

PENNSYLVANIA COMPENSATION RATING BUREAU

Indicated Change in Loss Costs

Page 1 presents the overall indicated change in loss costs.

For this filing, loss costs resulting from PCRB Filing No. C-378 were used to calculate expected losses on Page 1 and actual loss ratios on Page 2.

Derivation of the indemnity and medical trend factors and trended loss ratios shown on Page 1 is presented on Page 2. Severity ratios, defined as loss ratios adjusted by dividing out the frequency component, for both indemnity and medical, have been fitted using a seven-point exponential curve. Severity trend factors are calculated by fitting severity ratios to curves using a least squares regression analysis and comparing the fitted values at 4/1/23 to the fitted values at the midpoints of the latest three available policy years. Frequency trend factors are derived on Page 3. The resulting severity and frequency trend factors are then applied to the latest three available policy year loss ratios to generate projected ultimate trended loss ratios.

As described in Exhibit 8, staff has selected an annual frequency trend of -6.2%. Page 3 shows the derivation of overall frequency trend factors for each of the latest three available policy years.

**INDICATED CHANGE IN LOSS COSTS**

	<u>Indemnity</u>	<u>Medical</u>	<u>Total</u>
(1) Policy Year 2017 Ratio of Loss to Expected Loss	0.5560	0.6022	1.1582
(2) Policy Year 2018 Ratio of Loss to Expected Loss	0.5581	0.6291	1.1872
(3) Policy Year 2019 Ratio of Loss to Expected Loss	0.5107	0.5397	1.0504
(4) Average (Midpoint = 1/1/2019)	0.5416	0.5903	1.1319
(5) Policy Year 2017 Ratio Trended to 4/1/2023 +	0.4313	0.4872	0.9185
(6) Policy Year 2018 Ratio Trended to 4/1/2023 +	0.4544	0.5298	0.9842
(7) Policy Year 2019 Ratio Trended to 4/1/2023 +	0.4364	0.4733	0.9097
(8) Average at 4/1/2023	0.4407	0.4968	0.9375
(9) Indicated Change in Loss Costs	0.4407	0.4968	0.9375 <b>-6.25%</b>

**CHANGES IN MANUAL LOSS COST LEVEL BY INDUSTRY GROUP**

	<u>Mfg.</u>	<u>Cont.</u>	<u>Other</u>	<u>Total</u>
(10) Current Collectible Premium Ratio	1.0426	1.1272	0.9955	
(11) Anticipated Collectible Premium Ratio	1.0336	1.1350	0.9984	
(12) Final Indicated Change in Manual Loss Cost Level (9T) * (11) / (10)	0.9294	0.9440	0.9402	0.9389

+ Refer to pages 1.2 and 1.3

**DETERMINATION OF TREND**

**INDEMNITY**

Policy Year	2013	2014	2015	2016	2017	2018	2019
Actual Loss Ratio	0.7182	0.6824	0.6114	0.5675	0.5560	0.5581	0.5107
Normalized Frequency	0.8433	0.7709	0.7106	0.6651	0.6285	0.6049	0.5371
Severity Loss Ratio	0.8516	0.8852	0.8603	0.8532	0.8846	0.9227	0.9508
<b>x</b>	1	2	3	4	5	6	7
<b>y</b>	0.8516	0.8852	0.8603	0.8532	0.8846	0.9227	0.9508

**7 Point Exponential Regression:  $y = 0.832086 * 1.015889 ^ x$**

**Selected Annual Severity Trend Factor =** **1.59%**

Policy Year	Annual Severity Trend Factor (1)	Trend Period # of Years to 4/1/23 (2)	Severity Trend Factor (3) = (1) ^ (2)	Frequency Trend Factor (4) #
2017	1.0159	5.2500	1.0863	0.7142
2018	1.0159	4.2500	1.0693	0.7614
2019	1.0159	3.2500	1.0526	0.8119

**Trended Loss Ratio**

Policy Year	Actual Loss Ratio (5)	Combined Trend Factor (6) = (3) * (4)	Trended Loss Ratio (7) = (5) * (6)
2017	0.5560	0.7758	0.4313
2018	0.5581	0.8142	0.4544
2019	0.5107	0.8546	0.4364

**MEDICAL**

Policy Year	2013	2014	2015	2016	2017	2018	2019
Actual Loss Ratio	0.7411	0.7311	0.6298	0.6018	0.6022	0.6291	0.5397
Normalized Frequency	0.8433	0.7709	0.7106	0.6651	0.6285	0.6049	0.5371
Severity Loss Ratio	0.8788	0.9484	0.8862	0.9048	0.9581	1.0400	1.0048
<b>x</b>	1	2	3	4	5	6	7
<b>y</b>	0.8788	0.9484	0.8862	0.9048	0.9581	1.0400	1.0048

**7 Point Exponential Regression:  $y = 0.858719 * 1.024011 ^ x$**

**Selected Annual Severity Trend Factor =** **2.40%**

Policy Year	Annual Severity Trend Factor (1)	Trend Period # of Years to 4/1/23 (2)	Severity Trend Factor (3) = (1) ^ (2)	Frequency Trend Factor (4) #
2017	1.0240	5.2500	1.1327	0.7142
2018	1.0240	4.2500	1.1061	0.7614
2019	1.0240	3.2500	1.0802	0.8119

**Trended Loss Ratio**

Policy Year	Actual Loss Ratio (5)	Combined Trend Factor (6) = (3) * (4)	Trended Loss Ratio (7) = (5) * (6)
2017	0.6022	0.8090	0.4872
2018	0.6291	0.8422	0.5298
2019	0.5397	0.8770	0.4733

# See page 1.3

**DETERMINATION OF TREND**

**CLAIM FREQUENCY**

Policy Year Frequency per \$1 million of Expected Losses

Policy Year	Claim Frequency	Normalized Frequency
2009	27.89	1.0000
2010	27.36	0.9810
2011	25.62	0.9186
2012	24.02	0.8612
2013	23.52	0.8433
2014	21.50	0.7709
2015	19.82	0.7106
2016	18.55	0.6651
2017	17.53	0.6285
2018	16.87	0.6049
2019*	14.98	0.5371

Policy Year	2012	2013	2014	2015	2016	2017	2018
<b>x</b>	1	2	3	4	5	6	7
<b>y</b>	0.8612	0.8433	0.7709	0.7106	0.6651	0.6285	0.6049

**7 Point Exponential Regression:  $y = 0.930934 * 0.937887 ^ x$**

**Selected Annual Frequency Trend Factor =**

<b>-6.2%</b>
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Policy Year	Annual Frequency Trend Factor (1)	Trend Period # of Years to 4/1/23 (2)	Frequency Trend Factor (3) = (1) ^ (2)
2017	0.9379	5.2500	0.7142
2018	0.9379	4.2500	0.7614
2019	0.9379	3.2500	0.8119

\* Policy Year 2019 was excluded from trend due to being significantly impacted by COVID-19 disruptions.