Rhode Island

Advisory Loss Cost Filing
Proposed Effective August 1, 2017

Technical Supplement

National Council on Compensation Insurance

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State Relations Executive
Regulatory Services Division

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November 16, 2016

The Honorable Scottye Lindsey
Director
State of Rhode Island and Providence Plantations
Department of Business Regulation
Insurance Division
1511 Pontiac Ave
Cranston, RI 02920

Attention: Paula Pallozzi, SPIR, Associate Director

Re: Technical Supplement for Rhode Island Workers Compensation Loss Costs Level Change including Loss Adjustment Expense (LAE) -- Effective August 1, 2017

Dear Director Lindsey:

We are enclosing for your review, supporting actuarial and statistical data used to produce the results of the proposed August 1, 2017 advisory loss costs and rating values filing.

As always, if you should have any questions or need additional information, please do not hesitate to contact me at (802) 454-1800 or Nadege Bernard-Ahrendts at (561) 893-3082.

Respectfully Submitted,

Laura Backus Hall, CPCU
State Relations Executive

Rhode Island

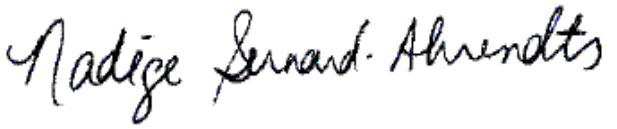
WORKERS COMPENSATION FILING – AUGUST 1, 2017

Actuarial Certification and Disclosure Statement

Actuarial Certification

I, Nadege Bernard-Ahrendts, am a Director and Actuary for the National Council on Compensation Insurance, Inc. I am a Fellow of the Casualty Actuarial Society and a member of the American Academy of Actuaries, and I meet the Qualification Standards of the American Academy of Actuaries to provide the actuarial report contained herein.

The information contained in this report has been prepared under my direction in accordance with applicable Actuarial Standards of Practice as promulgated by the Actuarial Standards Board. The Actuarial Standards Board is vested by the U.S.-based actuarial organizations with the responsibility for promulgating Actuarial Standards of Practice for actuaries providing professional services in the United States. Each of these organizations requires its members, through its Code of Professional Conduct, to observe the Actuarial Standards of Practice when practicing in the United States.



Nadege Bernard-Ahrendts
Director & Actuary
Actuarial and Economic Services

Documents Comprising the Report

There are two documents comprising the full actuarial report:

- The loss cost filing includes a description of the key components reviewed in determining the overall average loss cost level change, the proposed loss costs and experience rating values by class code, and updated miscellaneous values and retrospective rating values.
- The Technical Supplement shows detailed calculations supporting the information conveyed in the filing document.

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WORKERS COMPENSATION FILING – AUGUST 1, 2017

Actuarial Certification and Disclosure Statement

Data Sources and Dates

The overall average loss cost level change is based on a review of Financial Call Data, which is aggregated workers compensation data reported to NCCI annually. In this filing, Financial Call Data submissions received after September 8, 2016 were not considered for inclusion in the analysis.

Loss cost level changes at the classification code level are based on Unit Statistical Data, which is the audited exposure, premium and loss information reported to NCCI on a policy level. In this filing, Unit Statistical Data submissions received after September 23, 2016 were not considered for inclusion in the analysis.

In some areas, NCCI's analysis also relies on other data sources, which are reviewed for reasonableness and are referenced in the filing where applicable.

This filing was prepared as of November 7, 2016. Therefore, events that occurred after this date that may have a material impact on workers compensation costs in this jurisdiction have not been considered in the analysis.

Methodology and Assumptions

The methodology and assumptions used in this filing, detailed in the Technical Supplement, may not be applicable to or relevant for another purpose, including but not limited to NCCI filings in other jurisdictions.

Generally, the methodology used in this filing is not materially different from previous NCCI filings approved in Rhode Island with the exception of the following changes:

- Inclusion of the Medical Fee Schedule (MFS) in the Impact due to Changes in Benefits

  In prior filings, NCCI considered changes to the MFS in the selection of the medical loss ratio trend. The purpose of the consideration was to reflect expected changes in medical benefits without estimating the quantitative impact. In recent years, the MFS has started to use Medicare as the basis for the schedule allowing NCCI to reasonably calculate an estimated quantitative impact. NCCI has included the estimated impact into the benefit changes as shown in appendix C-I in lieu of considering the change during trend selection. The prior MFS change that was priced, effective 5/1/2014, was included in historical benefit changes for the purposes of on-leveling as shown in appendix A-I.

NCCI has prepared this filing in accordance with the applicable laws and regulations of this jurisdiction.

Rhode Island

WORKERS COMPENSATION FILING – AUGUST 1, 2017

Actuarial Certification and Disclosure Statement

Risks and Uncertainty

This filing includes assumptions and projections concerning the future. As with any prospective analysis, there exists estimation uncertainty in these assumptions and projections. Areas of this analysis subject to estimation uncertainty that could have a material impact on the final results include the following:

- Projection of future loss development
- Selection of loss ratio trends
- Potential impact of changes to laws and/or regulations

In addition, any future changes to workers compensation law or regulations that apply retroactively to policies or benefit claims on policies in the proposed effective period may have a significant impact on the adequacy of the loss costs proposed in this filing.

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SUMMARY OF PROPOSED CHANGES

Proposed Effective Date	**August 1, 2017**
I. Industrial Classifications	
Overall Proposed Change in Loss Cost Level	
New and Renewal Policies	-2.6%
By Component	
Change in Experience, Trend and Benefits	-3.4%
Change in Loss-based Expenses	+0.8%
Overall Loss Cost Level Change	-2.6%
By Industry Group	
Manufacturing	-0.9%
Contracting	-7.0%
Office & Clerical	-5.2%
Goods & Services	-2.0%
Miscellaneous	+0.7%
Overall	-2.6%
II. "F" Classifications	
Overall Proposed Change in Voluntary Loss Cost Level	
New and Renewal Policies	-1.1%

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EXHIBIT I

Determination of Indicated Loss Cost Level Change

Section A - Policy Year 2014 Experience

Premium:

(1)	Standard Earned Premium Developed to Ultimate (Appendix A-II)	$153,746,029
(2)	Premium On-level Factor (Appendix A-I)	0.790
(3)	Premium Available for Benefit Costs = (1) x (2)	$121,459,363

Indemnity Benefit Cost:

(4)	Limited Indemnity Losses Developed to Ultimate (Appendix A-II)	$76,663,897
(5)	Indemnity Loss On-level Factor (Appendix A-I)	1.006
(6)	Adjusted Limited Indemnity Losses = (4) x (5)	$77,123,880
(7)	Adjusted Limited Indemnity Cost Ratio excluding Trend and Benefits = (6) / (3)	0.635
(8)	Factor to Reflect Indemnity Trend (Appendix A-III)	0.982
(9)	Projected Limited Indemnity Cost Ratio = (7) x (8)	0.624
(10)	Factor to Adjust Indemnity Cost Ratio to an Unlimited Basis (Appendix A-II)	1.024
(11)	Projected Indemnity Cost Ratio = (9) x (10)	0.639
(12)	Factor to Reflect Proposed Changes in Indemnity Benefits (Appendix C)	1.004
(13)	Projected Indemnity Cost Ratio including Benefit Changes = (11) x (12)	0.642

Medical Benefit Cost:

(14)	Limited Medical Losses Developed to Ultimate (Appendix A-II)	$34,609,387
(15)	Medical Loss On-level Factor (Appendix A-I)	1.002
(16)	Adjusted Limited Medical Losses = (14) x (15)	$34,678,606
(17)	Adjusted Limited Medical Cost Ratio excluding Trend and Benefits = (16) / (3)	0.286
(18)	Factor to Reflect Medical Trend (Appendix A-III)	0.982
(19)	Projected Limited Medical Cost Ratio = (17) x (18)	0.281
(20)	Factor to Adjust Medical Cost Ratio to an Unlimited Basis (Appendix A-II)	1.024
(21)	Projected Medical Cost Ratio = (19) x (20)	0.288
(22)	Factor to Reflect Proposed Changes in Medical Benefits (Appendix C)	1.005
(23)	Projected Medical Cost Ratio including Benefit Changes = (21) x (22)	0.289

Total Benefit Cost:

(24)	Indicated Change Based on Experience, Trend and Benefits = (13) + (23)	0.931

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EXHIBIT I

Determination of Indicated Loss Cost Level Change

Section B - Policy Year 2013 Experience

Premium:

(1)	Standard Earned Premium Developed to Ultimate (Appendix A-II)	$144,216,341
(2)	Premium On-level Factor (Appendix A-I)	0.820
(3)	Premium Available for Benefit Costs = (1) x (2)	$118,257,400

Indemnity Benefit Cost:

(4)	Limited Indemnity Losses Developed to Ultimate (Appendix A-II)	$77,031,776
(5)	Indemnity Loss On-level Factor (Appendix A-I)	1.007
(6)	Adjusted Limited Indemnity Losses = (4) x (5)	$77,570,998
(7)	Adjusted Limited Indemnity Cost Ratio excluding Trend and Benefits = (6) / (3)	0.656
(8)	Factor to Reflect Indemnity Trend (Appendix A-III)	0.977
(9)	Projected Limited Indemnity Cost Ratio = (7) x (8)	0.641
(10)	Factor to Adjust Indemnity Cost Ratio to an Unlimited Basis (Appendix A-II)	1.024
(11)	Projected Indemnity Cost Ratio = (9) x (10)	0.656
(12)	Factor to Reflect Proposed Changes in Indemnity Benefits (Appendix C)	1.004
(13)	Projected Indemnity Cost Ratio including Benefit Changes = (11) x (12)	0.659

Medical Benefit Cost:

(14)	Limited Medical Losses Developed to Ultimate (Appendix A-II)	$36,962,098
(15)	Medical Loss On-level Factor (Appendix A-I)	1.007
(16)	Adjusted Limited Medical Losses = (14) x (15)	$37,220,833
(17)	Adjusted Limited Medical Cost Ratio excluding Trend and Benefits = (16) / (3)	0.315
(18)	Factor to Reflect Medical Trend (Appendix A-III)	0.977
(19)	Projected Limited Medical Cost Ratio = (17) x (18)	0.308
(20)	Factor to Adjust Medical Cost Ratio to an Unlimited Basis (Appendix A-II)	1.024
(21)	Projected Medical Cost Ratio = (19) x (20)	0.315
(22)	Factor to Reflect Proposed Changes in Medical Benefits (Appendix C)	1.005
(23)	Projected Medical Cost Ratio including Benefit Changes = (21) x (22)	0.317

Total Benefit Cost:

(24)	Indicated Change Based on Experience, Trend and Benefits = (13) + (23)	0.976

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EXHIBIT I

Determination of Indicated Loss Cost Level Change

Section C - Policy Year 2012 Experience

Premium:

(1)	Standard Earned Premium Developed to Ultimate (Appendix A-II)	$134,876,833
(2)	Premium On-level Factor (Appendix A-I)	0.852
(3)	Premium Available for Benefit Costs = (1) x (2)	$114,915,062

Indemnity Benefit Cost:

(4)	Limited Indemnity Losses Developed to Ultimate (Appendix A-II)	$74,958,711
(5)	Indemnity Loss On-level Factor (Appendix A-I)	1.009
(6)	Adjusted Limited Indemnity Losses = (4) x (5)	$75,633,339
(7)	Adjusted Limited Indemnity Cost Ratio excluding Trend and Benefits = (6) / (3)	0.658
(8)	Factor to Reflect Indemnity Trend (Appendix A-III)	0.972
(9)	Projected Limited Indemnity Cost Ratio = (7) x (8)	0.640
(10)	Factor to Adjust Indemnity Cost Ratio to an Unlimited Basis (Appendix A-II)	1.024
(11)	Projected Indemnity Cost Ratio = (9) x (10)	0.655
(12)	Factor to Reflect Proposed Changes in Indemnity Benefits (Appendix C)	1.004
(13)	Projected Indemnity Cost Ratio including Benefit Changes = (11) x (12)	0.658

Medical Benefit Cost:

(14)	Limited Medical Losses Developed to Ultimate (Appendix A-II)	$37,999,677
(15)	Medical Loss On-level Factor (Appendix A-I)	1.008
(16)	Adjusted Limited Medical Losses = (14) x (15)	$38,303,674
(17)	Adjusted Limited Medical Cost Ratio excluding Trend and Benefits = (16) / (3)	0.333
(18)	Factor to Reflect Medical Trend (Appendix A-III)	0.972
(19)	Projected Limited Medical Cost Ratio = (17) x (18)	0.324
(20)	Factor to Adjust Medical Cost Ratio to an Unlimited Basis (Appendix A-II)	1.024
(21)	Projected Medical Cost Ratio = (19) x (20)	0.332
(22)	Factor to Reflect Proposed Changes in Medical Benefits (Appendix C)	1.005
(23)	Projected Medical Cost Ratio including Benefit Changes = (21) x (22)	0.334

Total Benefit Cost:

(24)	Indicated Change Based on Experience, Trend and Benefits = (13) + (23)	0.992

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EXHIBIT I

Determination of Indicated Loss Cost Level Change

Section D - Indicated Change Based on Experience, Trend and Benefits

(1)	Policy Year 2014 Indicated Change Based on Experience, Trend and Benefits	0.931
(2)	Policy Year 2013 Indicated Change Based on Experience, Trend and Benefits	0.976
(3)	Policy Year 2012 Indicated Change Based on Experience, Trend and Benefits	0.992
(4)	Indicated Change Based on Experience, Trend and Benefits = [(1)+(2)+(3)] / 3	0.966

Section E - Application of the Change in Loss-based Expenses

(1)	Indicated Loss Cost Level Change	0.966
(2)	Effect of the Change in Loss-based Expenses (Exhibit II)	1.008
(3)	Indicated Change Modified to Reflect the Change in Loss-based Expenses = (1) x (2)	0.974

Section F - Distribution of Overall Loss Cost Level Change to Industry Groups

Industry Group Differentials (Appendix A-V):

Manufacturing	1.017
Contracting	0.955
Office & Clerical	0.973
Goods & Services	1.006
Miscellaneous	1.034

Applying these industry group differentials to the final overall loss cost level change produces the changes in loss cost level proposed for each group as shown:

Industry Group	(1) Final Overall Loss Cost Level Change	(2) Industry Group Differential	(3) = (1) x (2) Final Loss Cost Level Change by Industry Group	
Manufacturing	0.974	1.017	0.991	(-0.9%)
Contracting	0.974	0.955	0.930	(-7.0%)
Office & Clerical	0.974	0.973	0.948	(-5.2%)
Goods & Services	0.974	1.006	0.980	(-2.0%)
Miscellaneous	0.974	1.034	1.007	(+0.7%)
Overall	0.974	1.000	0.974	(-2.6%)

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EXHIBIT II

Workers Compensation Loss-based Expense Provision

Section A - Determination of Loss Adjustment Expense Provision

NCCI has computed the loss adjustment expense allowance on an accident year basis using data obtained from the NCCI Call for Loss Adjustment Expense. For this filing, NCCI proposes a 18.9% loss adjustment expense allowance as a percentage of incurred losses.

Accident Year	Accident Year Developed LAE Ratio	Accident Year Developed DCCE Ratio	Accident Year Developed AOE Ratio
2011	18.8%	12.2%	6.6%
2012	19.9%	13.0%	6.9%
2013	20.4%	13.0%	7.4%
2014	21.0%	13.5%	7.5%
2015	20.4%	13.2%	7.2%
Countrywide selected:	20.6%	13.2%	7.4%
Rhode Island selected: (11.5% = 13.2% x 0.871)	**18.9%**	**11.5%**	**7.4%**

Section B - Determination of Rhode Island DCCE Relativity

(1a)	Rhode Island paid losses (in '000s)	133,698
(1b)	Rhode Island paid DCCE (in '000s)	14,492
(1c)	Ratio (1b)/(1a)	10.8%
(2a)	Countrywide paid losses (in '000s)	70,961,833
(2b)	Countrywide paid DCCE (in '000s)	8,767,925
(2c)	Ratio (2b)/(2a)	12.4%
(3)	Rhode Island DCCE relativity (1c)/(2c)	0.871

Section C - Proposed Change in Rhode Island Loss Adjustment Expense Provision

(1)	Current Rhode Island LAE Provision	17.9%
(2)	Proposed Rhode Island LAE Provision	18.9%
(3)	Proposed Change in LAE Provision = [1.0 + (2)] / [1.0 + (1)] - 1	1.008 0.8%

Notes

NAIC Annual Statement data is used in the above calculations. The countrywide figures exclude state funds.

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APPENDIX A-I

Determination of Policy Year On-level Factors

Section A - Factor Adjusting 2014 Policy Year Premium to Present Level

	Date	(1) Loss Cost Level Change	(2) Cumulative Index	(3) Weight	(4) Product (2)x(3)	(5) Adj. Factor Present Index/ Sum Column (4)	(6) Adj. For Expense Removal	(7) Off-balance Adjustment Factor*	(8) Premium Adjustment Factor (5)x(6)x(7)
NR	08/01/13	Base	1.000	0.620	0.620	0.939	0.848	0.992	0.790
NR	08/01/14	1.025	1.025	0.380	0.390				
NR	08/01/16	0.925	0.948						
					1.010				

Section B - Factor Adjusting 2014 Policy Year Indemnity Losses to Present Benefit Level

Date	(1) Benefit Level Change	(2) Cumulative Index	(3) Weight	(4) Product (2)x(3)	(5) Adj. Factor Present Index/ Sum Column (4)
09/01/13	Base	1.000	0.091	0.091	1.006
05/01/14	1.000	1.000	0.184	0.184	
09/01/14	1.002	1.002	0.674	0.675	
09/01/15	1.002	1.004	0.051	0.051	
10/01/16	1.003	1.007			
				1.001	

Section C - Factor Adjusting 2014 Policy Year Medical Losses to Present Benefit Level

Date	(1) Benefit Level Change	(2) Cumulative Index	(3) Weight	(4) Product (2)x(3)	(5) Adj. Factor Present Index/ Sum Column (4)
09/01/13	Base	1.000	0.091	0.091	1.002
05/01/14	1.008	1.008	0.184	0.185	
09/01/14	1.000	1.008	0.674	0.679	
09/01/15	1.000	1.008	0.051	0.051	
10/01/16	1.000	1.008			
				1.006	

NR New and renewal business.
@ Eliminates premium derived from expense constants.
* 0.992 = 0.963 / 0.971 = (Targeted Off-balance) / (Off-balance for Policy Year 2014)

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APPENDIX A-I

Determination of Policy Year On-level Factors

Section D - Factor Adjusting 2013 Policy Year Premium to Present Level

	Date	(1) Loss Cost Level Change	(2) Cumulative Index	(3) Weight	(4) Product (2)x(3)	(5) Adj. Factor Present Index/ Sum Column (4)	(6) Adj. For Expense Removal	(7) Off-balance Adjustment Factor*	(8) Premium Adjustment Factor (5)x(6)x(7)
NR	01/01/13	Base	1.000	0.620	0.620	0.990	0.848	0.976	0.820
NR	08/01/13	1.074	1.074	0.380	0.408				
NR	08/01/14	1.025	1.101						
NR	08/01/16	0.925	1.018						
					1.028				

Section E - Factor Adjusting 2013 Policy Year Indemnity Losses to Present Benefit Level

Date	(1) Benefit Level Change	(2) Cumulative Index	(3) Weight	(4) Product (2)x(3)	(5) Adj. Factor Present Index/ Sum Column (4)
09/01/12	Base	1.000	0.275	0.275	1.007
09/01/13	1.001	1.001	0.525	0.526	
05/01/14	1.000	1.001	0.149	0.149	
09/01/14	1.002	1.003	0.051	0.051	
09/01/15	1.002	1.005			
10/01/16	1.003	1.008			
				1.001	

Section F - Factor Adjusting 2013 Policy Year Medical Losses to Present Benefit Level

Date	(1) Benefit Level Change	(2) Cumulative Index	(3) Weight	(4) Product (2)x(3)	(5) Adj. Factor Present Index/ Sum Column (4)
09/01/12	Base	1.000	0.275	0.275	1.007
09/01/13	1.000	1.000	0.525	0.525	
05/01/14	1.008	1.008	0.149	0.150	
09/01/14	1.000	1.008	0.051	0.051	
09/01/15	1.000	1.008			
10/01/16	1.000	1.008			
				1.001	

NR New and renewal business.
@ Eliminates premium derived from expense constants.
* 0.976 = 0.963 / 0.987 = (Targeted Off-balance) / (Off-balance for Policy Year 2013)

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APPENDIX A-I

Determination of Policy Year On-level Factors

Section G - Factor Adjusting 2012 Policy Year Premium to Present Level

	Date	(1) Loss Cost Level Change	(2) Cumulative Index	(3) Weight	(4) Product (2)x(3)	(5) Adj. Factor Present Index/ Sum Column (4)	(6) Adj. For Expense Removal	(7) Off-balance Adjustment Factor*	(8) Premium Adjustment Factor (5)x(6)x(7)
NR	06/01/11	Base	1.000	0.489	0.489	1.035	0.848	0.970	0.852
NR	07/01/12	1.053	1.053	0.511	0.538				
NR	01/01/13	0.991	1.044						
NR	08/01/13	1.074	1.121						
NR	08/01/14	1.025	1.149						
NR	08/01/16	0.925	1.063						
					1.027				

Section H - Factor Adjusting 2012 Policy Year Indemnity Losses to Present Benefit Level

Date	(1) Benefit Level Change	(2) Cumulative Index	(3) Weight	(4) Product (2)x(3)	(5) Adj. Factor Present Index/ Sum Column (4)
01/01/12	Base	1.000	0.275	0.275	1.009
09/01/12	1.002	1.002	0.674	0.675	
09/01/13	1.001	1.003	0.051	0.051	
05/01/14	1.000	1.003			
09/01/14	1.002	1.005			
09/01/15	1.002	1.007			
10/01/16	1.003	1.010			
				1.001	

Section I - Factor Adjusting 2012 Policy Year Medical Losses to Present Benefit Level

Date	(1) Benefit Level Change	(2) Cumulative Index	(3) Weight	(4) Product (2)x(3)	(5) Adj. Factor Present Index/ Sum Column (4)
01/01/12	Base	1.000	0.275	0.275	1.008
09/01/12	1.000	1.000	0.674	0.674	
09/01/13	1.000	1.000	0.051	0.051	
05/01/14	1.008	1.008			
09/01/14	1.000	1.008			
09/01/15	1.000	1.008			
10/01/16	1.000	1.008			
				1.000	

NR New and renewal business.
@ Eliminates premium derived from expense constants.
* 0.970 = 0.963 / 0.993 = (Targeted Off-balance) / (Off-balance for Policy Year 2012)

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APPENDIX A-I

Determination of Policy Year On-level Factors

Section J - Premium Adjustment to Average Expected Mod

Rating Year	(1) Average Intrastate Mod	(2) Average Interstate Mod	(3) Average Mod Combined Rated Risk	(4) Weighted Average Off-Balance	(5) Average Mod Expected	(6)= (5)/(4) Policy Year Adjustment Factor
1999	1.041	0.978	1.019	1.018	0.963	0.946
2000	1.006	0.969	0.994	0.994	0.963	0.969
2001	1.010	0.998	1.006	1.006	0.963	0.957
2002	1.010	1.019	1.013	1.012	0.963	0.952
2003	1.018	1.005	1.013	1.012	0.963	0.952
2004	0.991	1.008	0.997	0.997	0.963	0.966
2005	0.976	1.017	0.991	0.992	0.963	0.971
2006	0.974	0.991	0.980	0.981	0.963	0.982
2007	0.985	0.991	0.987	0.988	0.963	0.975
2008	0.985	0.998	0.989	0.990	0.963	0.973
2009	0.995	0.989	0.993	0.994	0.963	0.969
2010	0.992	0.987	0.990	0.991	0.963	0.972
2011	0.998	0.990	0.995	0.995	0.963	0.968
2012	0.996	0.987	0.992	0.993	0.963	0.970
2013	0.988	0.983	0.986	0.987	0.963	0.976
2014	0.961	0.982	0.969	0.971	0.963	0.992
2015	0.952	0.960	0.955	0.958	0.963	1.005

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APPENDIX A-II

Determination of Premium and Losses Developed to an Ultimate Report

Section A - Premium and Loss Summary Valued as of 12/31/2015

Policy Year 2014

(1)	Standard Earned Premium	$153,133,495
(2)	Factor to Develop Premium to Ultimate	1.004
(3)	Standard Earned Premium Developed to Ultimate = (1)x(2)	$153,746,029
(4)	Limited Indemnity Paid Losses	$25,821,454
(5)	Limited Indemnity Paid Development Factor to Ultimate	2.969
(6)	Limited Indemnity Paid Losses Developed to Ultimate = (4)x(5)	$76,663,897
(7)	Limited Medical Paid Losses	$20,773,942
(8)	Limited Medical Paid Development Factor to Ultimate	1.666
(9)	Limited Medical Paid Losses Developed to Ultimate = (7)x(8)	$34,609,387

Policy Year 2013

(1)	Standard Earned Premium	$144,216,341
(2)	Factor to Develop Premium to Ultimate	1.000
(3)	Standard Earned Premium Developed to Ultimate = (1)x(2)	$144,216,341
(4)	Limited Indemnity Paid Losses	$44,347,597
(5)	Limited Indemnity Paid Development Factor to Ultimate	1.737
(6)	Limited Indemnity Paid Losses Developed to Ultimate = (4)x(5)	$77,031,776
(7)	Limited Medical Paid Losses	$28,215,342
(8)	Limited Medical Paid Development Factor to Ultimate	1.310
(9)	Limited Medical Paid Losses Developed to Ultimate = (7)x(8)	$36,962,098

Policy Year 2012

(1)	Standard Earned Premium	$134,876,833
(2)	Factor to Develop Premium to Ultimate	1.000
(3)	Standard Earned Premium Developed to Ultimate = (1)x(2)	$134,876,833
(4)	Limited Indemnity Paid Losses	$55,320,082
(5)	Limited Indemnity Paid Development Factor to Ultimate	1.355
(6)	Limited Indemnity Paid Losses Developed to Ultimate = (4)x(5)	$74,958,711
(7)	Limited Medical Paid Losses	$31,587,429
(8)	Limited Medical Paid Development Factor to Ultimate	1.203
(9)	Limited Medical Paid Losses Developed to Ultimate = (7)x(8)	$37,999,677

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APPENDIX A-II

Determination of Premium and Losses Developed to an Ultimate Report

Section B - Premium Development Factors

Policy Year	1st/2nd	Policy Year	2nd/3rd	Policy Year	3rd/4th	Policy Year	4th/5th
2011	1.003	2010	1.000	2009	1.000	2008	1.000
2012	1.003	2011	0.999	2010	1.000	2009	1.000
2013	1.007	2012	1.000	2011	1.000	2010	1.000
Average	1.004	Average	1.000	Average	1.000	Average	1.000

Summary of Premium Development Factors

1st/5th	2nd/5th	3rd/5th	4th/5th
1.004	1.000	1.000	1.000

Section C - Limited Indemnity Paid Loss Development Factors

Policy Year	1st/2nd	Policy Year	2nd/3rd	Policy Year	3rd/4th	Policy Year	4th/5th
2009	1.720	2008	1.290	2007	1.114	2006	1.061
2010	1.754	2009	1.304	2008	1.128	2007	1.087
2011	1.674	2010	1.277	2009	1.158	2008	1.078
2012	1.662	2011	1.260	2010	1.106	2009	1.049
2013	1.734	2012	1.280	2011	1.118	2010	1.053
Average*	1.709	Average*	1.282	Average*	1.120	Average*	1.064

* Excludes the years with the lowest and highest factors.

Policy Year	5th/6th	Policy Year	6th/7th	Policy Year	7th/8th	Policy Year	8th/9th
2005	1.021	2004	1.029	2003	1.017	2002	1.008
2006	1.042	2005	1.019	2004	1.009	2003	1.008
2007	1.039	2006	1.034	2005	1.023	2004	1.008
2008	1.030	2007	1.039	2006	1.022	2005	1.008
2009	1.024	2008	1.014	2007	1.020	2006	1.022
Average*	1.031	Average*	1.027	Average*	1.020	Average*	1.008

* Excludes the years with the lowest and highest factors.

Policy Year	9th/10th	Policy Year	10th/11th	Policy Year	11th/12th	Policy Year	12th/13th
2001	1.004	2000	1.006	1999	1.009	1998	1.004
2002	1.003	2001	1.004	2000	1.005	1999	1.008
2003	1.004	2002	1.001	2001	1.002	2000	1.008
2004	1.011	2003	1.003	2002	1.004	2001	1.003
2005	1.002	2004	1.002	2003	1.004	2002	1.001
Average*	1.004	Average*	1.003	Average*	1.004	Average*	1.005

* Excludes the years with the lowest and highest factors.

Policy Year	13th/14th	Policy Year	14th/15th	Policy Year	15th/16th	Policy Year	16th/17th
1997	1.001	1996	1.005	1995	1.000	1994	1.003
1998	1.005	1997	1.003	1996	1.006	1995	1.000
1999	1.007	1998	1.002	1997	1.006	1996	1.006
2000	1.000	1999	1.010	1998	1.000	1997	1.001
2001	1.003	2000	1.000	1999	1.003	1998	1.000
Average*	1.003	Average*	1.003	Average*	1.003	Average*	1.001

* Excludes the years with the lowest and highest factors.

Policy Year	17th/18th	Policy Year	18th/19th**
1993	1.001	1992	1.003
1994	1.006	1993	1.004
1995	1.001	1994	1.013
1996	1.003	1995	1.001
1997	1.000	1996	1.006
Average*	1.002	Average*	1.004

*Excludes the years with the lowest and highest factors.

** For Policy Years 1992 and prior, the development portion of the link ratio was adjusted by a factor of 0.5. No adjustment was made for Policy Years 1993 and subsequent.

Section D - Limited Medical Paid Loss Development Factors

Policy Year	1st/2nd	Policy Year	2nd/3rd	Policy Year	3rd/4th	Policy Year	4th/5th
2009	1.281	2008	1.085	2007	1.050	2006	1.028
2010	1.318	2009	1.101	2008	1.039	2007	1.014
2011	1.259	2010	1.103	2009	1.066	2008	1.020
2012	1.277	2011	1.073	2010	1.064	2009	1.031
2013	1.237	2012	1.080	2011	1.041	2010	1.028
Average*	1.272	Average*	1.089	Average*	1.052	Average*	1.025

* Excludes the years with the lowest and highest factors.

Policy Year	5th/6th	Policy Year	6th/7th	Policy Year	7th/8th	Policy Year	8th/9th
2005	1.017	2004	1.000	2003	1.003	2002	1.005
2006	1.013	2005	1.010	2004	1.002	2003	1.001
2007	1.023	2006	1.018	2005	1.011	2004	1.007
2008	1.019	2007	1.048	2006	1.027	2005	1.010
2009	1.022	2008	1.009	2007	1.002	2006	1.008
Average*	1.019	Average*	1.012	Average*	1.005	Average*	1.007

* Excludes the years with the lowest and highest factors.

Policy Year	9th/10th	Policy Year	10th/11th	Policy Year	11th/12th	Policy Year	12th/13th
2001	1.005	2000	1.006	1999	1.008	1998	1.002
2002	1.006	2001	1.003	2000	1.018	1999	1.005
2003	1.003	2002	1.002	2001	1.003	2000	1.008
2004	1.006	2003	1.005	2002	1.004	2001	1.004
2005	1.005	2004	1.003	2003	1.007	2002	1.002
Average*	1.005	Average*	1.004	Average*	1.006	Average*	1.004

* Excludes the years with the lowest and highest factors.

Policy Year	13th/14th	Policy Year	14th/15th	Policy Year	15th/16th	Policy Year	16th/17th
1997	1.003	1996	1.002	1995	1.004	1994	1.003
1998	1.001	1997	1.002	1996	1.001	1995	1.004
1999	1.005	1998	1.008	1997	1.002	1996	1.003
2000	1.000	1999	1.006	1998	1.000	1997	1.001
2001	1.003	2000	1.001	1999	1.003	1998	1.000
Average*	1.002	Average*	1.003	Average*	1.002	Average*	1.002

* Excludes the years with the lowest and highest factors.

Policy Year	17th/18th	Policy Year	18th/19th
1993	1.006	1992	1.001
1994	1.005	1993	1.003
1995	1.006	1994	1.008
1996	1.001	1995	1.003
1997	1.001	1996	1.002
Average*	1.004	Average*	1.003

* Excludes the years with the lowest and highest factors.

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APPENDIX A-II

Determination of Premium and Losses Developed to an Ultimate Report

Section E - Determination of Policy Year Loss Development Factors (19th-to-Ultimate Report)

Indemnity Paid+Case Data for Matching Companies

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Policy Year	Losses for Policy Year 19th Report	Losses for Policy Year 20th Report	Losses for All Prior Policy Years Previous	Losses for All Prior Policy Years Current	Factor to Adjust Losses for Prior Policy Years	Indicated 19th-to-Ult Development for Policy Year	Adjusted 19th-to-Ult Development for Policy Year
1986	125,687,696	126,336,934	721,066,898	720,792,023	0.545	1.001	1.001
1987	146,804,574	147,122,331	874,425,984	876,324,865	0.532	1.026	1.013
1988	154,789,371	154,601,219	1,030,466,056	1,029,990,339	0.559	0.993	0.997
1989	176,705,579	177,303,328	1,184,591,558	1,185,617,205	0.528	1.014	1.007
1990	112,503,976	112,790,727	1,298,012,630	1,298,407,655	0.899	1.006	1.003
1991	85,575,382	85,672,605	1,409,971,364	1,411,320,668	1.239	1.014	1.007
1992	48,966,747	49,116,401	1,496,937,388	1,498,561,923	2.215	1.018	1.009
1993	32,082,136	32,043,098	1,547,678,324	1,546,962,946	3.353	0.992	0.992
1994	35,573,601	35,269,771	1,578,637,388	1,579,823,995	2.916	1.003	1.003
1995	33,411,148	33,410,705	1,614,912,558	1,616,452,579	2.984	1.015	1.015
				Selected Indemnity 19th-to-Ultimate Loss Development Factor		1.005	

Medical Paid+Case Data for Matching Companies

(9)	(10)	(11)	(12)	(13)	(14)	(15)
Policy Year	Losses for Policy Year 19th Report	Losses for Policy Year 20th Report	Losses for All Prior Policy Years Previous	Losses for All Prior Policy Years Current	Factor to Adjust Losses for Prior Policy Years	Indicated 19th-to-Ult Development for Policy Year
1986	31,620,463	31,670,926	216,546,253	215,725,244	0.583	0.957
1987	36,236,507	36,343,911	247,396,170	248,426,087	0.554	1.054
1988	40,060,454	40,473,027	287,528,109	288,304,226	0.550	1.046
1989	46,187,274	45,985,799	328,777,253	331,652,954	0.516	1.116
1990	33,727,324	33,705,992	358,959,623	359,252,356	0.754	1.011
1991	30,866,077	31,077,089	392,573,156	395,172,097	0.884	1.102
1992	20,595,271	20,585,164	426,208,322	426,744,400	1.391	1.018
1993	17,249,496	17,306,436	447,329,564	445,526,340	1.691	0.941
1994	16,124,192	15,872,178	462,688,164	462,101,525	1.809	0.964
1995	16,651,572	16,805,511	477,901,647	477,548,025	1.741	0.997
				Selected Medical 19th-to-Ultimate Loss Development Factor		1.025

(7) = 1 + [(3)-(2) + ((5)-(4)) / (6)] / (2)
Column (8) reduces the development portion of Column (7) by a factor of 0.5 for Policy Years 1992 and prior to reflect the 1992 reform.
(15) = 1 + [(11)-(10) + ((13)-(12)) / (14)] / (10)
Columns (4) and (12) are valued as of the date at which the given policy year is at a 19th report.
Columns (5) and (13) are valued as of the date at which the given policy year is at a 20th report.

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APPENDIX A-II

Determination of Premium and Losses Developed to an Ultimate Report

Section F - Derivation of Policy Year Limited 19th-to-Ultimate Loss Development Factors

Policy Year	Indemnity Paid-to-Paid + Case Ratio 19th Report *	Medical Paid-to-Paid + Case Ratio 19th Report
1992	0.992	0.990
1993	0.989	0.971
1994	0.985	0.981
1995	0.996	0.951
1996	0.986	0.990
Selected	0.989	0.977

* Policy Years 1992 and prior were adjusted to reflect the 1992 reform.

	Indemnity	Medical
(1) Paid+Case 19th-to-Ultimate Loss Development Factor (Section E)	1.005	1.025
(2) Factor to Adjust 19th-to-Ultimate Development Factor to a Limited Basis	0.445	0.445
(3) Limited Paid+Case 19th-to-Ultimate Loss Development Factor = [(1)-1]x(2)+1	1.002	1.011
(4) Limited Paid-to-Paid+Case Ratio (Section F)	0.989	0.977
(5) Limited Paid 19th-to-Ultimate Loss Development Factor = (3) / (4)	1.013	1.035

Section G - Summary of Limited Paid Loss Development Factors

	(1) Indemnity Paid Loss Development	(2)
Report	to Next Report	to Ultimate
1st	1.709	2.969
2nd	1.282	1.737
3rd	1.120	1.355
4th	1.064	1.210
5th	1.031	1.137
6th	1.027	1.103
7th	1.020	1.074
8th	1.008	1.053
9th	1.004	1.045
10th	1.003	1.041
11th	1.004	1.038
12th	1.005	1.034
13th	1.003	1.029
14th	1.003	1.026
15th	1.003	1.023
16th	1.001	1.020
17th	1.002	1.019
18th	1.004	1.017
19th		1.013

	(3) Medical Paid Loss Development	(4)
Report	to Next Report	to Ultimate
1st	1.272	1.666
2nd	1.089	1.310
3rd	1.052	1.203
4th	1.025	1.144
5th	1.019	1.116
6th	1.012	1.095
7th	1.005	1.082
8th	1.007	1.077
9th	1.005	1.070
10th	1.004	1.065
11th	1.006	1.061
12th	1.004	1.055
13th	1.002	1.051
14th	1.003	1.049
15th	1.002	1.046
16th	1.002	1.044
17th	1.004	1.042
18th	1.003	1.038
19th		1.035

(2) = Cumulative upward product of column (1).
(4) = Cumulative upward product of column (3).

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APPENDIX A-II

Determination of Premium and Losses Developed to an Ultimate Report

Section H - Factor to Adjust Limited Losses to an Unlimited Basis

(1) Threshold at the Midpoint of the Loss Cost Effective Period*	3,775,378
(2) Statewide Excess Ratio for (1)	0.023
(3) Market Share for Carriers Missing from Large Loss and Catastrophe Call	0.000
(4) Factor to Adjust Limited Losses to an Unlimited Basis = 1.0 / {1.0 - [(2) x (1.0 - (3))]}	1.024

Section I - Policy Year Large Loss Limits

Experience Year	Policy Year Detrended Limit
2014	3,397,343
2013	3,291,571
2012	3,191,424
2011	3,112,224
2010	3,039,592
2009	2,961,683
2008	2,914,469
2007	2,857,991
2006	2,776,510
2005	2,676,668
2004	2,581,813
2003	2,502,605
2002	2,402,335
2001	2,310,723
2000	2,239,073
1999	2,157,054
1998	2,080,196
1997	1,991,515
1996	1,890,624

* July 24, 2018 is the midpoint of the effective period for which the revised loss costs are being proposed.

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APPENDIX A-III

Policy Year Trend Factors

Section A - Summary of Policy Year Data

(1)	(2)	(3)	(4)	(5)	(6)
	Lost-Time	Indemnity		Medical	
Policy Year	Claim Frequency*	Avg Cost Per Case*^	Loss Ratio^	Avg Cost Per Case*^	Loss Ratio^
2000	41.684	16,893	0.704	7,656	0.319
2001	40.047	17,506	0.701	8,168	0.327
2002	39.660	15,716	0.623	7,984	0.317
2003	38.784	16,819	0.653	8,656	0.336
2004	36.891	16,767	0.618	8,834	0.326
2005	36.138	17,153	0.620	9,389	0.339
2006	34.296	18,971	0.651	9,713	0.333
2007	33.217	20,771	0.690	10,383	0.345
2008	30.842	22,903	0.706	11,065	0.341
2009	31.636	22,494	0.712	11,610	0.367
2010	33.512	21,692	0.727	11,587	0.388
2011	31.164	21,349	0.666	10,644	0.332
2012	30.630	21,485	0.658	10,882	0.333
2013	29.564	22,189	0.656	10,647	0.315
2014	29.771	21,329	0.635	9,590	0.286

* Figures have been adjusted to the current wage level.
^ Based on paid losses.

Section B - Summary of Annual Trend Factors

	Indemnity	Medical
(1) Current Approved Annual Loss Ratio Trend Factor	0.995	1.005
(2) Selected Annual Loss Ratio Trend Factor	**0.995**	**0.995**

(3) Length of Trend Period from Midpoint of Policy Year to Midpoint of Effective Period:

	Years
Policy Year 2012	5.622
Policy Year 2013	4.622
Policy Year 2014	3.622

(4) Trend Factor Applied to Experience Year = (2) ^ (3)	Indemnity	Medical
Policy Year 2012	0.972	0.972
Policy Year 2013	0.977	0.977
Policy Year 2014	0.982	0.982

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APPENDIX A-IV

Carriers Not Included in Policy Year Experience

NCCI maintains several data reporting initiatives and programs to assist carriers to report data and to ensure that the data that is reported to NCCI is complete, accurate, and reported in a timely fashion. Occasionally, a particular carrier's data submission is not available for use in an NCCI filing either because the data was not reported prior to the filing, had quality issues, or NCCI determined that the data that was reported should not be included in the filing based on NCCI's actuarial judgment. All carriers writing at least one-tenth of one percent of the Rhode Island workers compensation written premium volume and whose data is not included in this filing are listed below. The listing is separated by year used in the filing's experience period.

Carriers not included in experience valued as of 12/31/2015

Name of Carrier	% of State Premium
Policy Year 2014	
None	
Policy Year 2013	
None	
Policy Year 2012	
Lumbermens Underwriting Alliance	0.2%

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APPENDIX A-V

Derivation of Industry Group Differentials

Industry group differentials are used to more equitably distribute the overall loss cost level change based on the individual experience of each industry group. The payroll, losses and claim counts used in the calculations below are from NCCI's Workers Compensation Statistical Plan (WCSP) data.

I. Expected Losses

The current expected losses (columns (1) and (2)) are the payroll extended by the pure premiums underlying the latest approved loss costs. The proposed expected losses (3) are the current expected losses adjusted to the proposed level. These adjustments include the proposed experience, trend, benefit and, if applicable, loss-based expense changes as well as any miscellaneous premium adjustments.

Industry Group	(1) Latest Year Current Expected Losses Prior to Adjustment for Change in Off-Balance	(2) Five Year Current Expected Losses Prior to Adjustment for Change in Off-Balance	(3) Five Year Proposed Expected Losses Prior to Adjustment for Change in Off-Balance	(4) Current Ratio of Manual to Standard Premium	(5) Proposed Ratio of Manual to Standard Premium
Manufacturing	27,930,639	132,314,682	129,031,217	1.053	1.064
Contracting	30,387,768	146,694,298	143,114,306	1.082	1.076
Office & Clerical	24,072,148	110,648,502	107,804,299	1.066	1.071
Goods & Services	78,859,558	371,139,064	361,677,280	0.991	0.991
Miscellaneous	31,066,027	146,895,210	143,287,898	1.029	1.037
Statewide	192,316,141	907,691,757	884,915,001		

Industry Group	(6) Latest Year Current Expected Losses Adjusted for Change in Off-Balance (1)x(4)/(5)	(7) Five Year Current Expected Losses Adjusted for Change in Off-Balance (2)x(4)/(5)	(8) Five Year Proposed Expected Losses Adjusted for Change in Off-Balance (3)x(4)/(5)	(9) Current/ Proposed (7)/(8)	(10) Adjustment to Proposed for Current Relativity (9)IG/(9)SW
Manufacturing	27,641,882	130,946,767	127,697,248	1.025	0.999
Contracting	30,557,217	147,512,296	143,912,341	1.025	0.999
Office & Clerical	23,959,766	110,131,936	107,301,011	1.026	1.000
Goods & Services	78,859,558	371,139,064	361,677,280	1.026	1.000
Miscellaneous	30,826,367	145,761,978	142,182,495	1.025	0.999
Statewide	191,844,790	905,492,041	882,770,375	1.026	

II. Industry Group Differentials

To calculate the converted indicated balanced losses (11) the reported losses are limited to $500,000 for a single claim occurrence and $1,500,000 for each multiple claim occurrence. After the application of limited development, trend and benefit factors, the limited losses are brought to an unlimited level through the application of the expected excess provision. The proposed experience change, applicable loss-based expenses and any miscellaneous premium adjustments are applied to calculate the indicated losses. These indicated losses are then balanced to the expected losses using the factors shown in Appendix B-I, Section A-3.

Industry Group	(11) Converted Indicated Balanced Losses	(12) Indicated/ Expected Ratio (11)/[(8)x(10)]	(13) Indicated Differential (12)IG/(12)SW	(14) Lost-Time Claim Counts
Manufacturing	132,273,882	1.037	1.038	3,556
Contracting	130,223,450	0.906	0.907	2,302
Office & Clerical	101,929,825	0.950	0.951	2,630
Goods & Services	364,916,886	1.009	1.010	12,435
Miscellaneous	151,947,741	1.070	1.071	3,473
Statewide	881,291,784	0.999		

Industry Group	(15) Full Credibility Standard for Lost-Time Claim Counts	(16) Credibility Minimum of 1.000 and ((14)/(15))^0.5	(17) Credibility Weighted Indicated/Expected Ratio [(16)IGx(12)IG] + [1-(16)IG]x(12)SW*	(18) Final Industry Group Differential (17)IG/(17)SW
Manufacturing	12,000	0.54	1.020	1.017
Contracting	12,000	0.44	0.958	0.955
Office & Clerical	12,000	0.47	0.976	0.973
Goods & Services	12,000	1.00	1.009	1.006
Miscellaneous	12,000	0.54	1.037	1.034
Statewide			1.003	1.000

*Statewide ratio (column 17) = $\Sigma_{IG}[(6)x(17)] \div \Sigma_{IG}(6)$

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APPENDIX B-I

Distribution of Loss Cost Level Change to Occupational Classification

After determining the required changes in the overall loss cost level for the state and by industry group, the next step in the ratemaking procedure is to distribute these changes among the various occupational classifications. In order to do this, the pure premiums by classification must be adjusted, by policy period, industry group, or on an overall basis, to incorporate the changes proposed in the filing. There are three sets of pure premiums for each classification: indicated, present on rate level, and national pure premiums.

Section A – Calculation of Indicated Pure Premiums

The indicated pure premiums are calculated from the payroll and loss data reported, by class code and policy period, in the Workers Compensation Statistical Plan (WCSP) for the latest available five policy periods. Various adjustments are made to these pure premiums to put them at the level proposed in this filing (Sections A-1 to A-3).

Section A-1 – Calculation of Primary Conversion Factors

1. Limited Loss Development Factors

The following factors are applied to develop the losses from first through fifth report to an ultimate basis.

Policy Period	Indemnity		Medical	
	Likely-to-Develop	Not-Likely-to-Develop	Likely-to-Develop	Not-Likely-to-Develop
1/09-12/09	1.057	1.009	1.141	1.018
1/10-12/10	1.084	1.025	1.154	1.022
1/11-12/11	1.136	1.061	1.152	1.025
1/12-12/12	1.309	1.147	1.212	1.026
1/13-12/13	2.015	1.493	1.350	1.032

2. Factors to Adjust to the Proposed Trend Level

The proposed trend factors are applied to adjust the losses to the proposed level.

Policy Period	Indemnity	Medical
1/09-12/09	0.958	0.958
1/10-12/10	0.963	0.963
1/11-12/11	0.967	0.967
1/12-12/12	0.972	0.972
1/13-12/13	0.977	0.977

3. Factors to Adjust to the Prorated October 1, 2017 Benefit Level

The following factors are applied to adjust the losses to the proposed benefit level.

Policy Period	Fatal	Permanent Total (P.T.)	Permanent Partial (P.P.)	Temporary Total (T.T.)	Medical
1/09-12/09	1.026	1.023	1.047	1.026	1.013
1/10-12/10	1.024	1.021	1.047	1.024	1.013
1/11-12/11	1.022	1.018	1.031	1.022	1.013
1/12-12/12	1.019	1.015	1.011	1.019	1.013
1/13-12/13	1.017	1.013	1.010	1.017	1.012

4. Primary Conversion Factors: Indicated Pure Premiums

The factors above, contained within Section A-1, are combined multiplicatively, resulting in the following factors for the Likely-to-Develop (L) and Not-Likely-to-Develop (NL) groupings.

Policy Period	Fatal (L)	Fatal (NL)	P.T.*	P.P. (L)	P.P. (NL)	T.T. (L)	T.T. (NL)	Medical (L)	Medical (NL)
1/09-12/09	1.039	0.992	1.036	1.060	1.012	1.039	0.992	1.107	0.988
1/10-12/10	1.069	1.011	1.066	1.093	1.033	1.069	1.011	1.126	0.997
1/11-12/11	1.123	1.049	1.118	1.133	1.058	1.123	1.049	1.128	1.004
1/12-12/12	1.297	1.136	1.291	1.286	1.127	1.297	1.136	1.193	1.010
1/13-12/13	2.002	1.483	1.994	1.988	1.473	2.002	1.483	1.335	1.020

* Permanent total losses are always assigned to the Likely-to-Develop grouping.

Section A-2 – Expected Excess Provision and Redistribution

After the application of the primary conversion factors, the limited losses are brought to an expected unlimited level through the application of excess loss factors by hazard group. These factors are shown below.

Hazard Group	A	B	C	D	E	F	G
(1) Excess Ratios	0.094	0.122	0.139	0.163	0.195	0.222	0.265
(2) Excess Factors 1/(1-(1))	1.104	1.139	1.161	1.195	1.242	1.285	1.361

As the excess loss factors are on a combined (indemnity and medical) basis, a portion (40%) of the indemnity expected excess losses are redistributed to medical in order to more accurately allocate expected excess losses. Since a portion of the expected excess losses are redistributed in an additive manner, the expected excess factors shown above cannot be combined multiplicatively with either the primary or secondary loss conversion factors.

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APPENDIX B-I

Section A-3 – Calculation of Secondary Conversion Factors

1. Factors to Adjust for Proposed Industry Group Differentials

The following factors are applied to adjust the indicated industry group differentials for the effects of credibility weighting the industry group differentials and weighting the differentials by the latest year expected losses.

	Manufacturing	Contracting	Office and Clerical	Goods and Services	Miscellaneous
(1) Indicated Differentials*	1.038	0.907	0.951	1.010	1.071
(2) Final Differentials**	1.017	0.955	0.973	1.006	1.034
(3) Adjustment (2)/(1)	0.980	1.053	1.023	0.996	0.965

*See Appendix A-V, column (13).
**See Appendix A-V, column (18).

2. Factors to Balance Indicated to Expected Losses

The expected losses are calculated as the pure premium underlying the current loss costs, adjusted to the proposed level and adjusted for the Experience Rating Plan off-balance. The indicated losses are balanced to the expected losses by applying the following factors.

Policy Period	(1) Adjustment of Indicated Losses to Pure Premium at Proposed Level	(2) Current Ratio of Manual to Standard Premium	(3) Proposed Ratio of Manual to Standard Premium	(4) Off-balance Adjustment (2)/(3)	(5) Balancing Indicated to Expected Losses (1)x(4)
1/09-12/09	0.892	1.030	1.032	0.998	0.890
1/10-12/10	0.886	1.030	1.029	1.001	0.887
1/11-12/11	0.927	1.030	1.025	1.005	0.932
1/12-12/12	0.960	1.030	1.038	0.992	0.952
1/13-12/13	0.991	1.030	1.046	0.985	0.976

3. Adjustment for Experience Change

A factor of 0.977 is applied to adjust for the experience change in the proposed loss cost level.

4. Factor to Reflect the Proposed Loss-Based Expense Provisions

A factor of 1.189 is applied to include the proposed loss-based expense provisions.

5. Secondary Conversion Factors: Indicated Pure Premiums

The factors above, contained within section A-3, are combined multiplicatively, resulting in the following factors:

Policy Period	Manufacturing	Contracting	Office and Clerical	Goods and Services	Miscellaneous
1/09-12/09	1.013	1.089	1.058	1.030	0.998
1/10-12/10	1.010	1.085	1.054	1.026	0.994
1/11-12/11	1.061	1.140	1.108	1.078	1.045
1/12-12/12	1.084	1.165	1.131	1.101	1.067
1/13-12/13	1.111	1.194	1.160	1.129	1.094

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APPENDIX B-I

Section B – Calculation of Present on Rate Level Pure Premiums

The present on rate level pure premiums are the pure premiums underlying the current loss costs, adjusted to the proposed level. The data sources for the above-captioned pure premiums are the partial pure premiums underlying the current loss costs.

1. Adjustment for Experience Change

A factor of 0.977 is applied to adjust for the experience change in the proposed loss cost level.

2. Factors to Adjust to the Proposed Trend Level

The pure premiums underlying the current loss costs contain the current trend. The change in trend factors, 1.000 and 0.963, for indemnity and medical, respectively, are applied to adjust to the proposed trend level.

3. Factors to Adjust to the Prorated October 1, 2017 Benefit Level

The pure premiums underlying the current loss costs are at the current October 1, 2016 level. The following factors are applied to adjust to the proposed benefit level.

Effective Date	Indemnity	Medical
July 15, 2016	1.000	1.005
September 1, 2016	1.002	1.000
October 1, 2017 (prorated to August 1, 2017)	1.002	1.000
Combined Benefit Adjustment	1.004	1.005

4. Factors to Include the Proposed Loss-Based Expense Provisions

The pure premiums underlying the current loss costs include the current loss-based expense provisions and must be adjusted to the proposed level.

	(a) Current		(b) Proposed	
	Indemnity	Medical	Indemnity	Medical
(1) Loss Adjustment Expense	1.179	1.179	1.189	1.189
(2) Loss-based Assessment	1.000	1.000	1.000	1.000
(3) = (1) + (2) – 1.000	1.179	1.179	1.189	1.189
(4) Overall Change (3b)/(3a)			1.008	1.008

5. Adjustment to Obtain Expected Losses

The pure premiums underlying the current loss costs reflect the current Experience Rating Plan off-balance. The change in off-balance must be applied.

Industry Group	(1) Current Ratio of Manual to Standard Premium	(2) Proposed Ratio of Manual to Standard Premium	(3) Off-balance Adjustment (1)/(2)
Manufacturing	1.053	1.064	0.990
Contracting	1.082	1.076	1.006
Office & Clerical	1.066	1.071	0.995
Goods & Services	0.991	0.991	1.000
Miscellaneous	1.029	1.037	0.992

6. Factors to Adjust for Proposed Industry Group Differentials

The pure premiums underlying the current loss costs are adjusted by the proposed industry group differentials.

Industry Group	(1) Final Differential*	(2) Adjustment to Proposed for Current Relativities**	(3) Adjusted Differential (1)x(2)
Manufacturing	1.017	0.999	1.016
Contracting	0.955	0.999	0.954
Office & Clerical	0.973	1.000	0.973
Goods & Services	1.006	1.000	1.006
Miscellaneous	1.034	0.999	1.033

*See Appendix A-V, column (18).
**See Appendix A-V, column (10).

7. Combined Conversion Factors

The factors above, contained within Section B, are combined multiplicatively, resulting in the following factors.

Industry Group	Indemnity	Medical
Manufacturing	0.995	0.959
Contracting	0.949	0.915
Office & Clerical	0.957	0.923
Goods & Services	0.995	0.959
Miscellaneous	1.013	0.977

Section C – Calculation of National Pure Premiums

Finally, there are the national pure premiums, which reflect the countrywide experience for each classification adjusted to state conditions. These pure premiums reflect the countrywide experience for each classification as indicated by the latest available individual classification experience for all states for which the National Council on Compensation Insurance compiles workers compensation data.

Countrywide data is adjusted to Rhode Island conditions in four steps. First, statewide indicated pure premiums are determined for Rhode Island. Second, using Rhode Island payrolls as weights, corresponding statewide-average pure premiums are computed for each remaining state. Third, the ratios of Rhode Island statewide pure premiums to those for other states are used as adjustment factors to convert losses for other states to a basis that is consistent with the Rhode Island indicated pure premiums. The quotient of the countrywide total of such adjusted losses divided by the total countrywide payroll for the classification is the initial pure premium indicated by national relativity. Finally, national pure premiums are balanced to the level of the state indicated pure premiums to ensure unbiased derived by formula pure premiums. Indemnity and medical pure premiums are computed separately.

Section D – Calculation of Derived by Formula Pure Premiums

The indicated, present on rate level and national pure premiums are credibility weighted, and the resulting derived by formula pure premiums are used to determine the final class loss costs.

As for the preceding pure premiums, separate computations are performed for each partial pure premium: indemnity and medical. Each partial formula pure premium is derived by the weighting of the indicated, present on rate level and national partial pure premiums. The weight assigned to the policy year indicated pure premium varies in one-percent intervals from zero percent to one hundred percent, depending upon the volume of expected losses (i.e. the product of the underlying pure premiums and the payroll in hundreds). To achieve full state credibility, a classification must have expected losses of at least: $18,961,537 for indemnity and $5,583,766 for medical.

The partial credibilities formula is:

$$z = [\text{ (expected losses) / (full credibility standard) }]^{0.4}$$

For the national pure premiums, credibility is determined from the number of lost-time claims. Full credibility standards are: 1,150 lost-time claims for indemnity and 1,000 lost-time claims for medical.

Partial credibilities are assigned using a credibility formula similar to that used for indicated pure premiums but based on the number of national cases. In no case is the national credibility permitted to exceed 50% of the complement of the state credibility.

National Credibility equals the smaller of:

$$[\text{ (national cases)/(full credibility standard) }]^{0.4} \text{ and } [\text{ (1 – state credibility)/2 }]$$

The residual credibility (100% minus the sum of the state and national credibilities) is assigned to the present on rate level pure premium.

For example, if the state credibility is 40%, the national pure premium is assigned a maximum credibility of 30% ((100-40) / 2). The remainder is assigned to the present on rate level pure premium.

The total pure premium shown on the attached Appendix B-III is obtained by adding the indemnity and medical partial pure premiums obtained above and rounding the sum to two decimal places.

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APPENDIX B-II

Adjustments to Obtain Loss Costs

The following items are combined with the derived by formula pure premium to obtain the proposed loss cost:

1. Test Correction Factor

The payrolls are now extended by the loss costs presently in effect and by the indicated loss costs to determine if the required change in manual premium level as calculated in Exhibit I has been achieved. Since at first this calculation may not yield the required results, an iterative process is initiated which continuously tests the proposed loss costs including tentative test correction factors until the required change in manual premium level is obtained. The test correction factor is applied to the derived by formula pure premiums.

The factors referred to above are set out as follows:

	Test Correction Factor
Manufacturing	1.0015
Contracting	1.0063
Office & Clerical	0.9939
Goods & Services	1.0093
Miscellaneous	0.9953

2. Ratios of Manual to Standard Premiums

The ratios of manual to standard premiums by industry group have also been excluded from the classification experience, and it is necessary to apply these factors to the derived by formula pure premiums.

	Ratio of Manual to Standard Premiums
Manufacturing	1.064
Contracting	1.076
Office & Clerical	1.071
Goods & Services	0.991
Miscellaneous	1.037

3. Disease Loadings

The proposed manual loss costs shown in this filing include specific disease loadings for those classifications where they apply. The proposed specific disease loadings are shown on the footnotes page.

4. Swing Limits

As a further step, a test is made to make certain that the proposed loss costs fall within the following departures from the present loss costs:

Manufacturing	from 14% above to 16% below
Contracting	from 8% above to 22% below
Office & Clerical	from 10% above to 20% below
Goods & Services	from 13% above to 17% below
Miscellaneous	from 16% above to 14% below

These limits have been calculated in accordance with the following formula:

Max. Deviation = Effect of the final change in loss cost level by industry group plus or minus 15% rounded to the nearest 1%.

The product of the swing limits and the present loss cost sets bounds for the proposed loss cost. If the calculated loss cost falls outside of the bounds, the closest bound is chosen as the proposed loss cost. When a code is limited, the underlying pure premiums are adjusted to reflect the limited loss cost. The classifications which have been so limited are shown below. Note that classifications that are subject to special handling may fall outside of the swing limits.

An illustrative example showing the calculation of a proposed manual class loss cost is attached as Appendix B-III. This example demonstrates the manner in which the partial pure premiums are combined to produce a total pure premium, and shows the steps in the calculation at which the rounding takes place. The loss costs for other classifications are calculated in the same manner.

List of Classifications Limited by the Upper Swing

0106	0913	1748	2114	2305	2503	2702	2799
2960	3180	3188	3724	4038	4493	4511	4557
4683	4741	4902	5020	5472	5506	5610	5703
5705	6252	6400	6882	7232	7605	8013	8037
8072	8203	8264	8265	8279	8602	8725	8800
8856	9012	9170	9182	9505	9516	9519	9620

List of Classifications Limited by the Lower Swing

0771	2065	2111	2417	3113	3126	3145	3257
3270	3581	3803	4109	4110	4111	4149	4410
4470	4581	4611	4635	4653	4771	4828	4829
5040	5057	5059	5188	6003	6251	6503	6702
6703	6704	7133	7151	7152	7153	7394	7395
7398	7431	7453	7580	7705	7855	8021	8045
8107	8263	8603	8803	8841	8871	9178	9186
9534							

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APPENDIX B-II

Determination of Rating Values on Miscellaneous Values Page

A. Current and Proposed Miscellaneous Values are calculated based on formulas, dependent on the State Average Weekly Wage (SAWW).

	Current	Proposed	Change
1) State Average Weekly Wage (SAWW)	$935.02 [1]	$961.07 [2]	2.8%
2) Basis of premium applicable in accordance with the ***Basic Manual*** footnote instructions for Code 7370 -- "Taxicab Co.":			
Employee operated vehicle [3]	$72,900	$75,000	2.9%
Leased or rented vehicle [4]	$48,600	$50,000	2.9%
3) Maximum Weekly Payroll applicable in accordance with ***Basic Manual*** Rule 2-E-1 -- "Executive Officers" [5] and ***Basic Manual*** footnote instructions for Code 9178 -- "Athletic Sports or Park: Non-Contact Sports," and Code 9179 -- "Athletic Sports or Park: Contact Sports" [6]	$3,700	$3,800	2.7%
4) Minimum Weekly Payroll applicable in accordance with ***Basic Manual*** Rule 2-E-1 -- "Executive Officers" [7]	$950	$950	0.0%

[1] State Average Weekly Wage. Effective September 1, 2015.
[2] State Average Weekly Wage. Effective September 1, 2016.
[3] Underlying formula is: SAWW x 52 x 1.5 (Rounded to the nearest $100), Item B-1422.
[4] Underlying formula is: SAWW x 52 (Rounded to the nearest $100), Item B-1422.
[5] Underlying formula is: SAWW x 4 (Rounded to the nearest $100), Item B-1420.
[6] Underlying formula is: SAWW x 4 (Rounded to the nearest $100), Item B-1422.
[7] Underlying formula is: SAWW (Rounded to the nearest $50), Item B-1420.

B. Loss Elimination Ratios (LERs) continue to be determined using the standard methodology described in the literature (e.g. Gillam,W.R.; and Snader, R.H., "Fundamentals of Individual Risk Rating," 1992, and Rollins, J.; and Washburn,M.J., "A Quantification of Snader's Deductible Safety Factor," 1994). The updated values reflect the experience, trend and development consistent with the Excess Loss Pure Premium Factors (ELPPFs) filed in Item R-1412. A newly enhanced methodology for determining ELPPFs was introduced with "Item R-1408 - 2014 Update to the Retrospective Rating Plan Parameters - Excess Loss Pure Premium Factors and Excess Loss and Allocated Expense Pure Premium Factors."

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APPENDIX B-III

Derivation of Proposed Loss Cost - Code 8810

As previously explained in Appendix B-I, the indicated pure premiums are developed by adjusting the limited losses by a set of conversion factors. The converted losses are then summarized into indemnity and medical and then divided by payroll (in hundreds). The derivation of the indicated pure premium for the above-captioned classification follows:

LIMITED LOSSES (Workers Compensation Statistical Plan)

Policy Period	Fatal Likely	Fatal Not-Likely	Permanent Total	Permanent Partial Likely	Permanent Partial Not-Likely	Temporary Total Likely	Temporary Total Not-Likely	Medical Likely	Medical Not-Likely
01/01/09 - 12/31/09	0	0	0	708,372	1,255,066	570,196	581,652	288,489	1,264,916
01/01/10 - 12/31/10	5,000	0	0	1,320,051	1,541,170	172,282	663,704	592,797	1,830,070
01/01/11 - 12/31/11	0	0	0	412,074	1,384,741	489,697	752,798	391,187	1,456,299
01/01/12 - 12/31/12	0	0	0	472,156	874,513	397,203	585,200	477,012	1,025,574
01/01/13 - 12/31/13	0	0	0	273,045	561,192	143,802	836,229	205,376	1,341,559

PRIMARY PARTIAL CONVERSION FACTORS (Appendix B-I, Section A-1)

Policy Period	Fatal Likely	Fatal Not-Likely	Permanent Total	Permanent Partial Likely	Permanent Partial Not-Likely	Temporary Total Likely	Temporary Total Not-Likely	Medical Likely	Medical Not-Likely
01/01/09 - 12/31/09	1.039	0.992	1.036	1.060	1.012	1.039	0.992	1.107	0.988
01/01/10 - 12/31/10	1.069	1.011	1.066	1.093	1.033	1.069	1.011	1.126	0.997
01/01/11 - 12/31/11	1.123	1.049	1.118	1.133	1.058	1.123	1.049	1.128	1.004
01/01/12 - 12/31/12	1.297	1.136	1.291	1.286	1.127	1.297	1.136	1.193	1.010
01/01/13 - 12/31/13	2.002	1.483	1.994	1.988	1.473	2.002	1.483	1.335	1.020

EXPECTED EXCESS PROVISION AND REDISTRIBUTION (Appendix B-I, Section A-2)

After the application of the primary conversion factors, the limited losses are brought to an expected unlimited level through the application of a hazard group-specific excess loss factor. The factor is shown below:

	HAZARD GROUP: C
Excess Factor	1.161

As the excess loss factor is on a combined (indemnity and medical) basis, the following portion of the indemnity expected excess losses are redistributed to medical in order to more accurately allocate expected excess losses:

Redistribution %	40%

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APPENDIX B-III

Derivation of Proposed Loss Cost - Code 8810

EXPECTED UNLIMITED LOSSES (Limited Losses x Primary Conversion Factors, then adjusted for the Excess Provision and Redistribution)

Policy Period	Fatal Likely	Fatal Not-Likely	Permanent Total	Permanent Partial Likely	Permanent Partial Not-Likely	Temporary Total Likely	Temporary Total Not-Likely	Medical Likely	Medical Not-Likely
01/01/09 - 12/31/09	0	0	0	823,607	1,393,157	649,820	632,890	457,660	1,570,775
01/01/10 - 12/31/10	5,863	0	0	1,582,573	1,746,239	202,008	736,001	880,658	2,265,279
01/01/11 - 12/31/11	0	0	0	512,104	1,606,967	603,199	866,177	578,158	1,843,772
01/01/12 - 12/31/12	0	0	0	666,008	1,081,043	565,073	729,181	733,425	1,309,629
01/01/13 - 12/31/13	0	0	0	595,392	906,707	315,778	1,360,252	372,084	1,722,766

SECONDARY CONVERSION FACTORS (Appendix B-I, Section A-3)

Policy Period	INDUSTRY GROUP: Office and Clerical
01/01/09 - 12/31/09	1.058
01/01/10 - 12/31/10	1.054
01/01/11 - 12/31/11	1.108
01/01/12 - 12/31/12	1.131
01/01/13 - 12/31/13	1.160

PAYROLL, FINAL CONVERTED LOSSES (Expected Unlimited Losses x Secondary Conversion Factors)

Policy Period	Payroll	Indemnity Likely	Indemnity Not-Likely	Medical Likely	Medical Not-Likely	Total Indemnity	Total Medical	Total
01/01/09 - 12/31/09	4,541,370,914	1,558,886	2,143,558	484,204	1,661,880	3,702,444	2,146,084	5,848,528
01/01/10 - 12/31/10	4,800,262,939	1,887,128	2,616,281	928,214	2,387,604	4,503,409	3,315,818	7,819,227
01/01/11 - 12/31/11	4,965,719,973	1,235,756	2,740,244	640,599	2,042,899	3,976,000	2,683,498	6,659,498
01/01/12 - 12/31/12	4,893,838,794	1,392,353	2,047,363	829,504	1,481,190	3,439,716	2,310,694	5,750,410
01/01/13 - 12/31/13	4,516,182,769	1,056,957	2,629,672	431,617	1,998,409	3,686,629	2,430,026	6,116,655
Total	23,717,375,389	7,131,080	12,177,118	3,314,138	9,571,982	19,308,198	12,886,120	32,194,318
		INDICATED PURE PREMIUM				**0.081**	**0.054**	**0.14**

The present on rate level pure premiums are developed by adjusting the pure premiums underlying the current loss cost by the conversion factors calculated in Appendix B-I. The derivation of the present on rate level pure premiums for the above-captioned classification follows:

	Indemnity	Medical	Total
Pure Premiums Underlying Current Loss Cost	0.094	0.066	0.16
Conversion Factors (App. B-I, Section B)	0.957	0.923	xxx
PURE PREMIUMS PRESENT ON RATE LEVEL (Underlying Pure Premiums) x (Conversion Factor)	0.090	0.061	0.15

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APPENDIX B-III

Derivation of Proposed Loss Cost - Code 8810
Industry Group - Office and Clerical, Hazard Group - C

The loss cost for the above-captioned classification is derived as follows:

		Indemnity	Medical	Total
1.	Indicated Pure Premium	0.081	0.054	0.14
2.	Pure Premium Indicated by National Relativity	0.082	0.058	0.14
3.	Pure Premium Present on Rate Level	0.090	0.061	0.15
4.	State Credibilities	100%	100%	xxx
5.	National Credibilities	0%	0%	xxx
6.	Residual Credibilities = 100% - (4) - (5)	0%	0%	xxx
7.	Derived by Formula Pure Premiums = (1) x (4) + (2) x (5) + (3) x (6)	0.081	0.054	0.14
8.	Test Correction Factor	0.9939	0.9939	xxx
9.	Underlying Pure Premiums = (7) x (8) *	0.086	0.054	0.14
10.	Ratio of Manual to Standard Premium			1.071
11.	Loss Cost = (9) x (10)			0.15
12.	Loss Cost Within Swing Limits			0.15
	Current Loss Cost x Swing Limits a) Lower bound = 0.17 x 0.800 = 0.14 b) Upper bound = 0.17 x 1.100 = 0.18			
13.	Pure Premiums Underlying Proposed Loss Cost* = ((13TOT) / (9TOT)) x (9) , (13TOT) = (12) / (10)	0.086	0.054	0.14
14.	Disease, Catastrophe and/or Miscellaneous Loadings			0.00
15.	Final Loaded Loss Cost			0.15

* Indemnity pure premium is adjusted for the rounded total pure premium:
Indemnity Pure Premium = Total Pure Premium - Medical Pure Premium

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APPENDIX B-IV

I. Determination and Distribution of Premium Level Change to "F" Classifications

The Workers Compensation Statistical Plan (WCSP) data is used to determine the overall "F" classifications (F-class) premium level change as well as the individual change by the various classifications. There are three sets of pure premiums for each classification: indicated, present on rate level, and national pure premiums. All sets of pure premiums are adjusted to the common proposed level that is explained further in this exhibit. These three sets of pure premiums are credibility weighted and the results, the derived by formula pure premiums, are adjusted for additional proposed components (section II) to determine the indicated loss costs. The payrolls are extended by the loss costs presently in effect and the indicated loss costs. The loss costs are then limited to the swing limits based on 15% above and 15% below the current loss costs, which results in the indicated loss cost level change of -1.1%.

Section A – Calculation of F-Class Indicated Pure Premiums

The payroll and loss data reported are from the WCSP data by class code for the latest available five policy periods.

Section A-1 – Calculation of Primary Conversion Factors

1. Factors to Adjust to the Proposed Benefit Levels

The state losses are adjusted to the Prorated October 1, 2017 state law level. The federal losses are adjusted to the October 1, 2015 federal law level.

STATE ACT

Policy Period	Fatal	Permanent Total (P.T.)	Permanent Partial (P.P.)	Temporary Total (T.T.)	Medical
1/09 - 12/09	1.026	1.023	1.047	1.026	1.013
1/10 - 12/10	1.024	1.021	1.047	1.024	1.013
1/11 - 12/11	1.022	1.018	1.031	1.022	1.013
1/12 - 12/12	1.019	1.015	1.011	1.019	1.013
1/13 - 12/13	1.017	1.013	1.010	1.017	1.012

FEDERAL ACT

Policy Period	Fatal	Permanent Total (P.T.)	Permanent Partial (P.P.)	Temporary Total (T.T.)	Medical
1/09 - 12/09	1.028	1.023	1.008	1.023	1.000
1/10 - 12/10	1.024	1.020	1.008	1.020	1.000
1/11 - 12/11	1.019	1.016	1.007	1.016	1.000
1/12 - 12/12	1.013	1.011	1.005	1.011	1.000
1/13 - 12/13	1.009	1.008	1.003	1.008	1.000

2. Factors to Adjust to the Proposed Trend Level

The following factors are applied to trend the losses in each policy year to the proposed rating year. The selected annual trends utilized were 0.995 and 0.995 for indemnity and medical, respectively.

Policy Period	Indemnity	Medical
1/09 - 12/09	0.958	0.958
1/10 - 12/10	0.963	0.963
1/11 - 12/11	0.967	0.967
1/12 - 12/12	0.972	0.972
1/13 - 12/13	0.977	0.977

Section A-1 Calculation of Primary Conversion Factors (continued)

3. Limited Loss Development Factors

The following factors are applied to develop the losses from first through fifth report to an ultimate basis utilizing countrywide data.

Policy Period	Indemnity		Medical	
	Likely-to-Develop	Not-Likely-to-Develop	Likely-to-Develop	Not-Likely-to-Develop
1/09 - 12/09	1.115	1.031	1.185	1.020
1/10 - 12/10	1.184	1.053	1.217	1.030
1/11 - 12/11	1.269	1.130	1.272	1.061
1/12 - 12/12	1.533	1.252	1.366	1.062
1/13 - 12/13	2.767	1.747	1.683	1.133

4. Primary Conversion Factors = (1) x (2) x (3)

The factors above contained within Section A-1, are combined multiplicatively, resulting in the following factors for the Likely-to-Develop (L) and Not-Likely-to-Develop (NL) groupings.

STATE ACT

Policy Period	Fatal (L)	Fatal (NL)	P.T.*	P.P. (L)	P.P. (NL)	T.T. (L)	T.T. (NL)	Medical (L)	Medical (NL)
1/09 - 12/09	1.096	1.013	1.093	1.118	1.034	1.096	1.013	1.150	0.990
1/10 - 12/10	1.168	1.038	1.164	1.194	1.062	1.168	1.038	1.187	1.005
1/11 - 12/11	1.254	1.117	1.249	1.265	1.127	1.254	1.117	1.246	1.039
1/12 - 12/12	1.518	1.240	1.512	1.506	1.230	1.518	1.240	1.345	1.046
1/13 - 12/13	2.749	1.736	2.739	2.730	1.724	2.749	1.736	1.664	1.120

FEDERAL ACT

Policy Period	Fatal (L)	Fatal (NL)	P.T.*	P.P. (L)	P.P. (NL)	T.T. (L)	T.T. (NL)	Medical (L)	Medical (NL)
1/09 - 12/09	1.098	1.015	1.093	1.077	0.996	1.093	1.010	1.135	0.977
1/10 - 12/10	1.168	1.038	1.163	1.149	1.022	1.163	1.034	1.172	0.992
1/11 - 12/11	1.250	1.113	1.247	1.236	1.100	1.247	1.110	1.230	1.026
1/12 - 12/12	1.509	1.233	1.506	1.498	1.223	1.506	1.230	1.328	1.032
1/13 - 12/13	2.728	1.722	2.725	2.711	1.712	2.725	1.720	1.644	1.107

** Permanent Total losses are always assigned to the Likely-to-Develop grouping.*

Section A-2 – Expected Excess Provision and Redistribution

To reduce distortions in individual class loss cost indications, individual claim amounts are subject to a maximum limit of $500,000. Multiple claim accidents are limited to three times the individual claim loss limitation. After the application of the primary conversion factors, the limited losses are brought to an expected unlimited level through the application of excess loss factors by hazard group. These factors are shown below.

Hazard Group	A	B	C	D	E	F	G
(1) Excess Ratios	0.094	0.122	0.139	0.163	0.195	0.222	0.265
(2) Excess Factors 1/(1-(1))	1.104	1.139	1.161	1.195	1.242	1.285	1.361

As the excess loss factors are on a combined (indemnity and medical) basis, a portion (40%) of the indemnity expected excess losses are redistributed to medical in order to more accurately allocate expected excess losses. Since a portion of the expected excess losses are redistributed in an additive manner, the expected excess factors shown above cannot be combined multiplicatively with either the primary or secondary loss conversion factors.

Section A-3 – Calculation of Secondary Conversion Factors

The following factors are applied to include the proposed loss-based expenses. The state losses are adjusted to reflect the proposed loss-based expenses. The federal losses are adjusted to reflect the proposed USL&HW Special Fund Assessment and loss adjustment expense. The combined** factors are based on a combined indemnity and medical loss-weighted average of the above loss-based expenses by policy period.

Policy Period	State Act	Federal Act
1/09 - 12/09	1.189	1.282
1/10 - 12/10	1.189	1.189
1/11 - 12/11	1.189	1.189
1/12 - 12/12	1.189	1.248
1/13 - 12/13	1.189	1.189

** *See Section B.3 for the indemnity and medical breakdown of the proposed loss-based expenses.*

Section B – Present on Rate Level

1. Benefits

The current underlying pure premiums are at the current October 1, 2016 state and October 1, 2014 federal law levels. These pure premiums are adjusted to reflect the weighted effect of state and federal laws which bring losses to the proposed prorated October 1, 2017 state and October 1, 2015 federal law levels. The distribution of state and federal losses in regard to total losses was used to determine the weighted effects.

State Weight (St%)	0.238
Federal Weight (Fed%)	0.762

	Indemnity	Medical	Total
(a) State Laws	1.004	1.005	1.004
(b) Federal Laws	1.002	1.000	1.001
(c) Weighted Laws = [(a)xSt%] + [(b)xFed%]	1.002	1.001	1.002

2. Trend

Since the trend in the current underlying pure premiums is adequate for the current rating year, additional trend is applied to bring the underlyings to the proposed rating year.

Indemnity	Medical
0.995	0.995

Section B – Present on Rate Level (continued)

3. Loss-Based Expenses

The current underlying pure premiums are adjusted to reflect the change in the weighted effect of the loss-based expense provisions.

Proposed:

STATE ACT

	Indemnity	Medical	Total
(a) Loss Adjustment Expense	1.189	1.189	1.189
(b) Loss-Based Assessment	1.000	1.000	1.000
(c) Total = (a) + (b) - 1	1.189	1.189	1.189

FEDERAL ACT

	Indemnity	Medical	Total
(d) Loss Adjustment Expense	1.189	1.189	1.189
(e) Loss-Based Assessment	1.116	1.000	1.064
(f) Total = (d) + (e) - 1	1.305	1.189	1.253

	Indemnity	Medical	Total
(g) Weighted Proposed Expenses = [(c) x St%] + [(f) x Fed%]	1.277	1.189	1.238

Current:

STATE ACT

	Indemnity	Medical	Total
(h) Loss Adjustment Expense	1.179	1.179	1.179
(i) Loss-Based Assessment	1.000	1.000	1.000
(j) Total = (h) + (i) - 1	1.179	1.179	1.179

FEDERAL ACT

	Indemnity	Medical	Total
(k) Loss Adjustment Expense	1.179	1.179	1.179
(l) Loss-Based Assessment	1.110	1.000	1.062
(m) Total = (k) + (l) - 1	1.289	1.179	1.241

	Indemnity	Medical	Total
(n) Weighted Current Expenses = [(j) x St%] + [(m) x Fed%]	1.263	1.179	1.226

Change:

	Indemnity	Medical	Total
Weighted Expense Change in Loss-Based Expenses = [(g) / (n)]	1.011	1.008	1.010

4. Conversion Factors = (1) x (2) x (3)

The factors have been applied multiplicatively resulting in the following factors.

Indemnity	Medical
1.008	1.004

Section C – National Pure Premiums

The latest three years of state and federal losses for states in which NCCI compiles workers compensation data are separately adjusted to the same level as the indicated and present on rate level pure premiums.

Class Code 9077

For Code 9077, the indicated, national and present on rate level pure premiums were calculated as described previously in Sections A, B and C but using the non-appropriated benefit changes and the federal loss-based expenses.

Section D – Derived by Formula Pure Premiums

The derived by formula pure premiums are calculated by a process similar to that of the industrial codes, which is described in Appendix B-I, Section D. To achieve full state credibility, a classification must have expected losses of at least: $62,132,450 for indemnity and $25,931,600 for medical.

II. Calculation of Proposed Loss Costs

The following items are combined with the derived by formula pure premiums to obtain the proposed loss cost:

A. Test Correction Factor **1.0000**

B. Ratio of Manual Premium to Earned Premium **1.072**
(selected based on Rhode Island off-balance analysis)

C. Swing Limits

The classifications which were adjusted by swing limits are as follows:

List of Classifications Limited by the Upper Swing:	List of Classifications Limited by the Lower Swing:
7350 8709	6843

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APPENDIX B-IV

Derivation of Proposed Loss Cost - Code 6824

The indicated pure premiums are developed by adjusting the limited losses by a set of conversion factors. The converted losses are then summarized into indemnity and medical and then divided by payroll (in hundreds). The derivation of the indicated pure premium for the above-captioned classification follows:

STATE ACT - LIMITED LOSSES (Workers Compensation Statistical Plan)

Policy Period	Fatal Likely	Fatal Not-Likely	Permanent Total	Permanent Partial Likely	Permanent Partial Not-Likely	Temporary Total Likely	Temporary Total Not-Likely	Medical Likely	Medical Not-Likely
01/01/09 - 12/31/09	0	0	0	0	0	0	28,431	0	62,038
01/01/10 - 12/31/10	0	0	0	0	265,913	95,188	63,686	15,186	117,883
01/01/11 - 12/31/11	0	0	0	0	0	0	37,235	0	40,522
01/01/12 - 12/31/12	0	0	0	0	0	0	19,217	0	16,568
01/01/13 - 12/31/13	0	0	0	0	0	0	0	0	0

FEDERAL ACT - LIMITED LOSSES (Workers Compensation Statistical Plan)

Policy Period	Fatal Likely	Fatal Not-Likely	Permanent Total	Permanent Partial Likely	Permanent Partial Not-Likely	Temporary Total Likely	Temporary Total Not-Likely	Medical Likely	Medical Not-Likely
01/01/09 - 12/31/09	0	0	0	0	0	0	0	0	0
01/01/10 - 12/31/10	0	0	0	0	0	0	0	0	215
01/01/11 - 12/31/11	0	0	0	0	0	0	0	0	476
01/01/12 - 12/31/12	0	0	0	0	0	0	0	0	0
01/01/13 - 12/31/13	0	0	0	0	0	0	0	0	0

STATE ACT - PRIMARY PARTIAL CONVERSION FACTORS (Appendix B-IV, Section A-1)

Policy Period	Fatal Likely	Fatal Not-Likely	Permanent Total	Permanent Partial Likely	Permanent Partial Not-Likely	Temporary Total Likely	Temporary Total Not-Likely	Medical Likely	Medical Not-Likely
01/01/09 - 12/31/09	1.096	1.013	1.093	1.118	1.034	1.096	1.013	1.150	0.990
01/01/10 - 12/31/10	1.168	1.038	1.164	1.194	1.062	1.168	1.038	1.187	1.005
01/01/11 - 12/31/11	1.254	1.117	1.249	1.265	1.127	1.254	1.117	1.246	1.039
01/01/12 - 12/31/12	1.518	1.240	1.512	1.506	1.230	1.518	1.240	1.345	1.046
01/01/13 - 12/31/13	2.749	1.736	2.739	2.730	1.724	2.749	1.736	1.664	1.120

FEDERAL ACT - PRIMARY PARTIAL CONVERSION FACTORS (Appendix B-IV, Section A-1)

Policy Period	Fatal Likely	Fatal Not-Likely	Permanent Total	Permanent Partial Likely	Permanent Partial Not-Likely	Temporary Total Likely	Temporary Total Not-Likely	Medical Likely	Medical Not-Likely
01/01/09 - 12/31/09	1.098	1.015	1.093	1.077	0.996	1.093	1.010	1.135	0.977
01/01/10 - 12/31/10	1.168	1.038	1.163	1.149	1.022	1.163	1.034	1.172	0.992
01/01/11 - 12/31/11	1.250	1.113	1.247	1.236	1.100	1.247	1.110	1.230	1.026
01/01/12 - 12/31/12	1.509	1.233	1.506	1.498	1.223	1.506	1.230	1.328	1.032
01/01/13 - 12/31/13	2.728	1.722	2.725	2.711	1.712	2.725	1.720	1.644	1.107

RHODE ISLAND

APPENDIX B-IV

Derivation of Proposed Loss Cost - Code 6824

EXPECTED EXCESS PROVISION AND REDISTRIBUTION (Appendix B-IV, Section A-2)

After the application of the primary conversion factors, the limited losses are brought to an expected unlimited level through the application of a hazard group-specific excess loss factor. The factor is shown below:

	HAZARD GROUP: F
Excess Factor	1.285

As the excess loss factor is on a combined (indemnity and medical) basis, the following portion of the indemnity expected excess losses are redistributed to medical in order to more accurately allocate expected excess losses:

Redistribution %	40%

STATE ACT - EXPECTED UNLIM LOSSES (Lim Losses x Primary Conv Factors, then adjusted for the Excess Provision and Redistribution)

Policy Period	Fatal Likely	Fatal Not-Likely	Permanent Total	Permanent Partial Likely	Permanent Partial Not-Likely	Temporary Total Likely	Temporary Total Not-Likely	Medical Likely	Medical Not-Likely
01/01/09 - 12/31/09	0	0	0	0	0	0	33,732	0	82,230
01/01/10 - 12/31/10	0	0	0	0	330,749	130,215	77,424	35,860	192,056
01/01/11 - 12/31/11	0	0	0	0	0	0	48,712	0	58,863
01/01/12 - 12/31/12	0	0	0	0	0	0	27,909	0	24,995
01/01/13 - 12/31/13	0	0	0	0	0	0	0	0	0

FEDERAL ACT - EXPECTED UNLIM LOSSES (Lim Losses x Primary Conv Factors, then adjusted for the Excess Provision and Redistribution)

Policy Period	Fatal Likely	Fatal Not-Likely	Permanent Total	Permanent Partial Likely	Permanent Partial Not-Likely	Temporary Total Likely	Temporary Total Not-Likely	Medical Likely	Medical Not-Likely
01/01/09 - 12/31/09	0	0	0	0	0	0	0	0	0
01/01/10 - 12/31/10	0	0	0	0	0	0	0	0	274
01/01/11 - 12/31/11	0	0	0	0	0	0	0	0	627
01/01/12 - 12/31/12	0	0	0	0	0	0	0	0	0
01/01/13 - 12/31/13	0	0	0	0	0	0	0	0	0

STATE ACT - SECONDARY CONVERSION FACTORS (Appendix B-IV, Section A-3)

Policy Period	INDUSTRY GROUP: F-Class
01/01/09 - 12/31/09	1.189
01/01/10 - 12/31/10	1.189
01/01/11 - 12/31/11	1.189
01/01/12 - 12/31/12	1.189
01/01/13 - 12/31/13	1.189

FEDERAL ACT - SECONDARY CONVERSION FACTORS (Appendix B-IV, Section A-3)

Policy Period	INDUSTRY GROUP: F-Class
01/01/09 - 12/31/09	1.282
01/01/10 - 12/31/10	1.189
01/01/11 - 12/31/11	1.189
01/01/12 - 12/31/12	1.248
01/01/13 - 12/31/13	1.189

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APPENDIX B-IV

Derivation of Proposed Loss Cost - Code 6824

TOTAL - PAYROLL, FINAL CONVERTED LOSSES

Policy Period	Payroll	Indemnity Likely	Indemnity Not-Likely	Medical Likely	Medical Not-Likely	Total Indemnity	Total Medical	Total
01/01/09 - 12/31/09	4,052,991	0	40,107	0	97,771	40,107	97,771	137,878
01/01/10 - 12/31/10	3,858,542	154,826	485,318	42,638	228,681	640,144	271,319	911,463
01/01/11 - 12/31/11	2,017,703	0	57,919	0	70,734	57,919	70,734	128,653
01/01/12 - 12/31/12	844,943	0	33,184	0	29,719	33,184	29,719	62,903
01/01/13 - 12/31/13	959,586	0	0	0	0	0	0	0
Total	11,733,765	154,826	616,528	42,638	426,905	771,354	469,543	1,240,897
		INDICATED PURE PREMIUM				**6.574**	**4.002**	**10.58**

The present on rate level pure premiums are developed by adjusting the pure premiums underlying the current loss cost by the conversion factors. The derivation of the present on rate level pure premiums for the above-captioned classification follows:

	Indemnity	Medical	Total
Pure Premiums Underlying Current Loss Cost	3.939	4.141	8.08
Conversion Factors (Section B)	1.008	1.004	xxx
PURE PREMIUMS PRESENT ON RATE LEVEL (Underlying Pure Premiums) x (Conversion Factor)	3.971	4.158	8.13

RHODE ISLAND

APPENDIX B-IV

Derivation of Proposed Loss Cost - Code 6824
Industry Group - F-Class, Hazard Group - F

The loss cost for the above-captioned classification is derived as follows:

		Indemnity	Medical	Total
1.	Indicated Pure Premium	6.574	4.002	10.58
2.	Pure Premium Indicated by National Relativity	4.421	5.303	9.72
3.	Pure Premium Present on Rate Level	3.971	4.158	8.13
4.	State Credibilities	14%	20%	xxx
5.	National Credibilities	37%	39%	xxx
6.	Residual Credibilities = 100% - (4) - (5)	49%	41%	xxx
7.	Derived by Formula Pure Premiums = (1) x (4) + (2) x (5) + (3) x (6)	4.502	4.573	9.08
8.	Test Correction Factor	1.0000	1.0000	xxx
9.	Underlying Pure Premiums = (7) x (8) *	4.507	4.573	9.08
10.	Ratio of Manual to Standard Premium			1.072
11.	Loss Cost = (9) x (10)			9.73
12.	Loss Cost Within Swing Limits			9.73
	Current Loss Cost x Swing Limits a) Lower bound = 8.68 x 0.850 = 7.38 b) Upper bound = 8.68 x 1.150 = 9.98			
13.	Pure Premiums Underlying Proposed Loss Cost* = ((13TOT) / (9TOT)) x (9) , (13TOT) = (12) / (10)	4.507	4.573	9.08
14.	Disease, Catastrophe and/or Miscellaneous Loadings			0.00
15.	Final Loaded Loss Cost			9.73

* Indemnity pure premium is adjusted for the rounded total pure premium:
Indemnity Pure Premium = Total Pure Premium - Medical Pure Premium

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APPENDIX C-I

Changes to the Rhode Island Medical Fee Schedule, Effective July 15, 2016

NCCI estimates that the changes to Rhode Island's Medical Fee Schedule, effective July 15, 2016, for Physician, Ambulance, Healthcare Common Procedure Coding System (HCPCS), and Ambulatory Surgical Center (ASC) services will result in an impact of +0.2% on Rhode Island's workers compensation system costs.

Summary of Medical Fee Schedule Changes

The Medical Fee Schedule (MFS) in Rhode Island is published by the Rhode Island Department of Labor and Training (DLT). The prior MFS for physician, ambulance, HCPCS, and ASC services in Rhode Island became effective May 1, 2014.

The changes to the Rhode Island Workers Compensation MFS, effective July 15, 2016, include changes to the physician, ambulance, HCPCS, and ASC fee schedules.

Actuarial Analysis of Changes

NCCI's methodology to evaluate the impact of medical fee schedule changes includes three major steps:

1. Calculate the percentage change in maximum reimbursements
    a. Compare the prior and revised maximum reimbursements by procedure code and determine the percentage change by procedure code.
    b. Calculate the weighted-average percentage change in maximum reimbursements for the fee schedule using observed payments by procedure code as weights.

2. Estimate the price level change as a result of the revised fee schedule
    a. NCCI research by Frank Schmid and Nathan Lord (2013), "The Impact of Physician Fee Schedule Changes in Workers Compensation: Evidence from 31 States", suggests that a portion of a change in maximum reimbursements is realized on payments impacted by the change.
        i. In response to a fee schedule decrease, NCCI's research indicates that payments decline by approximately 50% of the fee schedule change.
        ii. In response to a fee schedule increase, NCCI's research indicates that payments increase by approximately 80% of the fee schedule change and the magnitude of the response depends on the relative difference between actual payments and fee schedule maximums (i.e. the price departure). The formula used to determine the percent realized for fee schedule increases is 80% x (1.10 + 1.20 x (price departure)).

3. Determine the share of costs that are subject to the fee schedule
    a. The share is based on a combination of fields, such as procedure code, provider type, and place of service, as reported on the NCCI Medical Data Call, to categorize payments that are subject to the fee schedule.

In this analysis, NCCI relies primarily on two data sources:

- Detailed medical data underlying the calculations in this analysis are based on NCCI's Medical Data Call for Rhode Island for Service Year 2014.
- The share of benefit costs attributed to medical benefits is based on NCCI's Financial Call data for Rhode Island from the latest three policy years projected to the effective date of the benefit changes.

Physician Fee Schedule

In Rhode Island, payments for physician services represent 52.5% of total medical payments. To calculate the percentage change in maximum reimbursements for physician services, NCCI calculates the percentage change in maximum reimbursements for each procedure code. The overall change in maximums for physician services is a weighted average of the percentage change in Maximum Allowable Reimbursement (MAR) (revised MAR / prior MAR) by procedure code weighted by the observed payments by procedure code as reported on NCCI's Medical Data Call for Rhode Island for Service Year 2014. The overall, weighted-average percentage change in MARs is +1.6%.

The change by category is shown in the table below.

Physician Practice Category	Share of Physician Payments	Percentage Change in MAR
Anesthesia	4.0%	0.0%
Surgery	26.1%	+1.5%
Radiology	11.1%	+1.9%
Pathology and Laboratory	0.2%	+1.8%
Medicine	1.8%	+2.9%
Evaluation & Management	24.9%	+1.8%
State Specific Codes	24.6%	+2.0%
Physician Payments with no specific MAR	7.3%	0.0%
Total Physician Costs	**100.0%**	**+1.6%**

Since the overall average maximum reimbursement for physician services increased, the percentage expected to be realized from the fee schedule increase is estimated according to the formula 80% x (1.10 + 1.20 x (price departure)). The observed price departure for physician payments in Rhode Island is -6%. The price realization factor is estimated to be 82% (= 80% x (1.10 + 1.20 x (-0.06)). The impact on physician payments after applying the price realization factor is +1.3% (= +1.6% x 0.82).

The above impact of +1.3% is then multiplied by the Rhode Island percentage of medical costs attributed to physician payments (52.5%) to arrive at the impact on medical costs of +0.7%. The resulting impact on medical costs is multiplied by the percentage of Rhode Island benefit costs attributed to medical costs (32.9%) to arrive at the impact on Rhode Island overall workers compensation costs of +0.2%.

Ambulance Fee Schedule

In Rhode Island, payments for ambulance services subject to the fee schedule represent 1.2% of total medical payments. To calculate the percentage change in maximums for ambulance services, NCCI calculates the percentage change in MARs for each procedure code. The overall change in maximums for ambulance services is a weighted average of the percentage change in MAR (revised MAR / prior MAR) by procedure code weighted by the observed payments by procedure code as reported on NCCI's Medical Data Call for Rhode Island for Service Year 2014. The overall, weighted-average percentage change in MARs is -34.1%.

Since the overall average maximum reimbursement for ambulance services decreased, the percentage expected to be realized from the fee schedule decrease is estimated to be 50%. The impact on payments for ambulance services after applying the price realization factor of 50% is -17.1% (= -34.1% x 0.50).

The above impact of -17.1% is then multiplied by the Rhode Island percentage of medical costs attributed to ambulance payments subject to the fee schedule (1.2%) to arrive at the impact on medical costs of -0.2%. The resulting impact on medical costs is multiplied by the percentage of Rhode Island benefit costs attributed to medical costs (32.9%) to arrive at the impact on Rhode Island overall workers compensation costs of -0.1%.

HCPCS Fee Schedule

In Rhode Island, payments for HCPCS services subject to the fee schedule represent 2.1% of total medical payments. To calculate the percentage change in maximums for HCPCS services, NCCI calculates the percentage change in MARs for each code. The overall change in maximums for HCPCS services is a weighted average of the percentage change in MAR (revised MAR / prior MAR) by code weighted by the observed payments by code as reported on NCCI's Medical Data Call for Rhode Island for Service Year 2014. The overall, weighted-average percentage change in MARs is +1.2%.

Since the overall average maximum reimbursement for HCPCS services increased, the percentage expected to be realized from the fee schedule increase is estimated according to the formula 80% x (1.10 + 1.20 x (price departure)). Since a reliable price departure could not be determined, NCCI assumed a price realization factor of 80%. The impact on payments for HCPCS services after applying the price realization factor of 80% is +1.0% (= +1.2% x 0.80).

The above impact of +1.0% is then multiplied by the Rhode Island percentage of medical costs attributed to HCPCS payments subject to the fee schedule (2.1%) to arrive at a negligible[1] increase on medical costs and overall workers compensation costs in Rhode Island.

ASC Fee Schedule

In Rhode Island, payments for ASC services represent 2.7% of medical costs and medical costs represent 32.9% of total benefit costs. Therefore, ASC services represent 0.9% (=2.7% x 32.9%) of total benefit costs. Due to sparseness of ASC data reported by Current Procedural Terminology (CPT) code, no reliable estimate of the impact due to the changes to the ASC fee schedule can be calculated. Any impacts due to the fee schedule changes will flow through experience and be reflected in future advisory loss cost filings in Rhode Island.

Summary of Changes

The impacts from the changes to the Rhode Island Medical Fee Schedule, effective July 15, 2016, are summarized in the following table:

	(A) Impact on Type of Service	(B) Share of Medical Payments	(C) Impact On Medical Costs (A) x (B)	(D) Impact on Overall Costs
Physician	+1.3%	52.5%	+0.7%	
Ambulance	-17.1%	1.2%	-0.2%	
HCPCS	+1.0%	2.1%	Negligible Increase	
(1) Total Impact on **Rhode Island** Medical Costs			**+0.5%**	
(2) Medical Costs as a Percentage of Overall Workers Compensation Benefit Costs in **Rhode Island**				32.9%
(3) Total Impact on Overall Workers Compensation System Costs in Rhode Island = (1) x (2)				**+0.2%**

[1] Negligible is defined in this document to be an impact smaller in magnitude than 0.1%

RHODE ISLAND

APPENDIX C-II

Change in the Minimum and Maximum Weekly Benefits, Effective September 1, 2016

In Rhode Island, maximum and, for certain benefit types, minimum workers compensation indemnity benefit provisions are dependent upon the state average weekly wage (SAWW). The impacts summarized in the table below result from anticipated changes in workers compensation costs due to the change in the SAWW from $935.02 ("current") to $961.07 ("revised"), and apply to injuries occurring on or after September 1, 2016.

The approach used in calculating the effects of a change in the SAWW is as follows:

1. Obtain the latest available SAWW from the RI Department of Labor.
2. Calculate the minimum and maximum benefits by benefit payment type that are dependent upon and expressed as a percentage of the current and revised SAWW.
3. Using a countrywide distribution of workers and their wages[1], indexed to the Rhode Island average weekly wage[2], determine expected current and revised average weekly benefits by benefit payment type (and dependency type, as appropriate)[3].
4. Use the above-calculated average weekly benefits to determine the indemnity benefit costs for each injury type (Fatal, Permanent Total, Permanent Partial, and Temporary Total)[4] prior to and subsequent to the change in the SAWW. Calculate the ratio of the revised indemnity benefit costs to current indemnity benefit costs for each injury type to determine the impact by injury type from the change in the SAWW.
5. Determine the indemnity cost distribution by injury type[5].
6. Using the indemnity cost distribution (Step 5) and the effects by injury type (Step 4), calculate the effect of the change in SAWW on total indemnity benefit costs.
7. Multiply the impact on total indemnity benefit costs (Step 6) by the percentage of losses attributed to indemnity benefits[6] to determine the impact of the change in the SAWW on overall benefit costs.

Type of Injury	Percentage of Losses	Effect (%)
Fatal	1.3%	+ 0.3
Permanent Total	2.5%	+ 0.2
Permanent Partial	43.0%	+ 0.2
Temporary Total	20.2%	+ 0.3
Total Indemnity	67.0%	+ 0.2
Medical	33.0%	0.0
Total	100.0%	+ 0.1

[1] Based on NCCI Detailed Claim Information data.

[2] Forecasted using the Bureau of Labor Statistics Quarterly Census of Employment and Wages, for all private sector employment.

[3] For states where the rate of compensation is based on spendable wages, state and federal tax withholding tables are used in conjunction with pertinent assumptions (e.g., number of dependents).

[4] Various distributions based on internal and external data are employed in determining the impact by type of injury. For example, for Fatal injuries, a countrywide distribution of average ages and dependents by type (e.g., spouse, spouse with one child, parent, etc.) is used in calculating mortality-adjusted annuity values under bot the current and revised weekly maximum benefits, with the likelihood of remarriage incorporated as applicable.

[5] NCCI Unit Statistical Plan data for the 36-month policy period ending 12/31/2012 on the 07/15/2016 law level and developed to an ultimate basis by type of injury.

[6] NCCI Financial Call data for Rhode Island for Policy Years 2012, 2013, and 2014 projected to 09/01/2016.

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APPENDIX C-III

Enacted SB 3053, Effective October 1, 2017

Senate Bill 3053 was enacted by the General Assembly on July 1, 2014. As a result of enacted Senate Bill 3053, the maximum workers compensation disability benefits in Rhode Island was increased from 120% to 125% of the SAWW, effective 10/01/2017. The resulting impacts by type of injury are shown below.

Type of Injury	Percentage of Losses[1, 2]	Effect (%)
Fatal	1.3%	+ 0.3
Permanent Total	2.5%	+ 0.2
Permanent Partial	43.0%	+ 0.2
Temporary Total	20.3%	+ 0.3
Total Indemnity	67.1%	+ 0.2
Medical	32.9%	0.0
Total	100.0%	+ 0.1

[1] NCCI Unit Statistical Plan data for the 36-month policy period ending 12/31/2012 on the 10/01/2016 law level and developed to an ultimate basis by type of injury.

[2] NCCI Financial Call data for Rhode Island for Policy Years 2012, 2013, and 2014 projected to 10/01/2017.

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APPENDIX C-IV

Longshore and Harbor Workers' Compensation Act

Change in the Minimum and Maximum Weekly Benefits, Effective October 1, 2015

In the Longshore And Harbor Workers' Compensation Act , maximum and, for certain benefit types, minimum workers compensation indemnity benefit provisions are dependent upon the national average weekly wage (NAWW). The impacts summarized in the table below result from anticipated changes in workers compensation costs due to the change in the NAWW from $688.51 ("current") to $703.00 ("revised"), and apply to injuries occurring on or after October 1, 2015.

The approach used in calculating the effects of a change in the NAWW is as follows:

1. Obtain the latest available NAWW from the United States Department of Labor, Division of Longshore and Harbor Workers' Compensation (DLHWC).
2. Calculate the minimum and maximum benefits by benefit payment type that are dependent upon and expressed as a percentage of the current and revised NAWW.
3. Using a countrywide distribution of workers and their wages[1], indexed to the Longshore And Harbor Workers' Compensation Act average weekly wage[2], determine expected current and revised average weekly benefits by benefit payment type (and dependency type, as appropriate)[3].
4. Use the above-calculated average weekly benefits to determine the indemnity benefit costs for each injury type (Fatal, Permanent Total, Permanent Partial, and Temporary Total)[4] prior to and subsequent to the change in the NAWW. Calculate the ratio of the revised indemnity benefit costs to current indemnity benefit costs for each injury type to determine the impact by injury type from the change in the NAWW.
5. Determine the indemnity cost distribution by injury type[5].
6. Using the indemnity cost distribution (Step 5) and the effects by injury type (Step 4), calculate the effect of the change in NAWW on total indemnity benefit costs.
7. Multiply the impact on total indemnity benefit costs (Step 6) by the percentage of losses attributed to indemnity benefits to determine the impact of the change in the NAWW on overall benefit costs.

Type of Injury	Percentage of Losses	Effect (%)
Fatal	3.8%	+ 0.4
Permanent Total	0.9%	+ 0.3
Permanent Partial	41.1%	+ 0.1
Temporary Total	9.2%	+ 0.3
Total Indemnity	55.0%	+ 0.2
Medical	45.0%	0.0
Total	100.0%	+ 0.1

[1] Based on NCCI Detailed Claim Information data.

[2] Bureau of Labor Statistics Quarterly Census of Employment and Wages, for all private sector employment.

[3] For states where the rate of compensation is based on spendable wages, state and federal tax withholding tables are used in conjunction with pertinent assumptions (e.g., number of dependents).

[4] Various distributions based on internal and external data are employed in determining the impact by type of injury. For example, for Fatal injuries, a countrywide distribution of average ages and dependents by type (e.g., spouse, spouse with one child, parent, etc.) is used in calculating mortality-adjusted annuity values under both the current and revised weekly maximum benefits, with the likelihood of remarriage incorporated as applicable.

[5] NCCI Unit Statistical Plan data for the 36-month policy period ending 12/31/2012 on the 10/01/2014 law level and developed to an ultimate basis by type of injury.

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APPENDIX C-V

U.S. Longshore and Harbor Workers' Compensation Act Assessment

The F-class and Program II, Option II maritime class voluntary loss costs include the following provision for the federal assessment:

1.)	Estimated Total Expense Needed for 2016 *	110,000,000
2.)	Compensation Payments Reported (on indemnity only) in 2015 *	951,583,132
3.)	Assessment Rate on Indemnity Losses (1) / (2)	11.6%

Breakdown of Losses Under the Longshore and Harbor Workers Act

4.)	Indemnity Losses (Combination of 1st through 3rd reports) #	40,877,657
5.)	Medical Losses (Combination of 1st through 3rd reports) #	33,494,612
6.)	Total Losses (4) + (5)	74,372,269
7.)	Assessment Rate on Total Losses { (3) x (4) } / (6)	6.4%

* Source: U.S. Department of Labor

\# Source: On-leveled and developed USL&HW losses - statistical plan data