) ] / 2.0 (13)	Selected Hazard Group Differential (14)
A	1.91	1.95	1.93	1.93
B	1.60	1.59	1.60	1.60
C	1.34	1.42	1.38	1.38
D	1.14	1.21	1.17	1.17
E	0.88	1.02	0.95	0.95
F	0.69	0.84	0.76	0.76
G	0.46	0.73	0.59	0.59

Notes:

- (2), (5): Lost Time Claim Data for Policy Years 2015 at 1st report, 2014  
 at 2nd report, 2013 at 3rd report, adjusted for trend, law amendments and development factors.
- (3), (6): Section XII - D, Exhibit 1 (NCCI's Item R-1413, Page 26.)
- (9) = [ (2) x (7) ] + { (3) x [ 1.0 - (7) ] }



## XII 00023 STIP

Section XII - Retrospective Rating  
 Subsection F - Excess Loss Factors  
 7/1/2018

Section XII - F  
 Exhibit 1  
 Page 1

Excess Loss Factors Proposed to be Effective 07/01/2018

Accident Limit	Hazard Group						
	A	B	C	D	E	F	G
\$25,000	0.404	0.430	0.455	0.477	0.497	0.527	0.561
\$30,000	0.386	0.413	0.438	0.462	0.483	0.514	0.551
\$35,000	0.369	0.397	0.423	0.449	0.470	0.502	0.542
\$40,000	0.354	0.382	0.410	0.436	0.458	0.491	0.534
\$50,000	0.328	0.357	0.385	0.414	0.437	0.471	0.518
\$75,000	0.277	0.306	0.336	0.370	0.393	0.428	0.485
\$100,000	0.239	0.267	0.298	0.334	0.358	0.392	0.456
\$125,000	0.209	0.235	0.266	0.304	0.327	0.361	0.429
\$150,000	0.186	0.209	0.240	0.278	0.300	0.332	0.406
\$175,000	0.166	0.187	0.217	0.255	0.276	0.307	0.384
\$200,000	0.150	0.169	0.197	0.236	0.255	0.285	0.364
\$250,000	0.124	0.140	0.166	0.203	0.220	0.247	0.329
\$300,000	0.104	0.118	0.142	0.177	0.192	0.217	0.299
\$500,000	0.062	0.070	0.086	0.113	0.122	0.141	0.214
\$1,000,000	0.028	0.032	0.041	0.055	0.060	0.071	0.118
\$2,000,000	0.013	0.014	0.018	0.026	0.028	0.033	0.059
\$3,000,000	0.008	0.009	0.011	0.016	0.017	0.020	0.038
\$4,000,000	0.005	0.006	0.008	0.011	0.012	0.014	0.027
\$5,000,000	0.004	0.005	0.006	0.008	0.009	0.011	0.021

**Notes:**

Exhibit 3, page 1 times the Expected Loss Ratio without LAE of 64.5% from Section XII-A, Exhibit 3.

## XII 000024 STIP

Section XII - Retrospective Rating  
 Subsection F - Excess Loss Factors  
 7/1/2018

Section XII - F  
 Exhibit 1  
 Page 2

Excess Loss and ALAE Factors Proposed to be Effective 07/01/2018

Accident Limit	Hazard Group						
	A	B	C	D	E	F	G
\$25,000	0.453	0.481	0.507	0.530	0.552	0.584	0.619
\$30,000	0.433	0.462	0.489	0.514	0.537	0.571	0.609
\$35,000	0.415	0.445	0.473	0.500	0.523	0.558	0.599
\$40,000	0.399	0.430	0.459	0.487	0.511	0.546	0.591
\$50,000	0.371	0.402	0.433	0.464	0.488	0.525	0.575
\$75,000	0.316	0.348	0.381	0.416	0.442	0.480	0.540
\$100,000	0.274	0.306	0.340	0.378	0.405	0.442	0.510
\$125,000	0.242	0.272	0.306	0.346	0.372	0.409	0.482
\$150,000	0.216	0.243	0.277	0.318	0.344	0.380	0.457
\$175,000	0.195	0.219	0.252	0.294	0.318	0.353	0.435
\$200,000	0.176	0.198	0.231	0.273	0.295	0.329	0.414
\$250,000	0.147	0.166	0.195	0.237	0.256	0.288	0.376
\$300,000	0.125	0.141	0.168	0.208	0.225	0.254	0.344
\$500,000	0.074	0.084	0.103	0.134	0.146	0.168	0.250
\$1,000,000	0.035	0.039	0.049	0.067	0.073	0.085	0.141
\$2,000,000	0.015	0.017	0.022	0.031	0.034	0.040	0.071
\$3,000,000	0.009	0.011	0.014	0.019	0.021	0.025	0.046
\$4,000,000	0.007	0.007	0.010	0.014	0.015	0.018	0.033
\$5,000,000	0.005	0.006	0.007	0.010	0.011	0.013	0.025

Excess Loss Factors Effective 9/1/2008

Accident Limit	Hazard Group						
	A	B	C	D	E	F	G
\$25,000	0.382	0.409	0.436	0.460	0.482	0.514	0.552
\$30,000	0.362	0.390	0.417	0.444	0.466	0.499	0.541
\$35,000	0.344	0.373	0.401	0.429	0.451	0.485	0.531
\$40,000	0.328	0.357	0.386	0.415	0.438	0.472	0.521
\$50,000	0.299	0.329	0.359	0.391	0.414	0.449	0.503
\$75,000	0.246	0.275	0.306	0.342	0.366	0.401	0.464
\$100,000	0.208	0.233	0.265	0.303	0.326	0.360	0.430
\$125,000	0.179	0.201	0.232	0.271	0.292	0.325	0.400
\$150,000	0.156	0.176	0.205	0.244	0.264	0.294	0.374
\$175,000	0.137	0.155	0.183	0.221	0.239	0.266	0.350
\$200,000	0.122	0.138	0.164	0.201	0.217	0.243	0.329
\$250,000	0.098	0.112	0.135	0.169	0.183	0.205	0.291
\$300,000	0.081	0.092	0.113	0.144	0.156	0.176	0.260
\$500,000	0.046	0.053	0.066	0.088	0.095	0.108	0.177
\$1,000,000	0.020	0.024	0.030	0.042	0.045	0.051	0.093
\$2,000,000	0.009	0.010	0.013	0.019	0.020	0.023	0.045
\$3,000,000	0.005	0.006	0.008	0.011	0.012	0.014	0.028
\$4,000,000	0.004	0.004	0.006	0.008	0.009	0.010	0.020
\$5,000,000	0.003	0.003	0.004	0.006	0.006	0.007	0.015

Note:  
 9/1/2008 Stipulation. Section XII-F, Exhibit 1, Page 1.

XII 000025 STIP

## XII 000026 STIP

Section XII - Retrospective Rating  
 Subsection F - Excess Loss Factors  
 7/1/2018

Section XII - F  
 Exhibit 3  
 Page 1

Estimated Excess Ratios Based on Adjusted Data and Curves Fit to Data Truncated and Shifted at \$150,000

Accident Limit	Hazard Group						
	A	B	C	D	E	F	G
\$25,000	0.627	0.668	0.706	0.740	0.772	0.818	0.870
\$30,000	0.598	0.640	0.680	0.717	0.749	0.798	0.855
\$35,000	0.573	0.616	0.657	0.696	0.729	0.779	0.841
\$40,000	0.549	0.593	0.635	0.677	0.710	0.762	0.828
\$50,000	0.509	0.553	0.598	0.643	0.677	0.730	0.804
\$75,000	0.429	0.474	0.522	0.574	0.610	0.664	0.752
\$100,000	0.370	0.414	0.462	0.518	0.555	0.608	0.707
\$125,000	0.325	0.365	0.413	0.471	0.508	0.559	0.666
\$150,000	0.288	0.324	0.372	0.431	0.465	0.516	0.630
\$175,000	0.258	0.290	0.336	0.396	0.428	0.477	0.596
\$200,000	0.232	0.262	0.306	0.366	0.395	0.442	0.565
\$250,000	0.192	0.217	0.257	0.315	0.341	0.384	0.510
\$300,000	0.162	0.183	0.220	0.274	0.297	0.337	0.464
\$500,000	0.095	0.108	0.133	0.175	0.190	0.219	0.332
\$1,000,000	0.044	0.050	0.063	0.086	0.094	0.110	0.183
\$2,000,000	0.019	0.022	0.028	0.040	0.043	0.051	0.091
\$3,000,000	0.012	0.013	0.017	0.025	0.027	0.032	0.058
\$4,000,000	0.008	0.009	0.012	0.017	0.019	0.022	0.042
\$5,000,000	0.006	0.007	0.009	0.013	0.014	0.017	0.032

Note:

For Accident Limit  $L \leq \$150,000$  excess ratios are from Page 3. For Accident Limit  $L > \$150,000$  excess ratios are from Page 2 times the estimated excess ratio at  $L = \$150,000$  (See Appendix).

Fitted Excess Ratios Based on Losses Truncated and Shifted to \$150,000

Accident Limit	Hazard Group													
	A		B		C		D		E		F		G	
	Entry Ratio	Excess Ratio	Entry Ratio	Excess Ratio	Entry Ratio	Excess Ratio	Entry Ratio	Excess Ratio	Entry Ratio	Excess Ratio	Entry Ratio	Excess Ratio	Entry Ratio	Excess Ratio
\$175,000	0.114	0.895	0.113	0.896	0.102	0.905	0.086	0.919	0.085	0.920	0.080	0.924	0.055	0.947
\$200,000	0.227	0.807	0.225	0.808	0.204	0.823	0.171	0.848	0.170	0.850	0.160	0.857	0.111	0.898
\$250,000	0.454	0.666	0.450	0.668	0.408	0.692	0.343	0.730	0.339	0.732	0.320	0.744	0.221	0.811
\$300,000	0.681	0.562	0.676	0.564	0.612	0.591	0.514	0.636	0.509	0.638	0.479	0.653	0.331	0.737
\$500,000	1.590	0.331	1.576	0.333	1.427	0.359	1.200	0.405	1.187	0.408	1.119	0.424	0.773	0.527
\$1,000,000	3.860	0.153	3.828	0.154	3.466	0.170	2.914	0.199	2.883	0.201	2.717	0.212	1.878	0.291
\$2,000,000	8.402	0.068	8.331	0.068	7.543	0.076	6.342	0.092	6.275	0.093	5.913	0.099	4.088	0.145
\$3,000,000	12.943	0.041	12.834	0.041	11.620	0.047	9.770	0.057	9.667	0.058	9.109	0.062	6.297	0.093
\$4,000,000	17.484	0.028	17.337	0.029	15.697	0.032	13.198	0.040	13.059	0.041	12.305	0.043	8.506	0.067
\$5,000,000	22.026	0.021	21.840	0.022	19.774	0.024	16.626	0.030	16.450	0.031	15.501	0.033	10.716	0.051

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Notes:

Entry Ratio = ( [ Limit ] - [ \$150,000 Truncation Point ] ) / [ Average Size of Data Truncated and Shifted to \$150,000 ]

For the seven Hazard Groups, the detrended average sizes are \$171,896 for HGA, \$173,361 for HGB, \$191,469 for HGC, \$227,728 for HGD, \$230,154 for HGE, \$244,252 for HGF and \$353,324 for HGG.

Excess Ratio is computed for a Mixed Pareto - Exponential distribution with parameters: 0.7344, 2.3285, 1.4950, 0.6270 (weight to Pareto, Pareto Shape, Pareto Scale, Exponential Scale).

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Section XII - Retrospective Rating  
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 Exhibit 3  
 Page 3

### Excess Ratios Based on Adjusted Data

Accident Limit	Hazard Group						
	A	B	C	D	E	F	G
\$25,000	0.627	0.668	0.706	0.740	0.772	0.818	0.870
\$30,000	0.598	0.640	0.680	0.717	0.749	0.798	0.855
\$35,000	0.573	0.616	0.657	0.696	0.729	0.779	0.841
\$40,000	0.549	0.593	0.635	0.677	0.710	0.762	0.828
\$50,000	0.509	0.553	0.598	0.643	0.677	0.730	0.804
\$75,000	0.429	0.474	0.522	0.574	0.610	0.664	0.752
\$100,000	0.370	0.414	0.462	0.518	0.555	0.608	0.707
\$125,000	0.325	0.365	0.413	0.471	0.508	0.559	0.666
\$150,000	0.288	0.324	0.372	0.431	0.465	0.516	0.630
\$175,000	0.258	0.291	0.337	0.397	0.428	0.477	0.597
\$200,000	0.232	0.262	0.307	0.366	0.395	0.441	0.566
\$250,000	0.192	0.219	0.259	0.317	0.339	0.380	0.514
\$300,000	0.162	0.187	0.223	0.279	0.294	0.330	0.470
\$500,000	0.096	0.111	0.140	0.188	0.183	0.204	0.347
\$1,000,000	0.045	0.046	0.074	0.120	0.088	0.098	0.223
\$2,000,000	0.015	0.020	0.042	0.086	0.040	0.045	0.121
\$3,000,000	0.005	0.015	0.032	0.077	0.027	0.027	0.076
\$4,000,000	0.001	0.013	0.027	0.072	0.022	0.018	0.051
\$5,000,000	0.000	0.012	0.023	0.068	0.019	0.013	0.032

**Notes:**

Unit Statistical Plan Data for Composite Policy Years 00/01, 99/00, 98/99, 97/98, 96/97, 95/96 at fifth report, adjusted for trend, law amendments and development factors using factors from Section XI-C, Exhibit 1.

## XII 000029 STIP

Section XII - Retrospective Rating  
 Subsection F - Excess Loss Factors  
 7/1/2018

Section XII - F  
 Exhibit 4

### Mixed Pareto-Exponential Distribution

Parameters:

Pareto shape = s	2.3285
Pareto scale = b	1.4950
Exponential scale = $\theta$	0.6270
Weight to Pareto = p	0.7344
Mean =	1.0000
Variance =	5.5243
Coefficient of Variation =	2.3504
Skewness =	18.0452
Pareto Mean = $b / (s - 1.0)$	1.1253
Exponential Mean = $\theta$	0.6270

Entry Ratio	Excess Ratio	Entry Ratio	Excess Ratio
0.1	0.9067	11	0.0496
0.2	0.8263	12	0.0448
0.3	0.7567	13	0.0407
0.4	0.6960	14	0.0372
0.5	0.6428	15	0.0343
0.6	0.5960	20	0.0241
0.7	0.5546	25	0.0183
0.8	0.5178	30	0.0145
0.9	0.4849	35	0.0119
1.0	0.4555	40	0.0101
1.25	0.3941	45	0.0087
1.5	0.3460	50	0.0076
1.75	0.3075	55	0.0067
2.0	0.2763	60	0.0060
2.50	0.2286	65	0.0054
3.0	0.1942	70	0.0049
3.5	0.1682	75	0.0045
4.0	0.1479	80	0.0041
4.5	0.1316	85	0.0038
5.0	0.1183	90	0.0035
6.0	0.0978	95	0.0033
7.0	0.0828	100	0.0031
8.0	0.0714		
9.0	0.0625		
10.0	0.0554		

Notes:  
 See the Appendix for a sample calculation of an excess ratio.

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 Exhibit 5

## Total Severity Trend & Benefit Change Adjustment

	Indemnity	Lost Time Medical	Medical Only	Total
(1) PY 9/1/2008 Average Severity	26,021	11,830	809	
(2) PY 2015 Average Severity	29,689	13,544	902	
(3) Annual Severity Trend - From PY 2015 to Prospective Effective Period	2.1%	2.2%	1.9%	
(4) Trend Factor from PY 9/1/2008 to Prospective Effective Period = $[(2) / (1)] \times [1.000 + (3)]^{3.5}$	1.226	1.235	1.191	
(5) Injury Type Weight at Ultimate	65.28%	30.17%	4.55%	
(6) Total Severity Trend Factor from PY 9/1/2008 to Prospective Effective Period = (4) Weighted by (5)				1.227
(7) Total Benefit Level Change Factor from PY 9/1/2008 to Prospective Effective Period				1.044
(8) Combined Trend and Benefit Factor from PY 9/1/2008 to Prospective Effective Period = (6) x (7)				1.281

**Notes:**

(1),(2) : From Section V-A, Exhibit 2, Page 1. PY9/1/2008 is a weighted average of PY2008 and PY2009. =  $(1/3) \times \text{PY2008} + (2/3) \times \text{PY2009}$

(3): From Section V-A, Exhibit 1.

(5): From Section IV-E, Exhibit 2, Page 1.

(7): From Section IV-A, Exhibit 1.