

State of Missouri  
Department of Commerce and Insurance

Actuarial Review of  
NCCI Voluntary Market Advisory Loss Cost Filing  
Proposed Effective January 1, 2024

---

November 2023

Prepared by:



STATE OF MISSOURI  
DEPARTMENT OF COMMERCE AND INSURANCE

ACTUARIAL REVIEW OF  
NCCI VOLUNTARY MARKET ADVISORY LOSS COST FILING  
PROPOSED EFFECTIVE JANUARY 1, 2024

TABLE OF CONTENTS

---

EXECUTIVE SUMMARY

REPORT

I. INTRODUCTION ..... 4

II. OVERVIEW OF FILING ..... 5

III. REVIEW OF THE NCCI FILING ..... 8

    A. Development Factors ..... 8

    B. Trend Analysis ..... 8

    C. LAE Provision ..... 12

    D. Overall Findings ..... 13

    E. Allocation of Loss Costs to Individual Classes ..... 13

    F. Exclusion of Assigned Risk Experience ..... 13

IV. LIMITATIONS AND DISTRIBUTION ..... 14

V. SIGNATURE PAGE ..... 15

VI. GLOSSARY OF TERMS ..... 16

EXHIBITS

APPENDICES

STATE OF MISSOURI  
DEPARTMENT OF COMMERCE AND INSURANCE

ACTUARIAL REVIEW OF  
NCCI VOLUNTARY MARKET ADVISORY LOSS COST FILING  
PROPOSED EFFECTIVE JANUARY 1, 2024

---

**EXECUTIVE SUMMARY**

**A. Introduction/Scope**

Actuarial Solutions has been engaged by the Missouri Department of Commerce and Insurance (the “Department”) to conduct an independent actuarial review of the National Council on Compensation Insurance’s (NCCI) Missouri workers compensation voluntary market advisory loss cost filing proposed effective January 1, 2024. We were asked by the Department to:

- review the NCCI’s ratemaking data, methods and assumptions to determine if the proposed loss costs meet the requirements of Missouri law and are actuarially sound;
- identify the effect on the filed loss costs if the NCCI had excluded assigned risk loss experience;
- conduct an independent analysis of the Missouri loss costs and recommend an alternative overall loss cost change, if warranted by our findings.

**B. Summary of the NCCI Filing**

The NCCI has filed an overall decrease in loss costs of 7.5% effective January 1, 2024. This decrease is larger than the change of -6.4% filed by the NCCI effective January 1, 2023 and comparable to the -7.7% filed effective January 1, 2022.

The 7.5% decrease filed by the NCCI is comprised of several items, including changes in experience, trend, Missouri workers compensation benefit levels and loss adjustment expense (LAE). The first component of the loss cost change is a decrease of 5.1% due to loss experience and development. The combined impact of the decrease in the annual indemnity trend from -2.0% to -2.5%, and the decrease in the annual medical trend from -1.5% to -2.5%, causes a decrease of 2.8% in the loss cost level. The effect of Missouri benefit changes causes a 0.0% impact on the loss costs. Finally, the impact of reflecting an 20.3% LAE provision in lieu of the January 1, 2023 LAE provision of 20.0% produces an indicated increase of 0.3%.

## C. Overall Findings

We find the NCCI's calculations to be actuarially sound. Three areas in which we have exercised alternative actuarial judgment with respect to the filing are the loss development, trend and LAE components of the indication.

### 1. *Development*

The NCCI has chosen its loss development factors (LDFs) based upon the application of various rules. For example, the NCCI selected age-to-age paid LDFs by taking the arithmetic average of the two most recent factors, and selected paid plus case LDFs by taking the average of the most recent five factors. We do not take exception to the rules utilized by the NCCI, but prefer to select each LDF judgmentally. Some of our LDFs vary from the corresponding LDF utilized by the NCCI. Overall, the experience indication based upon our selected development factors would be 0.8% higher than the NCCI's experience indication.

### 2. *Trend*

With respect to trend, we selected -2.5% as the annual indemnity loss ratio; this is equal to the NCCI's indemnity loss ratio trend. Additionally, we selected an annual medical loss ratio trend equal to the NCCI's selection of -2.5%. Thus, there is no impact of changing the annual indemnity and medical trend factors from the NCCI's loss cost indication, all else equal.

### 3. *LAE Provision*

The NCCI's selected Missouri provision for LAE is slightly smaller than the LAE provision we are recommending. More specifically, the NCCI's selections result in a Missouri LAE provision of 20.3%; our alternative judgment supports the use of a Missouri LAE provision of 20.5%. Moving from 20.3% to 20.5% causes an increase of 0.1% on the overall indication, all else equal.

Taking into consideration all elements reviewed, as discussed herein, we recommend an indicated Missouri voluntary market advisory loss cost change of -6.7% effective January 1, 2024 as compared to the NCCI's filed change of -7.5%.

Additionally, we would like to note the following observations which do not impact our recommended Missouri voluntary market advisory loss cost change:

1. The NCCI determined that excluding data for the assigned risk market from the experience component would decrease the indicated loss cost change to -8.8%. However, we believe it is appropriate to include the assigned risk data and, therefore, would not recommend modifying the NCCI's January 1, 2024 Missouri filing to exclude the impact of the assigned risk market.

2. The NCCI's ratemaking methodology calls for the exclusion of claims associated with catastrophic events. Accordingly, the NCCI has considered the COVID-19 pandemic to be a catastrophe and excluded such claims from the data used in preparing its loss cost and rate filings. Such excluded claims make up less than 2% of the Missouri reported (paid + case) claims experience based on the data used in the January 1, 2024 loss cost indication for the experience period. We agree with the NCCI's approach as this type of claim is unlikely to be replicated over the rate usage period.
3. The NCCI recently completed a review of non-coal mining occupational disease (OD) based upon Unit Statistical Plan Data. It was determined that a separate analysis of such OD experience is unnecessary within rate filing indications as the ten years of ratemaking data used captures the vast majority of OD losses. Thus, all non-coal mining disease loadings are removed from the proposed loss costs and/or offsets. Less than 0.1% of total Missouri premium is generated from OD provisions.

STATE OF MISSOURI  
DEPARTMENT OF COMMERCE AND INSURANCE

ACTUARIAL REVIEW OF  
NCCI VOLUNTARY MARKET ADVISORY LOSS COST FILING  
PROPOSED EFFECTIVE JANUARY 1, 2024

---

I. INTRODUCTION

Annually, the National Council on Compensation Insurance files workers compensation voluntary market advisory loss costs in Missouri to be effective January 1 of the upcoming year. These loss costs are available for use by carriers writing workers compensation policies with Missouri exposure under Missouri's use-and-file statute.

Actuarial & Technical Solutions, Inc. (Actuarial Solutions) has been retained by the Missouri Department of Commerce and Insurance to review the Missouri workers compensation loss cost filing submitted by the NCCI to be effective January 1, 2024. Where appropriate, we have recommended changes and have calculated the impact of such recommendations on the loss cost indication. Additionally, as requested by the Department, we have expressed our opinion on whether it is appropriate to include data for the assigned risk market in determining the filed indication.

## II. OVERVIEW OF FILING

The NCCI filed a -7.5% overall change in advisory loss costs to be effective January 1, 2024. The indicated change by industry group is as follows:

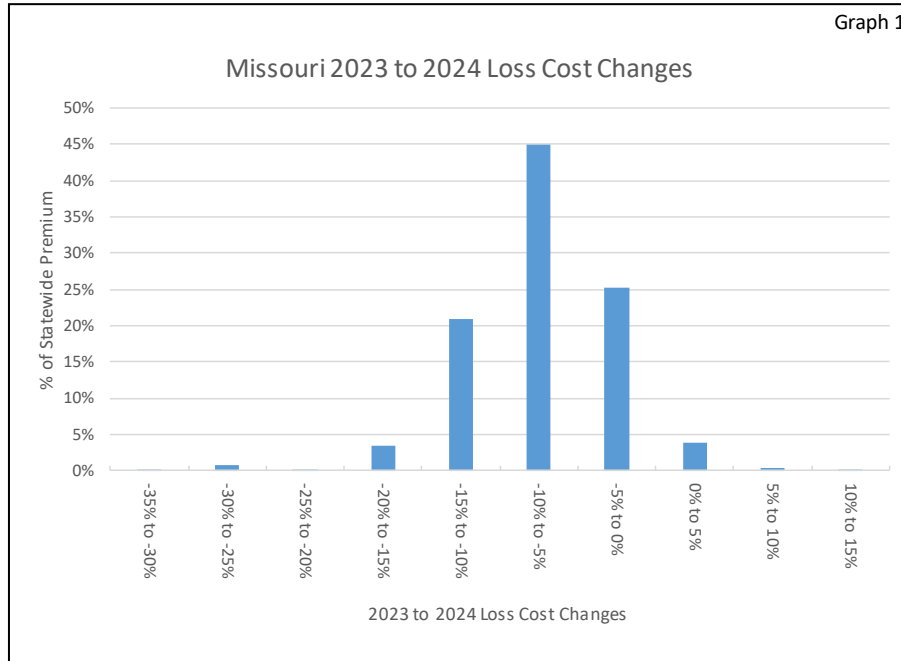
Table 1			
Loss Cost Change by Industry Group			
Industry Group	Loss Cost Change	Missouri Premium Distribution*	Missouri Exposure Distribution**
Manufacturing	-7.2%	20.7%	10.2%
Contracting	-7.6%	20.0%	6.3%
Office & Clerical	-11.2%	10.6%	60.0%
Goods & Services	-7.0%	28.4%	18.4%
Miscellaneous	-6.6%	20.3%	5.1%
TOTAL	-7.5%	100.0%	100.0%
* Premium distribution based on 7/1/20-21 payroll excluding F-classes x 1/1/24 proposed loss costs.			
** Exposure distribution based on 7/1/20-21 payroll excluding F-classes.			

Tables 2 and 3 present changes in loss costs among the top twenty classifications (based on premium): Table 2 identifies such classes with increases, while Table 3 identifies those with decreases of 7.5% or more.

Table 2			
Largest Classes with an Increase in Loss Cost			
Class	Class Description	Loss Cost Change	Size Rank Based on Premium*
5183	PLUMBING NOC & DRIVERS	2.2%	13
* Rank based on 7/1/20-21 payroll x 1/1/2024 proposed loss cost.			

Table 3			
Largest Classes with a Decrease in Loss Cost of at least 7.5%			
Class	Class Description	Loss Cost Change	Size Rank Based on Premium*
8833	HOSPITAL: PROFESSIONAL EMPLOYEES	-12.2%	2
5190	ELECTRICAL WIRING-WITHIN BUILDINGS & DRIVERS	-11.9%	7
5537	HEATING, VENTILATION, AIR-CONDITIONING AND REFRIGERATION	-10.5%	18
8810	CLERICAL OFFICE EMPLOYEES NOC	-10.0%	20
8742	SALESPERSONS OR COLLECTORS-OUTSIDE	-10.0%	10
5645	CARPENTRY- CONSTRUCTION OF RESIDENTIAL DWELLINGS NOT EXCEEDING THREE	-9.9%	6
3076	SHEET METAL PRODUCTS MFG.	-9.3%	12
8824	RETIREMENT LIVING CENTERS: HEALTH CARE EMPLOYEES	-8.8%	1
7219	TRUCKING: NOC-ALL EMPLOYEES & DRIVERS	-8.6%	9
* Rank based on 7/1/20-21 payroll x 1/1/2024 proposed loss cost.			

As shown in Graph 1, the proposed loss cost revisions result in decreases for 95.6% of statewide premium<sup>1</sup>. The majority of the decreases (44.96% of statewide premium) fall between -10% and -5%. Decreases between -5% and 0% impact 25.25% of statewide premium, while 0.48% of statewide premium will experience an increase in excess of 5%.



The key factors selected by the NCCI in the determination of the advisory loss costs are shown in the tables below. There were no major changes in methodology from the January 1, 2023 filing to the January 1, 2024 filing. Tables 4 and 5 allow for a comparison of the key factors between these filings.

NCCI Factors Applied to Most Recent Policy Year			
	1/1/23 Filing	1/1/24 Filing	% Change From '23 to '24 Filing
Premium Development Factor	1.008	1.010	0.2%
Paid LDF - Indemnity	3.352	3.406	1.6%
Paid + Case LDF - Indemnity	1.379	1.358	-1.5%
Paid LDF - Medical	1.483	1.471	-0.8%
Paid + Case LDF - Medical	1.039	1.028	-1.1%
Indemnity Trend Factor	0.941	0.927	-1.5%
Medical Trend Factor	0.956	0.927	-3.0%
Excess Loss Loading	1.010	1.012	0.2%
Loss Adjustment Expense Factor	1.200	1.203	0.3%

<sup>1</sup> Premium equals July 1, 2020-2021 payroll x January 1, 2024 proposed loss cost.



Table 5

## NCCI Factors Applied to Prior Policy Year

	<u>1/1/23 Filing</u>	<u>1/1/24 Filing</u>	<u>% Change From '23 to '24 Filing</u>
Premium Development Factor	1.000	1.000	0.0%
Paid LDF - Indemnity	1.912	1.919	0.4%
Paid + Case LDF - Indemnity	1.213	1.200	-1.1%
Paid LDF - Medical	1.237	1.217	-1.6%
Paid + Case LDF - Medical	1.016	1.010	-0.6%
Indemnity Trend Factor	0.922	0.904	-2.0%
Medical Trend Factor	0.941	0.904	-3.9%
Excess Loss Loading	1.010	1.012	0.2%
Loss Adjustment Expense Factor	1.200	1.203	0.3%

### **III. REVIEW OF THE NCCI FILING**

The following presents the key components underlying the overall indicated loss cost level change filed by the NCCI effective January 1, 2024. We have reviewed the NCCI's general methodology as well as the calculations contained in the filing. The NCCI's approach to preparing state filings includes the incorporation of items which are state-specific (such as loss development and trend), as well as items which are based upon countrywide information and included in filings submitted in numerous states (such as adjusting and other expense (AOE)). The NCCI generally reflects a consistent methodology across all states, with judgment applied more by the manner in which elements are selected rather than in the selection of each individual item. We discuss below how the NCCI's judgment comes into play within each of the following elements.

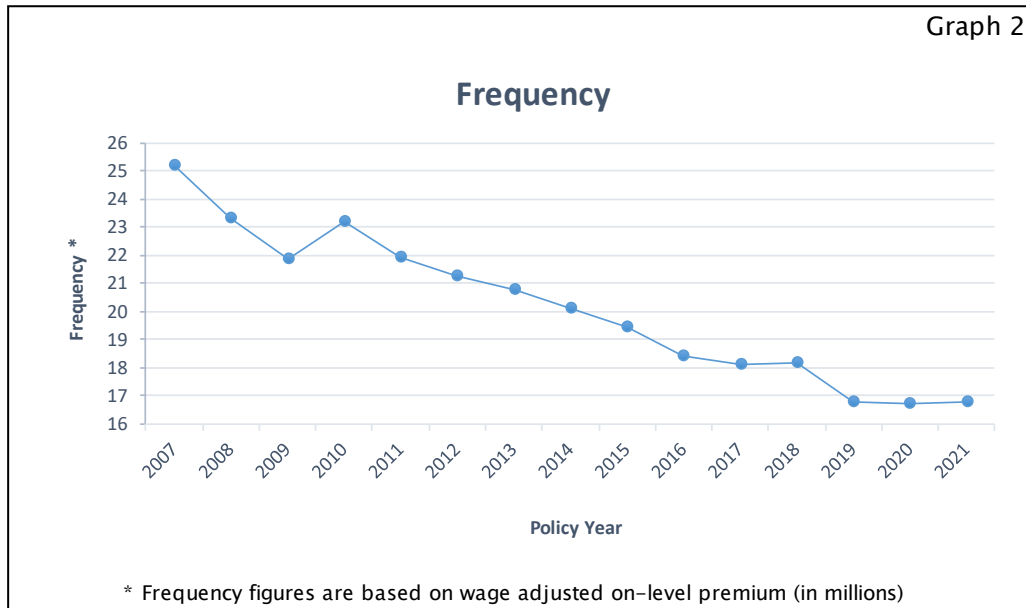
#### **A. Development Factors**

The NCCI based its experience indication upon loss and premium for policy years 2020 and 2021 evaluated as of December 31, 2022. Ultimate losses for Missouri are estimated by averaging the results of a paid loss development method and a paid plus case loss development method. The NCCI's approach to selecting loss development factors (LDFs) in recent years has been to use an average of the latest two observed paid LDFs when preparing the paid loss projection, and to utilize an average of the latest five paid plus case LDFs when projecting paid plus case loss to ultimate. Thus, the NCCI's judgment comes into play in the selection of the rules which are applied to LDFs at all maturities. We generally prefer to apply judgment in selecting LDFs by reviewing the available historical LDFs at each maturity, and making a selection based upon our observations of factors within the given age-to-age period. In our analysis of the NCCI's January 1, 2024 Missouri filing, we reviewed the paid and the paid plus case age-to-age LDFs for each of indemnity loss and medical loss. For each set of factors, we applied our actuarial judgment to select a development factor for each age-to-age period; some selected LDFs were higher than those used by the NCCI, while others were lower. We then replaced the NCCI's rule-based LDFs with our LDF selections to test the impact on the loss cost indication. The indication produced by our selected LDFs, all other elements unchanged, is 0.9% larger than the indicated loss cost change filed by the NCCI (see Exhibit 1).

#### **B. Trend Analysis**

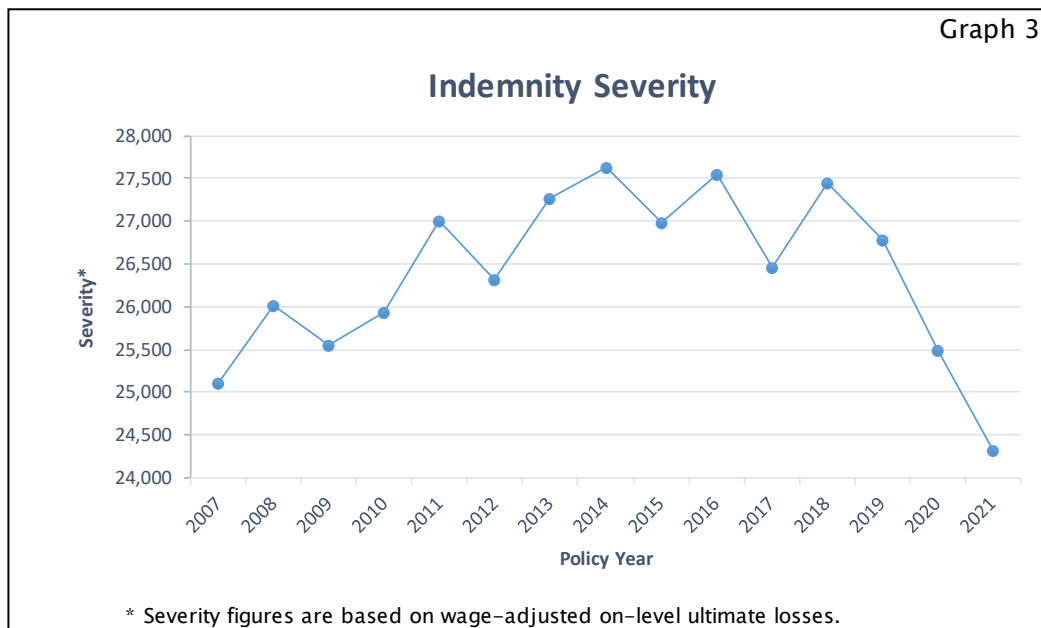
In selecting indemnity and medical loss ratio trends, the NCCI reviewed Missouri-specific frequency, indemnity severity and medical severity information, as well as ultimate indemnity and medical loss ratios, for policy years 2007-2021. Consistent with recent prior filings prepared by the NCCI in Missouri, the NCCI directly selected annual loss ratio trends for each of indemnity loss and medical loss for the January 1, 2024 Missouri filing. In addition to reviewing these loss ratio trends, we have also reviewed both the frequency and severity trend components. Appendix B presents our review of various combinations of policy years for frequency trend as well as both severity and loss ratio trends for indemnity loss and medical loss separately.

The NCCI's filing presents historical claim frequency for policy years 2007-2021. Graph 2 presents the frequency for these policy years.



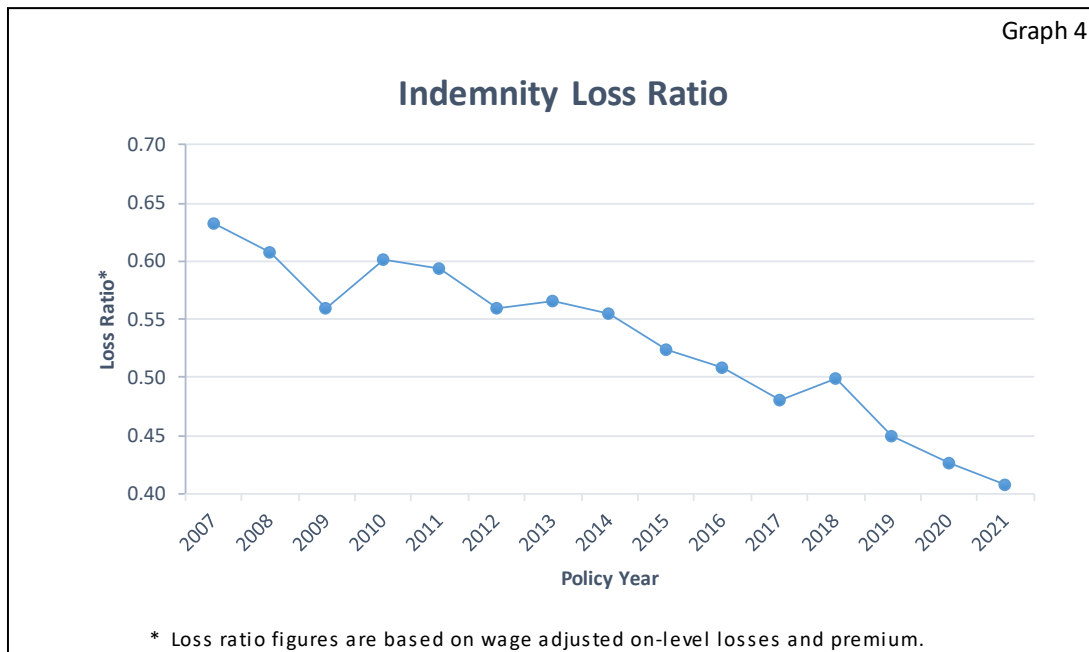
In reviewing the data provided by the NCCI, we note that frequency levels have declined since 2010. Further, these recent policy years display a fairly consistent downward trend.

For indemnity severity, the NCCI calculated the ultimate cost per claim based upon ultimate loss (which equals an average of the ultimate loss produced via the paid development and the paid plus case development projections) divided by projected ultimate claim counts. Graph 3 presents the indemnity severities for each of policy years 2007 through 2021.



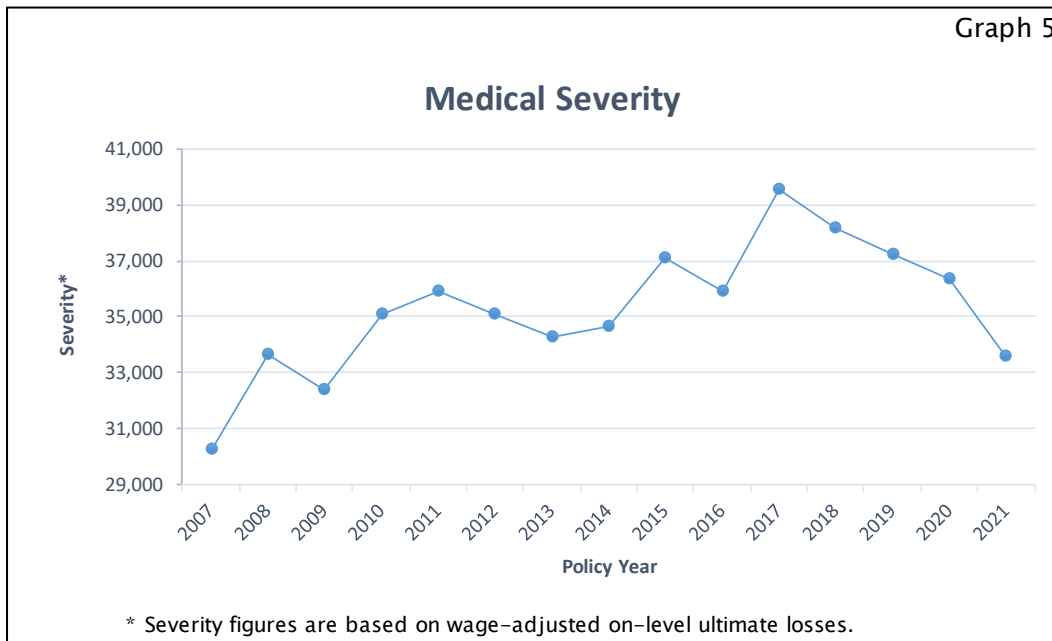
We observe that the indemnity severities are somewhat erratic over policy years 2011 through 2017. These severities drop dramatically from policy year 2018 to 2021, consistent with industry observations made by the NCCI.

We then looked directly at indemnity loss ratios. In reviewing the historical indemnity loss ratios in Graph 4, we can see that the loss ratios have decreased fairly steadily over the last eight years. Based upon a direct review of such trends,<sup>2</sup> we believe an indemnity loss ratio trend for 2024 of -2.5% would be reasonable. The NCCI selected an annual indemnity loss ratio trend of -2.5% for 2024; thus, our selection is equal to the NCCI's selected annual indemnity loss ratio trend.



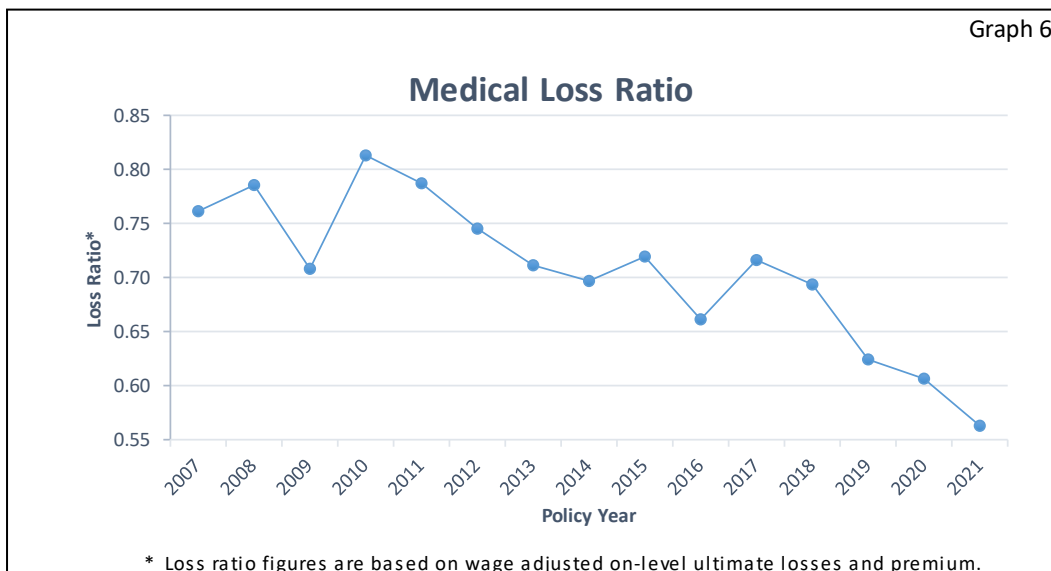
A similar analysis was conducted for medical loss. The NCCI calculated ultimate medical severities based upon ultimate medical loss produced by using an average of the paid and the paid plus case LDF projection methods, divided by ultimate claim counts. Graph 5 presents the historical medical severities for policy years 2007 through 2021.

<sup>2</sup> Actuarial Solutions fit curves to indemnity loss ratios which were calculated based upon ultimate indemnity loss which substituted our judgmentally selected LDFs for the rule-based LDFs utilized by the NCCI.



Graph 5 shows that the medical severity increased fairly steadily from 2014 through 2017, after medical severities had been relatively flat from 2010 to 2014. Decreases are then seen from 2017 to 2021, with a large drop occurring from policy year 2020 to 2021.

With regard to medical loss ratio trends, the NCCI selected an annual medical loss ratio trend of -2.5%. Graph 6 presents the medical loss ratios for policy years 2007 through 2021. As can be seen in Graph 6, the historical medical loss ratios have generally decreased over this period. Based upon our review of these medical loss ratios<sup>3</sup>, as well as trend results produced by fitting exponential curves to such figures, we believe a medical loss ratio trend of -2.5% is supported; this is equal to the NCCI's selected medical loss ratio trend.



<sup>3</sup> Actuarial Solutions fit curves to medical loss ratios which were calculated based upon ultimate medical loss which substituted our judgmentally selected LDFs for the rule-based LDFs utilized by the NCCI.

Our selected annual loss ratio trends equal the NCCI's filed annual -2.5% indemnity loss ratio trend and annual medical loss ratio trend of -2.5%. Thus, our review of the trend components produces an indicated loss cost change that is equal to that contained in the NCCI filing, all else equal.

### C. LAE Provision

The Missouri loss costs include a provision for LAE, which has two components: DCCE and AOE. DCCE includes items such as legal/defense expenses and medical exam costs. AOE encompasses general claims administration expenses such as salaries for claim adjusters. To determine the LAE provision for a given state's filing, the NCCI considers each of the DCCE and AOE components independently, analyzing the DCCE ratio to loss separately from the AOE ratio to loss.

For AOE, for which collected data is countrywide in nature, the NCCI blends its countrywide AOE ratio with the Missouri-specific AOE ratio of Missouri Employers Mutual Insurance Company (MEM)<sup>4</sup>. For private carriers, the NCCI selected a countrywide AOE ratio of 9.4%; the AOE ratio for MEM is identified to be 12.5%. Based upon a 77% Missouri private carrier market share, these AOE ratios are weighted together to produce a weighted AOE ratio to loss of 10.1% ( $10.1\% = 0.77 \times 9.4\% + 0.23 \times 12.5\%$ ). The NCCI selects this weighted 10.1% as the Missouri AOE ratio. After a review of the NCCI's AOE calculation, we find the NCCI's selected Missouri AOE provision of 10.1% to be reasonable, as compared to our selected AOE ratio of 10.2%.

For DCCE, beginning with its January 1, 2020 filing, the NCCI derives the DCCE ratio directly from its Call for Policy Year Data, which includes state-specific private carrier and state fund loss and DCCE. The DCCE methodology develops ratios of DCCE-to-loss to an ultimate basis for the most recent five policy years. An average of these ultimate ratios (10.2%) is selected as the Missouri DCCE ratio. We first reviewed the ratio development factors produced by the NCCI and made alternative judgmental selections in a manner analogous to that applied in our review of indemnity and medical LDFs. We then applied our selected ratio development factors to ten years of Missouri policy year DCCE ratios. Use of our alternative development yields a slightly higher DCCE ratio of 10.3%.

Combining our alternative DCCE ratio of 10.3% with an AOE ratio of 10.2% produces a 20.5% Missouri LAE ratio, as compared to the NCCI's LAE ratio of 20.3%. Thus, substitution of our selected Missouri LAE provision for the LAE ratio included in the NCCI January 1, 2024 filing causes the indicated loss cost change to increase by 0.1% (i.e., our LAE ratio produces a 0.4% overall change whereas the NCCI's LAE ratio produces a 0.3% increase, relative to the LAE provision included in the January 1, 2023 NCCI filing).

---

<sup>4</sup> MEM is the competitive state fund in Missouri.

## **D. Overall Findings**

Sections A through C detail the specific recommendations we have regarding the NCCI's January 1, 2024 filing as well as the individual impact of each recommendation. The combined impact of utilizing all of these recommendations is an indicated change of -6.7% in loss costs as shown in Exhibit 4; thus, our overall voluntary market loss cost change is 0.9% lower than the NCCI's indication of -7.5%.

## **E. Allocation of Loss Costs to Individual Classes**

The NCCI's methodology for distributing the overall indication among the various classes is well documented and well supported. We do not take exception to the methodology used by the NCCI. Loss cost changes in this filing for individual classes (excluding F-classes) range from -30.8% to +12.8%.

We did not review the NCCI's calculation of the effect of changes to the U.S. Longshore and Harbor Workers' Compensation Act.

## **F. Exclusion of Assigned Risk Experience**

At our request, the NCCI calculated that exclusion of assigned risk data from the experience used in the filing would cause the loss cost indication to be -8.8%. Given the current small market share of the Missouri assigned risk market, as well as the fact that risks shift between the voluntary and assigned risk market over time, we feel that it is not inappropriate to base the indicated loss costs upon combined voluntary and assigned risk experience at this time.

#### IV. LIMITATIONS AND DISTRIBUTION

This report reviews the data, methods and assumptions utilized by the NCCI in preparing its January 1, 2024 workers compensation voluntary market advisory loss cost filing in Missouri. Our review relied upon information provided to us by the Department and by the NCCI. Appendix C presents information supplied by the NCCI in response to interrogatories which assisted in our review. Although we have not audited this information, the NCCI's calculations have been reviewed for reasonability. If the underlying data or information is found to be inaccurate or incomplete, then our observations and conclusions may likewise be inaccurate or incomplete.

The loss costs proposed in the NCCI's filing are based upon projections of loss, LAE and premium, as well as consideration of other relevant items. Such projections of workers compensation experience, and thus our analysis and conclusions, are subject to uncertainty and reflect mathematical expectations. Further, the proposed Missouri loss costs are based upon Missouri statutes and regulations as they exist at this time, and do not consider any potential future retroactive benefit provisions or laws which ultimately may be determined to have an impact upon policies written during the effective period of these loss costs.

The COVID-19 pandemic has caused disruptions to many industries around the world since 2020 and its impact is ongoing. It is currently unknown how this pandemic will ultimately affect insurance and financial activities, including underlying exposures, as well as claim reporting and loss values. Possible impacts include changes in the frequency and/or severity of claims, as well as the timing of claim filing, processing and/or resolution. This may include potential future changes to development patterns which have been applied in the estimation of the loss cost indication. Thus, there is additional variability associated with the estimates as of December 31, 2022 which underlie the reviewed filing.

This report has been prepared solely for the use of and reliance by the Missouri Department of Commerce and Insurance in its review of the NCCI's Missouri voluntary market advisory loss cost filing effective January 1, 2024. The content within this report, as well as the materials reviewed as part of this engagement are technical in nature; it is recommended that any party receiving a copy of this report request its own actuary to review the report to ensure an understanding of all assumptions, data, limitations and conclusions reached by the NCCI in its January 1, 2024 filing and by Actuarial Solutions in the review of the filing. This report should be distributed only in its entirety.



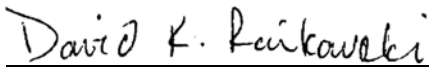
## V. SIGNATURE PAGE

This report was prepared by Kristine Fitzgerald and David Raikowski. Ms. Fitzgerald and Mr. Raikowski are Associates of the Casualty Actuarial Society and Members of the American Academy of Actuaries. The review was conducted in keeping with the Qualification Standards of the American Academy of Actuaries and the Standards of Practice published by the Actuarial Standards Board.



---

Kristine M. Fitzgerald, ACAS, MAAA, FCA  
Actuarial & Technical Solutions, Inc.  
1767 Veterans Memorial Highway, Suite 16  
Islandia, New York 11749  
631-471-8655  
kfitzgerald@actuariesolutions.com  
November 21, 2023



---

David K. Raikowski, ACAS, MAAA, FCA  
Actuarial & Technical Solutions, Inc.  
1767 Veterans Memorial Highway, Suite 16  
Islandia, New York 11749  
631-471-8655  
draikowski@actuariesolutions.com  
November 21, 2023

## VI. GLOSSARY OF TERMS

The following definitions are provided to give context to the terms used within this report and are tailored to the specifics of the filing under review.

### *Accident Year*

A 12-month period of time for which dollars of loss are aggregated based upon those accidents occurring during the given time period. At a given moment in time the amount paid as well as the established reserves are known; the final value of all claims is not known until that time at which all such claims are closed.

### *Actuarial Central Estimate*

An estimate that represents an expected value over a range of reasonably possible outcomes, not all conceivable outcomes.

### *Case Reserve*

An estimate made by a claims administrator of the amount which remains to be paid for each particular claim.

### *Development*

The observed change over time in a type of data for a particular year (e.g., paid loss, incurred loss or premium).

### *Incurred Loss*

The sum of paid loss plus case reserves (also referred to as paid plus case loss or “reported loss”).

### *LAE*

LAE has two components: defense and cost containment expense (DCCE) and adjusting and other expense (AOE). DCCE represents expenses related to defense, litigation and medical cost containment. AOE includes all other claims adjusting expenses, whether internal or external to the Company.

### *Loss Cost*

Loss cost is defined as the expected loss per unit of exposure. The unit of exposure is defined differently depending on the line of insurance covered.

### *On-Level*

The statement of various years of data at a common level (e.g., premium stated at current rate level; or loss stated at current benefit levels).

### *Paid Loss*

The dollars of indemnity and medical benefits paid to the injured worker or his/her dependents.

### *Policy Year*

A policy year is comprised of all of the policies written during a particular calendar year; loss and premium is aggregated for all such policies. Since a policy written on January 1 expires December 31 of the same year, but a policy written on December 31 does not expire until the end of the following year, accidents associated with a

single policy year occur over the course of two calendar years. Experience from the two most recent complete policy years (2020 and 2021) makes up the bulk of the NCCI's calculation of the indicated loss cost change for this filing.

*Severity*

The average cost per claim; this equals ultimate loss divided by the ultimate number of lost-time (indemnity) claims.

*Ultimate Loss*

The estimated amount that will eventually be paid when all claims are closed.

	[A]	[B]	[C]
	Paid	Paid + Case	Combined
<u>Premium</u>			
(1) Standard Earned Premium Valued as of 12/31/22	\$690,352,096	\$690,352,096	\$690,352,096
(2) Factor to Develop Standard Earned Premium	1.010	1.010	1.010
(3) Developed Standard Earned Premium = (1) x (2)	\$697,255,617	\$697,255,617	\$697,255,617
(4) Factor to Adjust Premium to Current Level	0.724	0.724	0.724
(5) Premium Adjusted to Current Level = (3) x (4)	\$504,813,067	\$504,813,067	\$504,813,067
<u>Indemnity Benefit and LAE Cost</u>			
(6) Indemnity Benefit Cost Valued as of 12/31/22 (First Report)	\$59,428,405	\$153,728,106	
(7) Factor to Develop Indemnity Benefit Cost	3.418	1.359	
(8) Developed Indemnity Benefit Cost = (6) x (7)	\$203,126,288	\$208,916,496	\$206,021,392
(9) Factor to Adjusted Indemnity Benefit Cost to Current Benefit Level	1.000	1.000	1.000
(10) Factor to Include Loss Based Expenses	1.000	1.000	1.000
(11) Composite Adjustment Factor = (9) x (10)	1.000	1.000	1.000
(12) Adjusted Indemnity Cost = (8) x (11)	\$203,126,288	\$208,916,496	\$206,021,392
(13) Indemnity Cost Ratio = (12) / (5)	0.402	0.414	0.408
(14) Trend Length	3.001	3.001	3.001
(15) Application of Proposed Indemnity Trend Factor = .975 ^ (14)	0.927	0.927	0.927
(16) Projected Limited Indemnity Cost Ratio = (13) x (15)	0.373	0.384	0.378
(17) Factor to Adjust Indemnity Cost Ratio to an Unlimited Basis	1.012	1.012	1.012
(18) Projected Indemnity Cost Ratio = (16) x (17)	0.377	0.389	0.383
(19) Proposed Change in Indemnity Benefits	1.000	1.000	1.000
(20) Projected Indemnity Cost Ratio Including Benefit Change = (18) x (19)	0.377	0.389	0.383
<u>Medical Benefit and LAE Cost</u>			
(21) Medical Benefit Cost Valued as of 12/31/22 (First Report)	\$191,624,167	\$273,263,364	
(22) Factor to Develop Medical Benefit Cost	1.490	1.037	
(23) Developed Medical Benefit Cost = (21) x (22)	\$285,520,009	\$283,374,108	\$284,447,059
(24) Factor to Adjusted Medical Benefit Cost to Current Benefit Level	1.000	1.000	1.000
(25) Factor to Include Loss Based Expenses	1.000	1.000	1.000
(26) Composite Adjustment Factor = (24) x (25)	1.000	1.000	1.000
(27) Adjusted Medical Cost = (23) x (26)	\$285,520,009	\$283,374,108	\$284,447,059
(28) Medical Cost Ratio = (27) / (5)	0.566	0.561	0.563
(29) Trend Length	3.001	3.001	3.001
(30) Application of Proposed Medical Trend Factor = .975 ^ (29)	0.927	0.927	0.927
(31) Projected Limited Medical Cost Ratio = (28) x (30)	0.525	0.520	0.522
(32) Factor to Adjust Medical Cost Ratio to an Unlimited Basis	1.012	1.012	1.012
(33) Projected Medical Cost Ratio = (31) x (32)	0.531	0.526	0.528
(34) Proposed Change in Medical Benefits	1.000	1.000	1.000
(35) Projected Medical Cost Ratio Including Benefit Change = (33) x (34)	0.531	0.526	0.528
<u>Total Benefit and LAE Cost</u>			
(36) Adjusted Cost Ratio of Policy Year 2021 = (20) + (35)	0.908	0.915	0.911

Notes: Row (7), Column [A] is taken from Row (1), Column [A] of Appendix A, Page 2.  
Row (7), Column [B] is taken from Row (1), Column [A] of Appendix A, Page 1.  
The trend factor reflected in Row (15) has been taken from the Missouri 1/1/24 Voluntary Market Loss Cost Filing.  
Row (22), Column [A] is taken from Row (1), Column [B] of Appendix A, Page 2.  
Row (22), Column [B] is taken from Row (1), Column [B] of Appendix A, Page 1.  
The trend factor reflected in Row (30) has been taken from the Missouri 1/1/24 Voluntary Market Loss Cost Filing.  
Rows (1), (2), (4), (6), (9), (10), (14), (17), (19), (21), (24), (25), (29), (32), and (34) have been taken from the Missouri 1/1/24 Voluntary Market Loss Cost Filing.

	[A]	[B]	[C]
	Paid	Paid + Case	Combined
<b>Premium</b>			
(1) Standard Earned Premium Valued as of 12/31/22	\$627,746,363	\$627,746,363	\$627,746,363
(2) Factor to Develop Standard Earned Premium	1.000	1.000	1.000
(3) Developed Standard Earned Premium = (1) x (2)	\$627,746,363	\$627,746,363	\$627,746,363
(4) Factor to Adjust Premium to Current Level	0.725	0.725	0.725
(5) Premium Adjusted to Current Level = (3) x (4)	\$455,116,113	\$455,116,113	\$455,116,113
<b>Indemnity Benefit and LAE Cost</b>			
(6) Indemnity Benefit Cost Valued as of 12/31/22 (Second Report)	\$97,061,405	\$167,443,953	
(7) Factor to Develop Indemnity Benefit Cost	1.926	1.201	
(8) Developed Indemnity Benefit Cost = (6) x (7)	\$186,940,266	\$201,100,188	\$194,020,227
(9) Factor to Adjusted Indemnity Benefit Cost to Current Benefit Level	1.000	1.000	1.000
(10) Factor to Include Loss Based Expenses	1.000	1.000	1.000
(11) Composite Adjustment Factor = (9) x (10)	1.000	1.000	1.000
(12) Adjusted Indemnity Cost = (8) x (11)	\$186,940,266	\$201,100,188	\$194,020,227
(13) Indemnity Cost Ratio = (12) / (5)	0.411	0.442	0.426
(14) Trend Length	4.001	4.001	4.001
(15) Application of Proposed Indemnity Trend Factor = .975 ^ (14)	0.904	0.904	0.904
(16) Projected Limited Indemnity Cost Ratio = (13) x (15)	0.372	0.400	0.385
(17) Factor to Adjust Indemnity Cost Ratio to an Unlimited Basis	1.012	1.012	1.012
(18) Projected Indemnity Cost Ratio = (16) x (17)	0.376	0.405	0.390
(19) Proposed Change in Indemnity Benefits	1.000	1.000	1.000
(20) Projected Indemnity Cost Ratio Including Benefit Change = (18) x (19)	0.376	0.405	0.390
<b>Medical Benefit and LAE Cost</b>			
(21) Medical Benefit Cost Valued as of 12/31/22 (Second Report)	\$222,103,998	\$273,772,966	
(22) Factor to Develop Medical Benefit Cost	1.233	1.019	
(23) Developed Medical Benefit Cost = (21) x (22)	\$273,854,230	\$278,974,652	\$276,414,441
(24) Factor to Adjusted Medical Benefit Cost to Current Benefit Level	1.000	1.000	1.000
(25) Factor to Include Loss Based Expenses	1.000	1.000	1.000
(26) Composite Adjustment Factor = (24) x (25)	1.000	1.000	1.000
(27) Adjusted Medical Cost = (23) x (26)	\$273,854,230	\$278,974,652	\$276,414,441
(28) Medical Cost Ratio = (27) / (5)	0.602	0.613	0.607
(29) Trend Length	4.001	4.001	4.001
(30) Application of Proposed Medical Trend Factor = .975 ^ (29)	0.904	0.904	0.904
(31) Projected Limited Medical Cost Ratio = (28) x (30)	0.544	0.554	0.549
(32) Factor to Adjust Medical Cost Ratio to an Unlimited Basis	1.012	1.012	1.012
(33) Projected Medical Cost Ratio = (31) x (32)	0.551	0.561	0.556
(34) Proposed Change in Medical Benefits	1.000	1.000	1.000
(35) Projected Medical Cost Ratio Including Benefit Change = (33) x (34)	0.551	0.561	0.556
<b>Total Benefit and LAE Cost</b>			
(36) Adjusted Cost Ratio of Policy Year 2020 = (20) + (35)	0.927	0.966	0.946

Notes: Row (7), Column [A] is taken from Row (2), Column [A] of Appendix A, Page 2.  
Row (7), Column [B] is taken from Row (2), Column [A] of Appendix A, Page 1.  
The trend factor reflected in Row (15) has been taken from the Missouri 1/1/24 Voluntary Market Loss Cost Filing.  
Row (22), Column [A] is taken from Row (2), Column [B] of Appendix A, Page 2.  
Row (22), Column [B] is taken from Row (2), Column [B] of Appendix A, Page 1.  
The trend factor reflected in Row (30) has been taken from the Missouri 1/1/24 Voluntary Market Loss Cost Filing.  
Rows (1), (2), (4), (6), (9), (10), (14), (17), (19), (21), (24), (25), (29), (32), and (34) have been taken from the Missouri 1/1/24 Voluntary Market Loss Cost Filing.

Average Cost Ratio

(1) Change in Experience, Trend and Benefits	0.929	(-7.1%)
(2) Change In Loss Adjustment Expense	1.003	(+0.3%)
(3) Overall Loss Cost Level Change: (1) x (2)	0.932	(-6.8%)

Notes: Row (1) is the average of Row (36), Column [C] of Exhibit 1, Pages 1 and 2.  
Row (2) is taken from the Missouri 1/1/24 Voluntary Market Loss Cost Filing.

	[A]	[B]	[C]
	Paid	Paid + Case	Combined
<b>Premium</b>			
(1) Standard Earned Premium Valued as of 12/31/22	\$690,352,096	\$690,352,096	\$690,352,096
(2) Factor to Develop Standard Earned Premium	1.010	1.010	1.010
(3) Developed Standard Earned Premium = (1) x (2)	\$697,255,617	\$697,255,617	\$697,255,617
(4) Factor to Adjust Premium to Current Level	0.724	0.724	0.724
(5) Premium Adjusted to Current Level = (3) x (4)	\$504,813,067	\$504,813,067	\$504,813,067
<b>Indemnity Benefit and LAE Cost</b>			
(6) Indemnity Benefit Cost Valued as of 12/31/22 (First Report)	\$59,428,405	\$153,728,106	
(7) Factor to Develop Indemnity Benefit Cost	3.406	1.358	
(8) Developed Indemnity Benefit Cost = (6) x (7)	\$202,413,147	\$208,762,768	\$205,587,958
(9) Factor to Adjusted Indemnity Benefit Cost to Current Benefit Level	1.000	1.000	1.000
(10) Factor to Include Loss Based Expenses	1.000	1.000	1.000
(11) Composite Adjustment Factor = (9) x (10)	1.000	1.000	1.000
(12) Adjusted Indemnity Cost = (8) x (11)	\$202,413,147	\$208,762,768	\$205,587,958
(13) Indemnity Cost Ratio = (12) / (5)	0.401	0.414	0.407
(14) Trend Length	3.001	3.001	3.001
(15) Application of Proposed Indemnity Trend Factor = .9750 ^ (14)	0.927	0.927	0.927
(16) Projected Limited Indemnity Cost Ratio = (13) x (15)	0.372	0.384	0.377
(17) Factor to Adjust Indemnity Cost Ratio to an Unlimited Basis	1.012	1.012	1.012
(18) Projected Indemnity Cost Ratio = (16) x (17)	0.376	0.389	0.382
(19) Proposed Change in Indemnity Benefits	1.000	1.000	1.000
(20) Projected Indemnity Cost Ratio Including Benefit Change = (18) x (19)	0.376	0.389	0.382
<b>Medical Benefit and LAE Cost</b>			
(21) Medical Benefit Cost Valued as of 12/31/22 (First Report)	\$191,624,167	\$273,263,364	
(22) Factor to Develop Medical Benefit Cost	1.471	1.028	
(23) Developed Medical Benefit Cost = (21) x (22)	\$281,879,150	\$280,914,738	\$281,396,944
(24) Factor to Adjusted Medical Benefit Cost to Current Benefit Level	1.000	1.000	1.000
(25) Factor to Include Loss Based Expenses	1.000	1.000	1.000
(26) Composite Adjustment Factor = (24) x (25)	1.000	1.000	1.000
(27) Adjusted Medical Cost = (23) x (26)	\$281,879,150	\$280,914,738	\$281,396,944
(28) Medical Cost Ratio = (27) / (5)	0.558	0.556	0.557
(29) Trend Length	3.001	3.001	3.001
(30) Application of Proposed Medical Trend Factor = .9750 ^ (29)	0.927	0.927	0.927
(31) Projected Limited Medical Cost Ratio = (28) x (30)	0.517	0.515	0.516
(32) Factor to Adjust Medical Cost Ratio to an Unlimited Basis	1.012	1.012	1.012
(33) Projected Medical Cost Ratio = (31) x (32)	0.523	0.521	0.522
(34) Proposed Change in Medical Benefits	1.000	1.000	1.000
(35) Projected Medical Cost Ratio Including Benefit Change = (33) x (34)	0.523	0.521	0.522
<b>Total Benefit and LAE Cost</b>			
(36) Adjusted Cost Ratio of Policy Year 2021 = (20) + (35)	0.899	0.910	0.904

Notes: The trend factor reflected in Row (15) has been selected by Actuarial Solutions.  
The trend factor reflected in Row (30) has been selected by Actuarial Solutions.  
Rows (1), (2), (4), (6), (7), (9), (10), (14), (17), (19), (21), (22), (24), (25), (29), (32), and (34) have been taken from the Missouri 1/1/24 Voluntary Market Loss Cost Filing.

	[A]	[B]	[C]
	Paid	Paid + Case	Combined
<b>Premium</b>			
(1) Standard Earned Premium Valued as of 12/31/22	\$627,746,363	\$627,746,363	\$627,746,363
(2) Factor to Develop Standard Earned Premium	1.000	1.000	1.000
(3) Developed Standard Earned Premium = (1) x (2)	\$627,746,363	\$627,746,363	\$627,746,363
(4) Factor to Adjust Premium to Current Level	0.725	0.725	0.725
(5) Premium Adjusted to Current Level = (3) x (4)	\$455,116,113	\$455,116,113	\$455,116,113
<b>Indemnity Benefit and LAE Cost</b>			
(6) Indemnity Benefit Cost Valued as of 12/31/22 (Second Report)	\$97,061,405	\$167,443,953	
(7) Factor to Develop Indemnity Benefit Cost	1.919	1.200	
(8) Developed Indemnity Benefit Cost = (6) x (7)	\$186,260,836	\$200,932,744	\$193,596,790
(9) Factor to Adjusted Indemnity Benefit Cost to Current Benefit Level	1.000	1.000	1.000
(10) Factor to Include Loss Based Expenses	1.000	1.000	1.000
(11) Composite Adjustment Factor = (9) x (10)	1.000	1.000	1.000
(12) Adjusted Indemnity Cost = (8) x (11)	\$186,260,836	\$200,932,744	\$193,596,790
(13) Indemnity Cost Ratio = (12) / (5)	0.409	0.441	0.425
(14) Trend Length	4.001	4.001	4.001
(15) Application of Proposed Indemnity Trend Factor = .9750 ^ (14)	0.904	0.904	0.904
(16) Projected Limited Indemnity Cost Ratio = (13) x (15)	0.370	0.399	0.384
(17) Factor to Adjust Indemnity Cost Ratio to an Unlimited Basis	1.012	1.012	1.012
(18) Projected Indemnity Cost Ratio = (16) x (17)	0.374	0.404	0.389
(19) Proposed Change in Indemnity Benefits	1.000	1.000	1.000
(20) Projected Indemnity Cost Ratio Including Benefit Change = (18) x (19)	0.374	0.404	0.389
<b>Medical Benefit and LAE Cost</b>			
(21) Medical Benefit Cost Valued as of 12/31/22 (Second Report)	\$222,103,998	\$273,772,966	
(22) Factor to Develop Medical Benefit Cost	1.217	1.010	
(23) Developed Medical Benefit Cost = (21) x (22)	\$270,300,566	\$276,510,696	\$273,405,631
(24) Factor to Adjusted Medical Benefit Cost to Current Benefit Level	1.000	1.000	1.000
(25) Factor to Include Loss Based Expenses	1.000	1.000	1.000
(26) Composite Adjustment Factor = (24) x (25)	1.000	1.000	1.000
(27) Adjusted Medical Cost = (23) x (26)	\$270,300,566	\$276,510,696	\$273,405,631
(28) Medical Cost Ratio = (27) / (5)	0.594	0.608	0.601
(29) Trend Length	4.001	4.001	4.001
(30) Application of Proposed Medical Trend Factor = .9750 ^ (29)	0.904	0.904	0.904
(31) Projected Limited Medical Cost Ratio = (28) x (30)	0.537	0.550	0.543
(32) Factor to Adjust Medical Cost Ratio to an Unlimited Basis	1.012	1.012	1.012
(33) Projected Medical Cost Ratio = (31) x (32)	0.543	0.557	0.550
(34) Proposed Change in Medical Benefits	1.000	1.000	1.000
(35) Projected Medical Cost Ratio Including Benefit Change = (33) x (34)	0.543	0.557	0.550
<b>Total Benefit and LAE Cost</b>			
(36) Adjusted Cost Ratio of Policy Year 2020 = (20) + (35)	0.917	0.961	0.939

Notes: The trend factor reflected in Row (15) has been selected by Actuarial Solutions.

The trend factor reflected in Row (30) has been selected by Actuarial Solutions.

Rows (1), (2), (4), (6), (7), (9), (10), (14), (17), (19), (21), (22), (24), (25), (29), (32), and (34) have been taken from the Missouri 1/1/24 Voluntary Market Loss Cost Filing.



Average Cost Ratio

(1) Change in Experience, Trend and Benefits	0.922	(-7.8%)
(2) Change In Loss Adjustment Expense	1.003	(+0.3%)
(3) Overall Loss Cost Level Change: (1) x (2)	0.925	(-7.5%)

Notes: Row (1) is the average of Row (36), Column [C] of Exhibit 2, Pages 1 and 2.  
Row (2) is taken from the Missouri 1/1/24 Voluntary Market Loss Cost Filing.

Section I: Selection of Missouri DCCE Provision

Policy Year	(1) NCCI Ultimate DCCE Ratio	(2) NCCI Selected Age to Ultimate Development Factor	(3) ATS Selected Age to Ultimate Development Factor	(4) ATS Ultimate DCCE Ratio (1) / (2) x (3)
2012	10.7%	0.982	0.982	10.7%
2013	10.9%	0.979	0.979	10.9%
2014	11.3%	0.975	0.976	11.3%
2015	10.5%	0.969	0.971	10.5%
2016	10.8%	0.972	0.973	10.8%
2017	9.9%	0.971	0.973	9.9%
2018	10.1%	0.973	0.975	10.1%
2019	10.1%	0.991	0.993	10.1%
2020	10.4%	1.017	1.019	10.4%
2021	10.3%	1.087	1.089	10.3%
10 Year Avg				10.5%
7 Year Avg				10.3%
5 Year Avg				10.2%
4 Year Avg				10.2%
3 Year Avg				10.3%
Selected				10.3%

Section II: Selection of Missouri AOE Provision

Accident Year	(5) Private Carriers Countrywide Ultimate AOE Ratio	(6) State Fund Missouri Ultimate AOE Ratio	(7) ATS Proposed AOE Ratio 1/1/24 Filing
2017	9.1%	10.3%	
2018	9.6%	11.8%	
2019	10.2%	12.7%	
2020	9.6%	13.5%	
2021	9.3%	13.0%	
Selected	9.5%	12.5%	10.2%
(8) Weighting	77.2%	22.8%	

Section III: Proposed Change in Missouri Loss Adjustment Expense Provision

Missouri Provisions	(9) NCCI Approved 1/1/23 Filing	(10) ATS Proposed 1/1/24 Filing	(11) Change In Provision
DCCE	10.2%	10.3%	
AOE	9.8%	10.2%	
LAE	20.0%	20.5%	(+0.4%)

Notes: Columns (1), (2), (5), (6), and (9) are either taken from the Missouri 1/1/24 Voluntary Market Loss Cost Filing, or based on information provided by NCCI. The weighting presented in Line (8) is based on information provided by NCCI, and is based upon the Private Carrier vs State Fund split of projected losses. Column (3) is taken from Lines (1) through (10) of Appendix A, Page 3.

Average Cost Ratio

(1) Change in Experience, Trend and Benefits	0.922	(-7.8%)
(2) Change In Loss Adjustment Expense	1.004	(+0.4%)
(3) Overall Loss Cost Level Change: (1) x (2)	0.926	(-7.4%)

Notes: Row (1) is taken from the Missouri 1/1/24 Voluntary Market Loss Cost Filing.  
Row (2) is taken from Column (11) of Exhibit 3, Page 1.

	[A]	[B]	[C]
<u>Premium</u>	<u>Paid</u>	<u>Paid + Case</u>	<u>Combined</u>
(1) Standard Earned Premium Valued as of 12/31/22	\$690,352,096	\$690,352,096	\$690,352,096
(2) Factor to Develop Standard Earned Premium	1.010	1.010	1.010
(3) Developed Standard Earned Premium = (1) x (2)	\$697,255,617	\$697,255,617	\$697,255,617
(4) Factor to Adjust Premium to Current Level	0.724	0.724	0.724
(5) Premium Adjusted to Current Level = (3) x (4)	\$504,813,067	\$504,813,067	\$504,813,067
<u>Indemnity Benefit and LAE Cost</u>			
(6) Indemnity Benefit Cost Valued as of 12/31/22 (First Report)	\$59,428,405	\$153,728,106	
(7) Factor to Develop Indemnity Benefit Cost	3.418	1.359	
(8) Developed Indemnity Benefit Cost = (6) x (7)	\$203,126,288	\$208,916,496	\$206,021,392
(9) Factor to Adjusted Indemnity Benefit Cost to Current Benefit Level	1.000	1.000	1.000
(10) Factor to Include Loss Based Expenses	1.000	1.000	1.000
(11) Composite Adjustment Factor = (9) x (10)	1.000	1.000	1.000
(12) Adjusted Indemnity Cost = (8) x (11)	\$203,126,288	\$208,916,496	\$206,021,392
(13) Indemnity Cost Ratio = (12) / (5)	0.402	0.414	0.408
(14) Trend Length	3.001	3.001	3.001
(15) Application of Proposed Indemnity Trend Factor = .9750 ^ (14)	0.927	0.927	0.927
(16) Projected Limited Indemnity Cost Ratio = (13) x (15)	0.373	0.384	0.378
(17) Factor to Adjust Indemnity Cost Ratio to an Unlimited Basis	1.012	1.012	1.012
(18) Projected Indemnity Cost Ratio = (16) x (17)	0.377	0.389	0.383
(19) Proposed Change in Indemnity Benefits	1.000	1.000	1.000
(20) Projected Indemnity Cost Ratio Including Benefit Change = (18) x (19)	0.377	0.389	0.383
<u>Medical Benefit and LAE Cost</u>			
(21) Medical Benefit Cost Valued as of 12/31/22 (First Report)	\$191,624,167	\$273,263,364	
(22) Factor to Develop Medical Benefit Cost	1.490	1.037	
(23) Developed Medical Benefit Cost = (21) x (22)	\$285,520,009	\$283,374,108	\$284,447,059
(24) Factor to Adjusted Medical Benefit Cost to Current Benefit Level	1.000	1.000	1.000
(25) Factor to Include Loss Based Expenses	1.000	1.000	1.000
(26) Composite Adjustment Factor = (24) x (25)	1.000	1.000	1.000
(27) Adjusted Medical Cost = (23) x (26)	\$285,520,009	\$283,374,108	\$284,447,059
(28) Medical Cost Ratio = (27) / (5)	0.566	0.561	0.563
(29) Trend Length	3.001	3.001	3.001
(30) Application of Proposed Medical Trend Factor = .9750 ^ (29)	0.927	0.927	0.927
(31) Projected Limited Medical Cost Ratio = (28) x (30)	0.525	0.520	0.522
(32) Factor to Adjust Medical Cost Ratio to an Unlimited Basis	1.012	1.012	1.012
(33) Projected Medical Cost Ratio = (31) x (32)	0.531	0.526	0.528
(34) Proposed Change in Medical Benefits	1.000	1.000	1.000
(35) Projected Medical Cost Ratio Including Benefit Change = (33) x (34)	0.531	0.526	0.528
<u>Total Benefit and LAE Cost</u>			
(36) Adjusted Cost Ratio of Policy Year 2021 = (20) + (35)	0.908	0.915	0.911

Notes: Row (7), Column [A] is taken from Row (1), Column [A] of Appendix A, Page 2.  
 Row (7), Column [B] is taken from Row (1), Column [A] of Appendix A, Page 1.  
 The trend factor reflected in Row (15) has been selected by Actuarial Solutions.  
 Row (22), Column [A] is taken from Row (1), Column [B] of Appendix A, Page 2.  
 Row (22), Column [B] is taken from Row (1), Column [B] of Appendix A, Page 1.  
 The trend factor reflected in Row (30) has been selected by Actuarial Solutions.  
 Rows (1), (2), (4), (6), (9), (10), (14), (17), (19), (21), (24), (25), (29), (32), and (34) have been taken from the Missouri 1/1/24  
 Voluntary Market Loss Cost Filing.

	[A]	[B]	[C]
	Paid	Paid + Case	Combined
<b>Premium</b>			
(1) Standard Earned Premium Valued as of 12/31/22	\$627,746,363	\$627,746,363	\$627,746,363
(2) Factor to Develop Standard Earned Premium	1.000	1.000	1.000
(3) Developed Standard Earned Premium = (1) x (2)	\$627,746,363	\$627,746,363	\$627,746,363
(4) Factor to Adjust Premium to Current Level	0.725	0.725	0.725
(5) Premium Adjusted to Current Level = (3) x (4)	\$455,116,113	\$455,116,113	\$455,116,113
<b>Indemnity Benefit and LAE Cost</b>			
(6) Indemnity Benefit Cost Valued as of 12/31/22 (Second Report)	\$97,061,405	\$167,443,953	
(7) Factor to Develop Indemnity Benefit Cost	1.926	1.201	
(8) Developed Indemnity Benefit Cost = (6) x (7)	\$186,940,266	\$201,100,188	\$194,020,227
(9) Factor to Adjusted Indemnity Benefit Cost to Current Benefit Level	1.000	1.000	1.000
(10) Factor to Include Loss Based Expenses	1.000	1.000	1.000
(11) Composite Adjustment Factor = (9) x (10)	1.000	1.000	1.000
(12) Adjusted Indemnity Cost = (8) x (11)	\$186,940,266	\$201,100,188	\$194,020,227
(13) Indemnity Cost Ratio = (12) / (5)	0.411	0.442	0.426
(14) Trend Length	4.001	4.001	4.001
(15) Application of Proposed Indemnity Trend Factor = .9750 ^ (14)	0.904	0.904	0.904
(16) Projected Limited Indemnity Cost Ratio = (13) x (15)	0.372	0.400	0.385
(17) Factor to Adjust Indemnity Cost Ratio to an Unlimited Basis	1.012	1.012	1.012
(18) Projected Indemnity Cost Ratio = (16) x (17)	0.376	0.405	0.390
(19) Proposed Change in Indemnity Benefits	1.000	1.000	1.000
(20) Projected Indemnity Cost Ratio Including Benefit Change = (18) x (19)	0.376	0.405	0.390
<b>Medical Benefit and LAE Cost</b>			
(21) Medical Benefit Cost Valued as of 12/31/22 (Second Report)	\$222,103,998	\$273,772,966	
(22) Factor to Develop Medical Benefit Cost	1.233	1.019	
(23) Developed Medical Benefit Cost = (21) x (22)	\$273,854,230	\$278,974,652	\$276,414,441
(24) Factor to Adjusted Medical Benefit Cost to Current Benefit Level	1.000	1.000	1.000
(25) Factor to Include Loss Based Expenses	1.000	1.000	1.000
(26) Composite Adjustment Factor = (24) x (25)	1.000	1.000	1.000
(27) Adjusted Medical Cost = (23) x (26)	\$273,854,230	\$278,974,652	\$276,414,441
(28) Medical Cost Ratio = (27) / (5)	0.602	0.613	0.607
(29) Trend Length	4.001	4.001	4.001
(30) Application of Proposed Medical Trend Factor = .9750 ^ (29)	0.904	0.904	0.904
(31) Projected Limited Medical Cost Ratio = (28) x (30)	0.544	0.554	0.549
(32) Factor to Adjust Medical Cost Ratio to an Unlimited Basis	1.012	1.012	1.012
(33) Projected Medical Cost Ratio = (31) x (32)	0.551	0.561	0.556
(34) Proposed Change in Medical Benefits	1.000	1.000	1.000
(35) Projected Medical Cost Ratio Including Benefit Change = (33) x (34)	0.551	0.561	0.556
<b>Total Benefit and LAE Cost</b>			
(36) Adjusted Cost Ratio of Policy Year 2020 = (20) + (35)	0.927	0.966	0.946

Notes: Row (7), Column [A] is taken from Row (2), Column [A] of Appendix A, Page 2.  
 Row (7), Column [B] is taken from Row (2), Column [A] of Appendix A, Page 1.  
 The trend factor reflected in Row (15) has been selected by Actuarial Solutions.  
 Row (22), Column [A] is taken from Row (2), Column [B] of Appendix A, Page 2.  
 Row (22), Column [B] is taken from Row (2), Column [B] of Appendix A, Page 1.  
 The trend factor reflected in Row (30) has been selected by Actuarial Solutions.  
 Rows (1), (2), (4), (6), (9), (10), (14), (17), (19), (21), (24), (25), (29), (32), and (34) have been taken from the Missouri 1/1/24  
 Voluntary Market Loss Cost Filing.

Average Cost Ratio

(1) Change in Experience, Trend and Benefits	0.929	(-7.1%)
(2) Change In Loss Adjustment Expense	1.004	(+0.4%)
(3) Overall Loss Cost Level Change: (1) x (2)	0.933	(-6.7%)

Notes: Row (1) is the average of Row (36), Column [C] of Exhibit 4, Pages 1 and 2.  
Row (2) is taken from Column (11) of Exhibit 3, Page 1.

Paid Plus Case Reserve  
 Selected Loss Development Factors

	<u>Age-to-Age Period</u>	<u>Type of Factor</u>	[A]	[B]
			<u>Indemnity</u>	<u>Medical</u>
(a)	1st – 2nd	Paid Plus Case	1.132	1.018
(b)	2nd – 3rd	Paid Plus Case	1.063	0.996
(c)	3rd – 4th	Paid Plus Case	1.035	1.003
(d)	4th – 5th	Paid Plus Case	1.030	1.003
(e)	5th – 6th	Paid Plus Case	1.016	0.998
(f)	6th – 7th	Paid Plus Case	1.012	1.000
(g)	7th – 8th	Paid Plus Case	1.004	1.005
(h)	8th – 9th	Paid Plus Case	1.000	0.996
(i)	9th – 10th	Paid Plus Case	1.003	1.000
(j)	10th – 11th	Paid Plus Case	1.002	0.995
(k)	11th – 12th	Paid Plus Case	1.000	1.001
(l)	12th – 13th	Paid Plus Case	1.001	1.000
(m)	13th – 14th	Paid Plus Case	1.004	1.000
(n)	14th – 15th	Paid Plus Case	1.002	1.000
(o)	15th – 16th	Paid Plus Case	1.002	1.000
(p)	16th – 17th	Paid Plus Case	1.001	1.001
(q)	17th – 18th	Paid Plus Case	1.001	1.000
(r)	18th – 19th	Paid Plus Case	1.001	1.003
(s)	19th Report Paid Plus Case to Ultimate LDF		1.009	1.018
(1)	1st to Ultimate LDF		1.359	1.037
(2)	2nd to Ultimate LDF		1.201	1.019

Notes: Line (1) is produced by multiplying the factors in Lines (a) through (s).  
 Line (2) is produced by multiplying the factors in Lines (b) through (s).

Paid Loss  
 Selected Loss Development Factors

	Age-to-Age Period	Type of Factor	[A]	[B]
			Indemnity	Medical
(a)	1st – 2nd	Paid	1.775	1.209
(b)	2nd – 3rd	Paid	1.280	1.054
(c)	3rd – 4th	Paid	1.130	1.023
(d)	4th – 5th	Paid	1.077	1.017
(e)	5th – 6th	Paid	1.052	1.011
(f)	6th – 7th	Paid	1.027	1.010
(g)	7th – 8th	Paid	1.029	1.009
(h)	8th – 9th	Paid	1.015	1.006
(i)	9th – 10th	Paid	1.009	1.005
(j)	10th – 11th	Paid	1.006	1.003
(k)	11th – 12th	Paid	1.008	1.003
(l)	12th – 13th	Paid	1.006	1.002
(m)	13th – 14th	Paid	1.005	1.004
(n)	14th – 15th	Paid	1.005	1.003
(o)	15th – 16th	Paid	1.004	1.003
(p)	16th – 17th	Paid	1.004	1.004
(q)	17th – 18th	Paid	1.004	1.003
(r)	18th – 19th	Paid	1.002	1.003
(r')	Paid to Paid Plus Case Ratio at 19th Report		0.971	0.970
(s)	19th Report Paid Plus Case to Ultimate LDF		1.009	1.018
(1)	1st to Ultimate LDF		3.418	1.490
(2)	2nd to Ultimate LDF		1.926	1.233

Notes: Line (1) is produced by multiplying the factors in Lines (a) through (r), dividing by Line (r') and multiplying by Line (s).

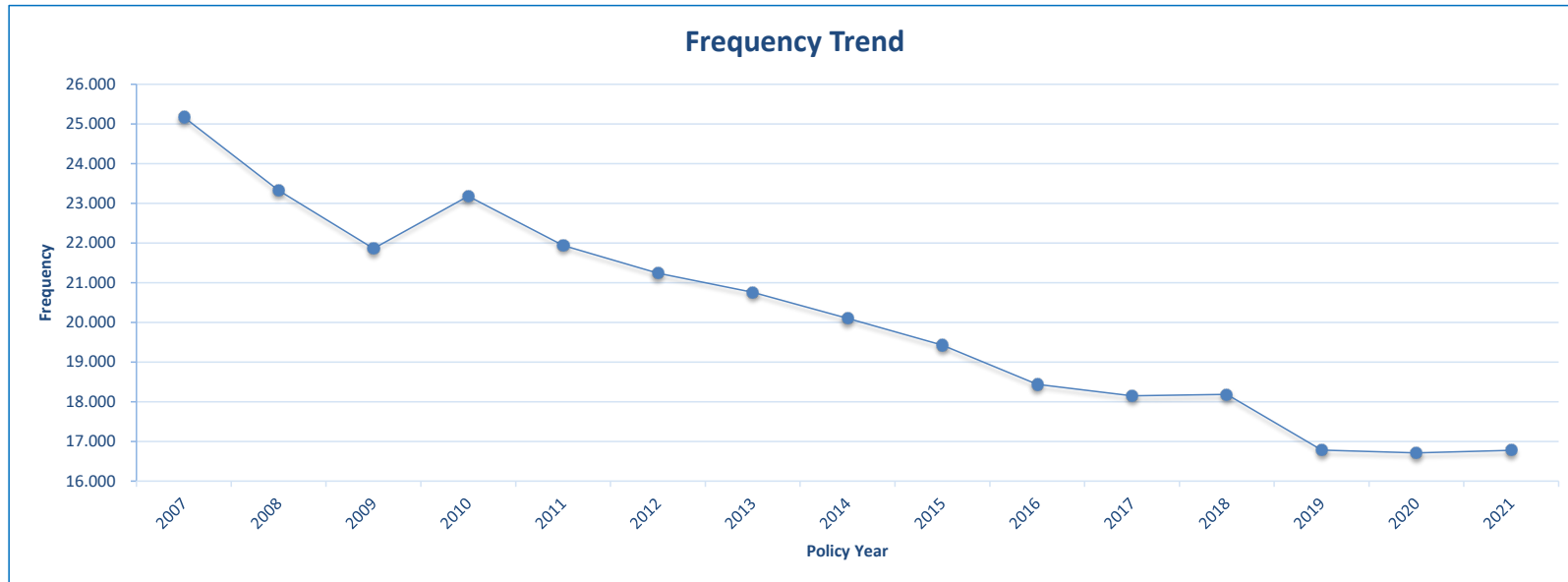
Line (2) is produced by multiplying the factors in Lines (b) through (r), dividing by Line (r') and multiplying by Line (s).



Paid DCCE to Paid Loss Ratios  
 Selected Development Factors

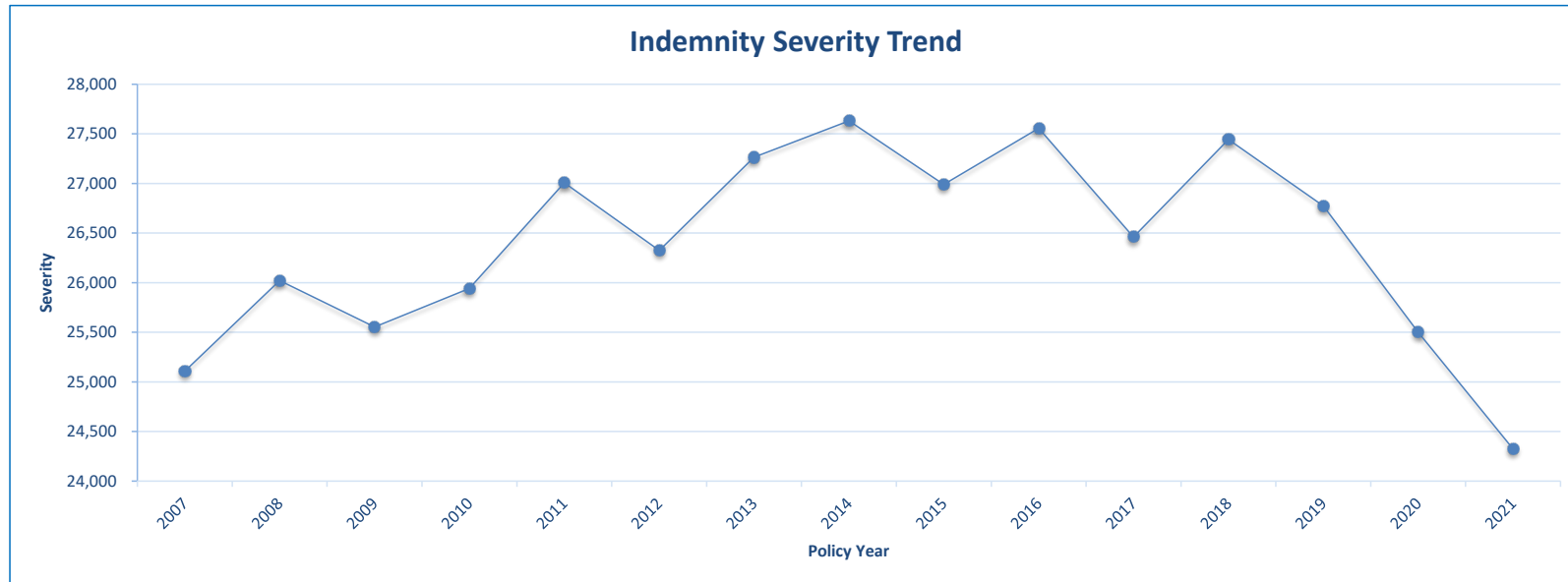
<u>Age-to-Age Period</u>	<u>Type of Factor</u>	
(a) 1st – 2nd	Paid DCCE to Paid Loss Ratio	1.069
(b) 2nd – 3rd	Paid DCCE to Paid Loss Ratio	1.026
(c) 3rd – 4th	Paid DCCE to Paid Loss Ratio	1.018
(d) 4th – 5th	Paid DCCE to Paid Loss Ratio	1.002
(e) 5th – 6th	Paid DCCE to Paid Loss Ratio	1.000
(f) 6th – 7th	Paid DCCE to Paid Loss Ratio	1.002
(g) 7th – 8th	Paid DCCE to Paid Loss Ratio	0.995
(h) 8th – 9th	Paid DCCE to Paid Loss Ratio	0.997
(i) 9th – 10th	Paid DCCE to Paid Loss Ratio	0.997
(j) 10th – 11th	Paid DCCE to Paid Loss Ratio	1.000
(k) 11th – 12th	Paid DCCE to Paid Loss Ratio	0.999
(l) 12th – 13th	Paid DCCE to Paid Loss Ratio	0.999
(m) 13th – 14th	Paid DCCE to Paid Loss Ratio	0.998
(n) 14th – 15th	Paid DCCE to Paid Loss Ratio	0.998
(o) 15th – 16th	Paid DCCE to Paid Loss Ratio	0.998
(p) 16th – 17th	Paid DCCE to Paid Loss Ratio	0.997
(q) 17th – 18th	Paid DCCE to Paid Loss Ratio	0.998
(r) 18th – 19th	Paid DCCE to Paid Loss Ratio	1.000
(s) 19th Report Paid Plus Case to Ultimate LDF		0.995
(1) 1st to Ultimate LDF		1.089
(2) 2nd to Ultimate LDF		1.019
(3) 3rd to Ultimate LDF		0.993
(4) 4th to Ultimate LDF		0.975
(5) 5th to Ultimate LDF		0.973
(6) 6th to Ultimate LDF		0.973
(7) 7th to Ultimate LDF		0.971
(8) 8th to Ultimate LDF		0.976
(9) 9th to Ultimate LDF		0.979
(10) 10th to Ultimate LDF		0.982

Notes: Line (1) is produced by multiplying the factors in Lines (a) through (s).  
 Line (2) is produced by multiplying the factors in Lines (b) through (s).  
 Line (3) is produced by multiplying the factors in Lines (c) through (s).  
 Line (4) is produced by multiplying the factors in Lines (d) through (s).  
 Line (5) is produced by multiplying the factors in Lines (e) through (s).  
 Line (6) is produced by multiplying the factors in Lines (f) through (s).  
 Line (7) is produced by multiplying the factors in Lines (g) through (s).  
 Line (8) is produced by multiplying the factors in Lines (h) through (s).  
 Line (9) is produced by multiplying the factors in Lines (i) through (s).  
 Line (10) is produced by multiplying the factors in Lines (j) through (s).



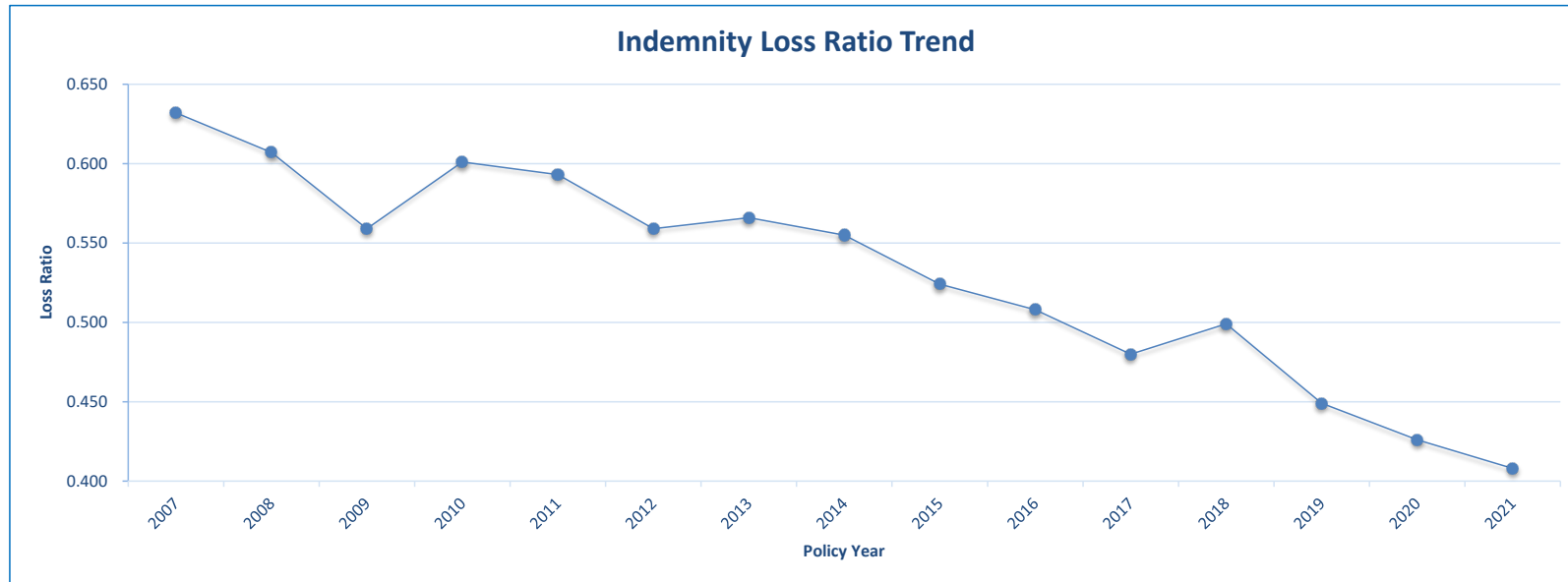
Policy Year	Frequency	Percent Change	Years Reviewed	Exclude	Exponential	
					R-Squared	Trend
2007	25.172		2007 - 2021		0.966	-2.8%
2008	23.325	-7.3%	2010 - 2021		0.974	-3.0%
2009	21.858	-6.3%	2010 - 2021	2018	0.977	-3.0%
2010	23.177	6.0%	2013 - 2021	2016 2018	0.963	-2.9%
2011	21.940	-5.3%	2011 - 2019	2018	0.993	-3.3%
2012	21.241	-3.2%	2011 - 2020	2016 2018	0.994	-3.1%
2013	20.758	-2.3%	2014 - 2021		0.922	-2.7%
2014	20.103	-3.2%	2012 - 2020	2016 2018	0.992	-3.2%
2015	19.425	-3.4%	2010 - 2018		0.973	-3.1%
2016	18.438	-5.1%	2011 - 2018		0.969	-2.9%
2017	18.149	-1.6%	2013 - 2019	2018	0.992	-3.5%
2018	18.185	0.2%				
2019	16.784	-7.7%				
2020	16.711	-0.4%				
2021	16.778	0.4%				

Notes: Frequency figures reflect information provided by NCCI.



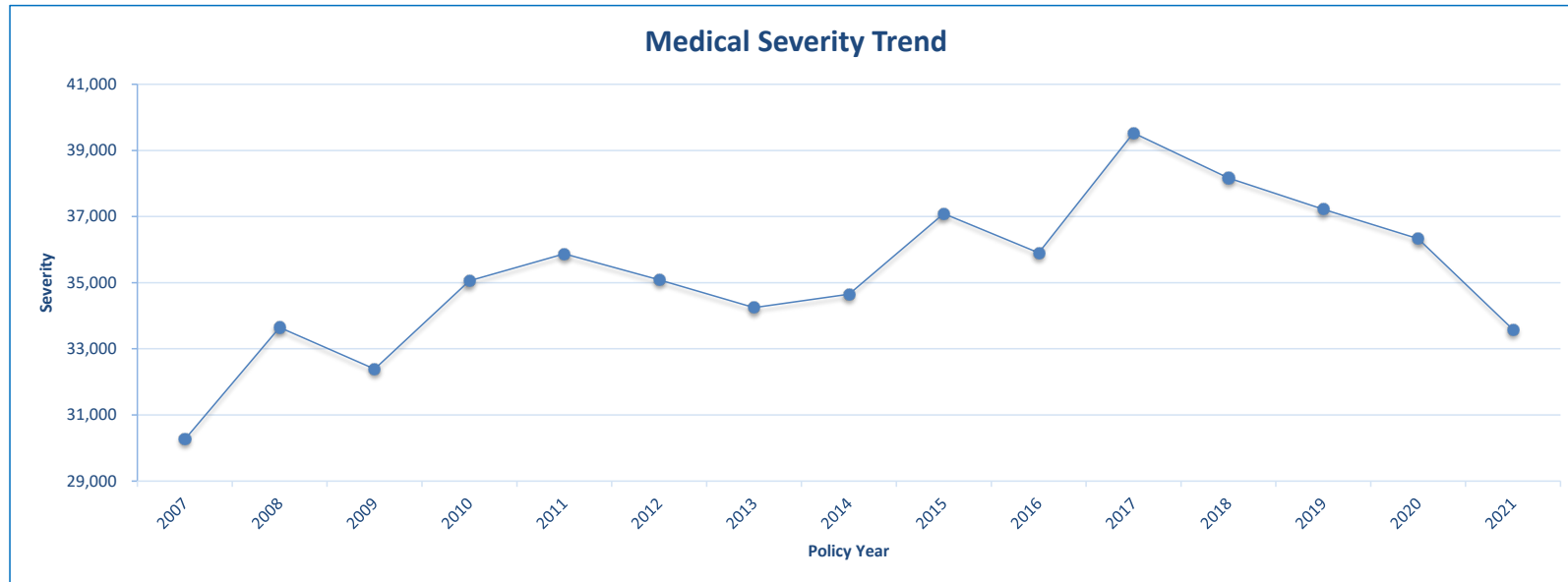
Policy Year	Severity	Percent Change	Years Reviewed	Exclude	Exponential		
					R-Squared	Trend	
2007	25,107		2007 - 2021			0.003	0.0%
2008	26,021	3.6%	2008 - 2021	2009		0.064	-0.2%
2009	25,553	-1.8%	2011 - 2021	2012	2014 2016	0.452	-0.8%
2010	25,942	1.5%	2014 - 2021			0.652	-1.4%
2011	27,008	4.1%	2014 - 2021	2015	2017	0.710	-1.7%
2012	26,324	-2.5%	2015 - 2021			0.620	-1.6%
2013	27,266	3.6%	2015 - 2021	2016	2018	0.669	-1.4%
2014	27,631	1.3%	2016 - 2021	2017		0.814	-2.5%
2015	26,990	-2.3%	2018 - 2021			0.982	-4.0%
2016	27,557	2.1%	2016 - 2020	2017		0.733	-1.8%
2017	26,460	-4.0%	2014 - 2020	2015	2017	0.638	-1.1%
2018	27,444	3.7%	2013 - 2020	2014	2016 2018	0.668	-0.7%
2019	26,773	-2.4%	2014 - 2019			0.204	-0.4%
2020	25,500	-4.8%	2014 - 2019	2015	2017	0.648	-0.5%
2021	24,324	-4.6%	2013 - 2019	2014	2016 2018	0.575	-0.4%

Notes: Severity figures reflect information provided by NCCI with adjustments to recognize Actuarial Solutions' selected loss development factors.



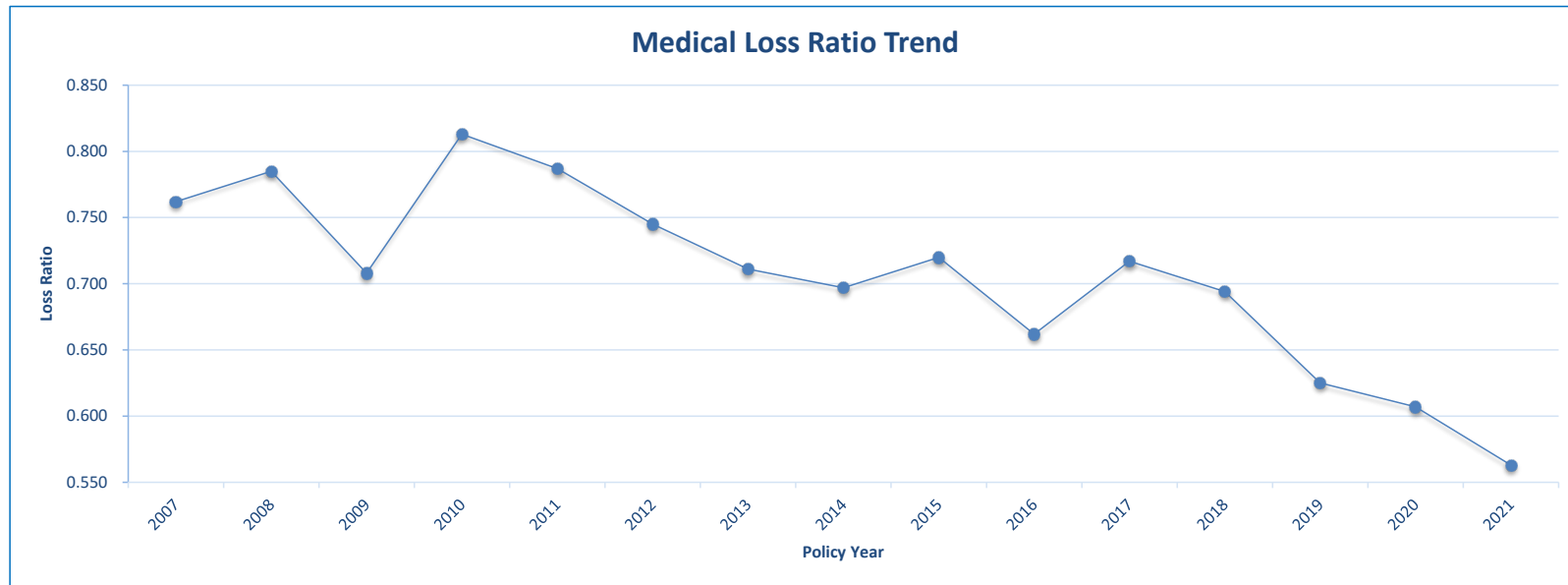
Policy Year	Loss Ratio	Percent Change	Years Reviewed	Exclude	Exponential	
					R-Squared	Trend
2007	0.632		2007 - 2021		0.904	-2.8%
2008	0.607	-4.0%	2007 - 2021	2009 2012 2018	0.951	-3.1%
2009	0.559	-7.9%	2010 - 2021		0.949	-3.4%
2010	0.601	7.5%	2010 - 2021	2012 2018 2019	0.977	-3.6%
2011	0.593	-1.3%	2013 - 2021		0.995	-4.1%
2012	0.559	-5.7%	2017 - 2021	2018	0.990	-4.0%
2013	0.566	1.3%	2018 - 2021		0.953	-6.4%
2014	0.555	-1.9%	2013 - 2020		0.932	-3.8%
2015	0.524	-5.6%	2013 - 2020	2018	0.993	-4.0%
2016	0.508	-3.1%	2015 - 2020	2018	0.993	-4.0%
2017	0.480	-5.5%	2007 - 2019		0.878	-2.4%
2018	0.499	4.0%	2010 - 2019		0.932	-3.0%
2019	0.449	-10.0%	2013 - 2019		0.904	-3.5%
2020	0.426	-5.1%	2015 - 2019		0.754	-3.2%
2021	0.408	-4.2%	2010 - 2017		0.938	-3.0%

Notes: Loss ratio figures reflect information provided by NCCI with adjustments to recognize Actuarial Solutions' selected loss development factors.



Policy Year	Severity	Percent Change	Years Reviewed	Exclude		Exponential	
						R-Squared	Trend
2007	30,260		2007 - 2021			0.397	0.9%
2008	33,649	11.2%	2008 - 2021			0.262	0.7%
2009	32,392	-3.7%	2010 - 2016			0.132	0.4%
2010	35,059	8.2%	2010 - 2017	2013	2016	0.589	1.5%
2011	35,873	2.3%	2015 - 2021			0.253	-1.2%
2012	35,084	-2.2%	2015 - 2021	2016	2017	0.394	-1.3%
2013	34,244	-2.4%	2016 - 2021			0.341	-1.7%
2014	34,652	1.2%	2017 - 2021			0.935	-3.7%
2015	37,085	7.0%	2010 - 2020			0.387	0.8%
2016	35,903	-3.2%	2017 - 2020			0.992	-2.7%
2017	39,528	10.1%	2011 - 2020	2015	2017	0.470	0.7%
2018	38,169	-3.4%	2010 - 2019	2015	2017	0.540	0.8%
2019	37,215	-2.5%	2012 - 2019			0.588	1.6%
2020	36,329	-2.4%	2015 - 2019	2017		0.246	0.7%
2021	33,583	-7.6%					

Notes: Severity figures reflect information provided by NCCI with adjustments to recognize Actuarial Solutions' selected loss development factors.



Policy Year	Loss Ratio	Percent Change	Years Reviewed	Exclude	Exponential			
					R-Squared	Trend		
2007	0.762		2007 - 2021			0.721	-1.9%	
2008	0.785	3.0%	2007 - 2020			0.668	-1.6%	
2009	0.708	-9.8%	2007 - 2021	2009	2010	2016	0.773	-2.0%
2010	0.813	14.8%	2008 - 2021	2009			0.833	-2.4%
2011	0.787	-3.2%	2010 - 2021				0.845	-2.7%
2012	0.745	-5.3%	2010 - 2020	2016			0.823	-2.3%
2013	0.711	-4.6%	2011 - 2021				0.800	-2.6%
2014	0.697	-2.0%	2015 - 2021				0.764	-3.7%
2015	0.720	3.3%	2015 - 2020				0.622	-3.0%
2016	0.662	-8.1%	2014 - 2020	2017	2018		0.890	-2.6%
2017	0.717	8.3%	2017 - 2021				0.972	-6.0%
2018	0.694	-3.2%	2017 - 2020				0.944	-5.9%
2019	0.625	-9.9%	2015 - 2019	2016			0.657	-3.1%
2020	0.607	-2.9%	2010 - 2019	2016	2017		0.829	-2.3%
2021	0.563	-7.2%	2012 - 2019	2016	2017		0.688	-1.8%

Notes: Loss ratio figures reflect information provided by NCCI with adjustments to recognize Actuarial Solutions' selected loss development factors.

## Appendix C

### NCCI Interrogatories



NATIONAL COUNCIL ON COMPENSATION INSURANCE, INC.

MISSOURI  
ADVISORY LOSS COSTS AND RATING VALUES FILING  
EFFECTIVE JANUARY 1, 2024

RESPONSES TO THE DEPARTMENT OF COMMERCE AND INSURANCE'S  
REQUESTS DATED OCTOBER 10, 2023

- 1. Have there been any changes in the underlying data source (e.g., from which call data is pulled) from the prior filing to the current filing? If so, please explain the reason for such a change and the estimated impact of such change(s) on the filed indication.**

There have not been any changes in the underlying data sources between this and last year's filings.

- 2. Please provide the overall impact of each methodology change from the prior filing.**

There have not been any changes in methodology between this and last year's filings.

- 3. Were the adjustments to the 2020 and 2021 AWW values to exclude the estimated impact of pandemic-related, industry-sector mix changes calculated in the same manner as the comparable adjustments reflected in the prior filing?**

The adjustments to the 2020 and 2021 AWW values to exclude the estimated impact of pandemic-related, industry-sector mix changes were calculated in the same manner as the comparable adjustments reflected in the prior filing, with the only difference being that in this filing the 2021 AWW fully reflects actual data (rather than being a partial estimate).

- 4. For total experience (voluntary plus ARM as reflected in the filed indication), please provide extended triangles which present at least 10 diagonals of loss data for each of indemnity loss and medical loss (i.e., policy year paid and paid plus case reserve loss development from a 1st through a 19th report for indemnity vs. medical).**

Please see the attached Exhibit 4 for the requested information.





NATIONAL COUNCIL ON COMPENSATION INSURANCE, INC.

MISSOURI  
ADVISORY LOSS COSTS AND RATING VALUES FILING  
EFFECTIVE JANUARY 1, 2024

RESPONSES TO THE DEPARTMENT OF COMMERCE AND INSURANCE'S  
REQUESTS DATED OCTOBER 10, 2023

**5. Did you consider any basis for selecting loss development factors other than those shown in the filing?**

The paid and paid plus case loss development methods were the only ones considered during this year's filing analysis. The loss link ratio averages utilized in this year's filing have not changed from those used in last year's filing. Using a relatively shorter two-year average of paid link ratios is responsive to recent changes in the observed Missouri payment patterns. A longer five-year average of paid plus case link ratios was utilized to stabilize the relatively higher degree of volatility that may be present in those factors due to case reserve adjustments over time.

**6. Related to the patterns, or shifts of experience in loss development, please provide the following:**

- **ratios of policy year paid to paid plus case data at all available evaluations for indemnity vs. medical, for as many years as possible**
- **case reserves per open lost-time claim for each of indemnity and medical loss by policy year**
- **closed and reported lost-time claims by policy year, as well as ratios of closed-to-reported claim counts**

Please see the attached Exhibit 6 for the requested information that was available. Note that the triangles of case reserves per open lost-time claim have been on-leveled to bring all years to the present benefit level.

**7. Please provide the supporting calculations underlying Appendix A-II, Section G, Columns (6) and (13).**

Please see the attached Exhibit 7 for the requested information. The calculations are provided for all ten valuations separately for indemnity and medical.



NATIONAL COUNCIL ON COMPENSATION INSURANCE, INC.

MISSOURI  
ADVISORY LOSS COSTS AND RATING VALUES FILING  
EFFECTIVE JANUARY 1, 2024

RESPONSES TO THE DEPARTMENT OF COMMERCE AND INSURANCE'S  
REQUESTS DATED OCTOBER 10, 2023

**8. Please supply payroll by class so that we may complete the tables required for our report.**

Please see the attached Exhibit 8 for the requested information. The payroll reflects the most recent policy period used in this year's filing.

**9. Please supply the derivation of the factor of 0.768 used to adjust the 19th to ultimate LDF to a limited basis as presented in Appendix A-II of the technical supplement.**

Please see the attached Exhibit 9 for the requested information.

Note: The question asks to provide the backup for a 19<sup>th</sup> to ultimate LDF limiting factor of 0.768. The value cited in the question looks to be last year's value. The value in this year's filing is 0.730. The attachment response for this question provides backup for the 0.730 value.

**10. Related to Section A of Exhibit II:**

- a. **Please provide the underlying data and calculations which led to the ultimate AOE ratios.**
- b. **Please provide the ultimate AOE ratios for Missouri-only data.**
- c. **Have you maintained the prior approach to selecting an AOE ratio which considers both countrywide data and data for Missouri Employers Mutual (MEM)? If so, please provide the AOE provision for the MEM, as well as the calculation of the weightings applied to each indicated provision to derive the selected Missouri AOE provision.**

- a. Please see the attached Exhibit 10a for the requested information.
- b. Unlike with DCCE, NCCI does not have the data required to calculate a Missouri-only AOE ratio. The data source for NCCI's AOE analysis, Financial Call #19, is reported to NCCI on a countrywide basis. Therefore, state-specific AOE data is not available. A "Missouri-only" AOE ratio can only be calculated for MEM because the carrier does not currently write business in any other states.



NATIONAL COUNCIL ON COMPENSATION INSURANCE, INC.

MISSOURI  
ADVISORY LOSS COSTS AND RATING VALUES FILING  
EFFECTIVE JANUARY 1, 2024

RESPONSES TO THE DEPARTMENT OF COMMERCE AND INSURANCE'S  
REQUESTS DATED OCTOBER 10, 2023

- c. The approach to calculating the Missouri AOE provision remains the same as that of the previous year's filing. The Missouri AOE provision is based on a weighted average of the countrywide private carrier AOE provision and the indicated provision for Missouri Employers Mutual. Please see the attached Exhibit 10c for the indicated AOE provision for MEM and the calculation of the weightings applied to each provision to derive the calculated overall Missouri AOE provision.

**11. Related to Section B of Exhibit II:**

- a. **Please expand the presentation of ultimate DCCE ratios to include policy years 2012 through 2016.**
- b. **Please provide the underlying data and calculations which led to the values in Columns (2) and (3), including applicable development triangles which present at least 10 diagonals of paid DCCE to paid loss ratio development factors from a 1st through 19th report.**
  - a. Please see the attached Exhibit 11 (tab 11a)
  - b. Please see the attached Exhibit 11 (tabs 11b Part 1, 11b Part 2, and 11b Part 3)
    - i. The Part 1 tab provides the calculation of the age-to-ultimate factors used in the calculation of the DCCE provision.
    - ii. The Part 2 tab provides the calculation of the age-to-age factors used in the calculation of the DCCE provision.
    - iii. The Part 3 tab provides the age-to-age development factors for the latest 10 valuations from 1<sup>st</sup> through 19<sup>th</sup> report.

**12. What is the 1/1/24 indication if you exclude all assigned risk experience?**

All else equal, an overall average loss cost level indication of -8.8% results after excluding the assigned risk premium and loss experience reported to NCCI by Missouri's designated assigned risk plan administrator from the filing's experience period.



NATIONAL COUNCIL ON COMPENSATION INSURANCE, INC.

MISSOURI  
ADVISORY LOSS COSTS AND RATING VALUES FILING  
EFFECTIVE JANUARY 1, 2024

RESPONSES TO THE DEPARTMENT OF COMMERCE AND INSURANCE'S  
REQUESTS DATED OCTOBER 10, 2023

**13. Please provide supporting work papers which reflect voluntary-only data and document the underlying components of the excluding-ARM indication, such as premium development, loss development, on-level factors, LAE and trend.**

Please see the attached Exhibit 13. The following are not available on a voluntary-only basis: premium development factors, loss development factors, on-level factors, LAE, and trend.

**14. For voluntary-only experience, please provide extended triangles which present 10 diagonals of loss data for each of indemnity loss and medical loss.**

Loss triangles on a voluntary-only basis are not available.

**15. Please provide the calculation of Column (7) of Appendix A-I, Section A and Section D.**

The premium used to calculate the statewide loss cost level indication is standard premium, which includes the impact of experience rating. The off-balance adjustment factor adjusts the premium in historical policy years to account for the difference between the observed off-balance for each of those years and the targeted off-balance.

The targeted off-balance factor (0.948) is a weighted average of the targeted intrastate experience rating modification factor (e-mod) and the current estimate of the average interstate e-mod, adjusted for risks that are not subject to experience rating. The targeted intrastate e-mod in this year's filing is 0.960, and the average interstate e-mod is 0.920. Using 50.9% as the intrastate percentage of experience rated risks, the combined weighted average e-mod factor is 0.940. The final targeted off-balance is calculated by multiplying 0.940 by the percentage of risks that are experience rated (86.6%) and then adding to that the percentage of risks not experience rated multiplied by unity. The calculation is as follows:

$$0.948 = 0.940 \times 0.866 + (1.000 - 0.866) \times 1.000$$



NATIONAL COUNCIL ON COMPENSATION INSURANCE, INC.

MISSOURI  
ADVISORY LOSS COSTS AND RATING VALUES FILING  
EFFECTIVE JANUARY 1, 2024

RESPONSES TO THE DEPARTMENT OF COMMERCE AND INSURANCE'S  
REQUESTS DATED OCTOBER 10, 2023

The off-balance factor for each policy year is calculated in a similar manner, instead using the historical factors calculated from the experience rating values in place at that time. The table below summarizes the calculation for policy years 2020 and 2021.

	2020	2021
(1) Average intrastate e-mod	0.954	0.949
(2) Average interstate e-mod	0.926	0.918
(3) Intrastate %	52.8%	51.0%
(4) Combined average e-mod = (1)x(3)+(2)x[1-(3)]	0.941	0.934
(5) Rated %	87.2%	86.9%
(6) Off-Balance = (4)x(5)+[1-(5)]	0.949	0.943

The off-balance adjustment factor results from the ratio of the Targeted Off-Balance to the Off-Balance for the corresponding policy year.

	2020	2021
(1) Targeted Off-Balance	0.948	0.948
(2) Policy Year Off-Balance	0.949	0.943
(3) Off-Balance Adjustment Factor = (1)/(2)	0.999	1.005

**16. Please provide the underlying calculations of the likely-to-develop and non-likely-to-develop columns on Appendix B-I, Section A-I, #1.**

Please see the attached Exhibit 16 for the requested information.

**17. Please provide a file which shows the following information by class code: exposure, proposed loss cost change, loss cost change effective in each of 2023, 2022 and 2021.**

Please see the attached Exhibit 17 for the requested information. The exposure reflects the most recent policy period used in this year's filing.

Missouri

Exhibit 4a

Policy Year—Private Carrier + State Fund—Limited Statewide—Indemnity Paid Loss Development

PY	1/2	2/3	3/4	4/5	5/6	6/7	7/8	8/9	9/10	10/11	11/12	12/13	13/14	14/15	15/16	16/17	17/18	18/19
1994																		1.001
1995																	1.004	1.002
1996																1.005	1.004	1.002
1997															1.002	1.002	1.002	1.004
1998														1.006	1.004	1.005	1.004	1.007
1999													1.008	1.007	1.001	1.007	1.002	1.002
2000												1.013	1.006	1.006	1.004	1.003	1.004	1.001
2001											1.007	1.004	1.012	1.003	1.004	1.004	1.003	1.006
2002										1.009	1.008	1.007	1.003	1.004	1.003	1.004	1.002	1.002
2003									1.016	1.005	1.006	1.005	1.007	1.007	1.005	1.002	1.005	1.002
2004								1.020	1.014	1.014	1.007	1.006	1.012	1.005	1.005	1.004	1.004	
2005							1.022	1.012	1.014	1.009	1.009	1.006	1.004	1.004	1.003	1.004		
2006						1.032	1.026	1.016	1.009	1.008	1.010	1.005	1.012	1.003	1.005			
2007					1.054	1.036	1.018	1.016	1.021	1.013	1.006	1.006	1.006	1.007				
2008				1.092	1.047	1.041	1.019	1.019	1.019	1.009	1.006	1.009	1.004					
2009			1.141	1.091	1.059	1.026	1.023	1.017	1.012	1.006	1.006	1.002						
2010		1.289	1.152	1.092	1.051	1.033	1.020	1.016	1.016	1.006	1.010							
2011	1.789	1.295	1.161	1.092	1.060	1.045	1.023	1.013	1.009	1.005								
2012	1.801	1.308	1.155	1.086	1.052	1.031	1.028	1.014	1.007									
2013	1.747	1.328	1.182	1.073	1.040	1.022	1.024	1.015										
2014	1.869	1.267	1.117	1.074	1.061	1.026	1.035											
2015	1.807	1.281	1.145	1.086	1.047	1.028												
2016	1.781	1.291	1.133	1.066	1.057													
2017	1.812	1.263	1.114	1.085														
2018	1.736	1.284	1.139															
2019	1.770	1.276																
2020	1.780																	

Missouri

Exhibit 4b

Policy Year—Private Carrier + State Fund—Limited Statewide—Indemnity Paid+Case Loss Development

PY	1/2	2/3	3/4	4/5	5/6	6/7	7/8	8/9	9/10	10/11	11/12	12/13	13/14	14/15	15/16	16/17	17/18	18/19
1994																		1.001
1995																	1.000	1.001
1996																1.001	1.001	1.002
1997															0.998	0.998	1.004	1.004
1998														1.006	0.999	1.003	1.002	1.000
1999													1.003	0.999	1.001	1.001	1.001	1.003
2000												1.004	1.001	1.001	1.000	1.000	0.996	1.001
2001											1.004	1.001	1.002	0.999	1.001	1.000	0.999	1.002
2002										1.002	0.995	0.999	1.003	0.999	1.002	1.001	1.001	1.000
2003									1.007	1.000	1.001	1.008	0.998	1.004	1.001	1.004	1.004	1.000
2004								1.000	1.008	1.003	1.000	1.011	1.006	1.002	1.002	1.000	1.001	
2005							1.005	1.000	1.006	0.996	1.005	1.004	1.002	1.002	1.006	0.999		
2006						1.005	1.010	1.002	1.002	1.001	0.998	1.002	1.010	0.999	1.002			
2007					1.021	1.001	1.007	1.014	1.012	1.002	1.002	1.002	1.000	1.005				
2008				1.030	1.028	1.013	1.010	1.008	1.002	1.002	1.000	0.998	1.005					
2009			1.028	1.041	1.005	1.002	1.013	1.001	1.004	0.999	0.998	0.998						
2010		1.059	1.043	1.029	1.015	1.014	1.005	1.000	0.995	1.002	0.997							
2011	1.095	1.050	1.072	1.033	1.017	1.004	1.002	0.997	1.005	1.004								
2012	1.136	1.078	1.039	1.018	1.011	1.009	1.004	1.003	1.003									
2013	1.128	1.089	1.074	1.040	1.002	1.012	1.008	0.997										
2014	1.135	1.054	1.022	1.028	1.024	1.030	1.002											
2015	1.123	1.063	1.034	1.021	1.023	1.013												
2016	1.141	1.063	1.059	1.025	1.014													
2017	1.127	1.075	1.033	1.035														
2018	1.133	1.062	1.028															
2019	1.161	1.054																
2020	1.098																	

Missouri

Exhibit 4c

Policy Year—Private Carrier + State Fund—Limited Statewide—Medical Paid Loss Development

PY	1/2	2/3	3/4	4/5	5/6	6/7	7/8	8/9	9/10	10/11	11/12	12/13	13/14	14/15	15/16	16/17	17/18	18/19
1994																		1.003
1995																	1.004	1.003
1996																1.001	1.003	1.001
1997															1.004	1.005	1.003	1.007
1998														1.003	1.003	1.001	1.001	1.002
1999													1.006	1.002	1.002	1.008	1.001	1.001
2000												1.007	1.004	1.017	1.001	1.002	1.003	1.001
2001											1.007	1.004	1.003	1.004	1.005	1.003	1.003	1.003
2002										1.007	1.005	1.005	1.007	1.004	1.003	1.011	1.004	1.004
2003									1.009	1.005	1.005	1.004	1.002	1.004	1.002	1.004	1.005	1.003
2004								1.007	1.012	1.009	1.004	1.004	1.004	1.005	1.004	1.003	1.003	
2005							1.013	1.006	1.006	1.005	1.004	1.005	1.004	1.004	1.004	1.004		
2006						1.006	1.012	1.007	1.004	1.003	1.005	1.003	1.005	1.002	1.002			
2007					1.012	1.011	1.009	1.004	1.004	1.005	1.003	1.001	1.002	1.001				
2008				1.023	1.022	1.019	1.012	1.004	1.012	1.005	1.004	1.004	1.004					
2009			1.036	1.017	1.013	1.010	1.005	1.006	1.003	1.001	1.001	1.000						
2010		1.059	1.036	1.016	1.012	1.007	1.008	1.007	1.009	1.003	1.002							
2011	1.218	1.058	1.036	1.020	1.018	1.014	1.009	1.008	1.003	1.001								
2012	1.226	1.066	1.030	1.017	1.016	1.009	1.017	1.006	1.004									
2013	1.219	1.064	1.027	1.016	1.005	1.007	1.008	1.005										
2014	1.241	1.061	1.021	1.015	1.018	1.010	1.009											
2015	1.238	1.057	1.036	1.024	1.013	1.009												
2016	1.206	1.059	1.021	1.011	1.007													
2017	1.213	1.055	1.024	1.019														
2018	1.191	1.047	1.021															
2019	1.202	1.056																
2020	1.215																	



Missouri

Exhibit 4d

Policy Year—Private Carrier + State Fund—Limited Statewide—Medical Paid+Case Loss Development

PY	1/2	2/3	3/4	4/5	5/6	6/7	7/8	8/9	9/10	10/11	11/12	12/13	13/14	14/15	15/16	16/17	17/18	18/19
1994																		1.000
1995																	0.998	1.001
1996																1.008	1.001	1.002
1997															0.992	0.999	1.005	0.995
1998														0.989	1.008	1.004	1.000	1.000
1999													1.005	1.000	1.000	1.004	0.999	0.999
2000												1.005	1.003	0.997	0.997	1.000	1.001	1.003
2001											1.007	1.002	0.999	1.003	0.993	1.000	0.996	1.002
2002										1.002	0.999	1.005	1.003	1.003	1.001	1.002	1.011	1.004
2003									0.995	1.004	0.999	1.004	0.999	1.009	1.001	1.002	1.001	1.004
2004							1.021	1.001	1.005	0.997	1.001	1.005	0.994	0.997	0.997	1.000	0.997	
2005							1.004	1.001	1.021	0.997	1.007	1.002	1.000	0.999	0.989	1.000		
2006						0.990	1.005	0.998	1.001	1.006	1.001	1.003	1.005	1.001	1.002			
2007					0.997	0.998	1.003	1.004	1.002	0.996	1.001	0.999	0.998	0.998				
2008				0.987	1.010	1.007	1.003	1.007	0.990	0.984	1.001	0.998	1.001					
2009			0.999	1.003	0.998	1.007	1.007	0.996	0.997	0.989	0.999	0.998						
2010		1.002	0.993	0.993	1.010	1.001	1.001	0.998	1.003	1.000	1.001							
2011	1.022	0.992	0.976	0.993	1.023	0.993	1.006	0.993	0.999	0.999								
2012	1.032	1.005	1.004	0.996	0.987	0.995	1.004	0.998	1.002									
2013	1.013	0.993	1.000	1.000	0.981	1.004	1.020	0.994										
2014	1.034	0.993	0.992	1.008	1.004	1.008	0.997											
2015	1.035	1.005	1.008	1.002	1.015	0.999												
2016	1.007	0.971	1.003	1.004	0.995													
2017	1.027	0.994	1.014	1.000														
2018	1.002	0.989	0.998															
2019	1.044	1.016																
2020	1.008																	

Missouri

Exhibit 6a

Policy Year—Private Carrier + State Fund—Limited Statewide—Indemnity Paid to Paid + Case Ratios

PY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
1994																			0.978
1995																		0.977	0.978
1996																			0.973
1997																0.972	0.976	0.975	0.975
1998															0.959	0.963	0.966	0.967	0.973
1999														0.956	0.963	0.962	0.967	0.969	0.968
2000													0.967	0.972	0.976	0.980	0.982	0.990	0.989
2001												0.944	0.946	0.956	0.959	0.963	0.965	0.968	0.972
2002											0.942	0.954	0.961	0.960	0.965	0.966	0.969	0.970	0.972
2003										0.931	0.936	0.941	0.939	0.947	0.950	0.954	0.953	0.954	0.956
2004								0.917	0.922	0.932	0.932	0.937	0.932	0.937	0.940	0.943	0.947	0.949	
2005							0.919	0.930	0.938	0.948	0.952	0.954	0.956	0.957	0.955	0.959			
2006							0.900	0.914	0.927	0.934	0.940	0.952	0.954	0.956	0.960	0.963			
2007						0.881	0.912	0.921	0.922	0.929	0.940	0.943	0.947	0.953	0.956				
2008					0.855	0.870	0.894	0.902	0.914	0.930	0.936	0.942	0.952	0.952					
2009				0.816	0.855	0.901	0.922	0.931	0.946	0.953	0.960	0.968	0.972						
2010			0.735	0.812	0.861	0.887	0.904	0.917	0.932	0.951	0.956	0.969							
2011		0.602	0.743	0.804	0.850	0.886	0.923	0.942	0.957	0.962	0.963								
2012	0.384	0.609	0.739	0.821	0.877	0.913	0.933	0.956	0.967	0.971									
2013	0.402	0.621	0.758	0.833	0.860	0.893	0.901	0.915	0.931										
2014	0.379	0.625	0.752	0.822	0.859	0.891	0.887	0.916											
2015	0.383	0.615	0.742	0.822	0.874	0.895	0.908												
2016	0.403	0.629	0.764	0.818	0.851	0.887													
2017	0.396	0.637	0.748	0.806	0.845														
2018	0.386	0.591	0.714	0.791															
2019	0.393	0.599	0.726																
2020	0.357	0.580																	
2021	0.387																		

Missouri

Exhibit 6b

Policy Year—Private Carrier + State Fund—Limited Statewide—Medical Paid to Paid + Case Ratios

PY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
1994																			0.973
1995																		0.971	0.973
1996																	0.951	0.953	0.953
1997																0.969	0.975	0.972	0.984
1998															0.979	0.975	0.972	0.973	0.975
1999														0.975	0.977	0.979	0.983	0.985	0.986
2000													0.935	0.935	0.954	0.958	0.959	0.961	0.959
2001												0.944	0.946	0.949	0.951	0.962	0.964	0.970	0.971
2002											0.942	0.948	0.947	0.951	0.952	0.954	0.963	0.956	0.956
2003										0.957	0.958	0.963	0.964	0.967	0.962	0.963	0.964	0.968	0.967
2004								0.920	0.925	0.936	0.938	0.937	0.947	0.955	0.961	0.964	0.964	0.969	
2005							0.932	0.937	0.923	0.929	0.925	0.928	0.932	0.937	0.951	0.955			
2006							0.937	0.943	0.952	0.955	0.952	0.956	0.956	0.956	0.957	0.957			
2007						0.928	0.940	0.946	0.947	0.948	0.957	0.958	0.960	0.964	0.968				
2008					0.872	0.882	0.893	0.900	0.898	0.918	0.936	0.939	0.945	0.948					
2009				0.917	0.930	0.943	0.945	0.944	0.953	0.959	0.971	0.973	0.975						
2010			0.868	0.906	0.926	0.929	0.934	0.940	0.949	0.955	0.958	0.959							
2011		0.792	0.845	0.897	0.921	0.915	0.935	0.938	0.952	0.956	0.957								
2012	0.682	0.811	0.860	0.882	0.900	0.927	0.940	0.952	0.959	0.960									
2013	0.678	0.816	0.875	0.897	0.911	0.933	0.936	0.925	0.936										
2014	0.697	0.836	0.892	0.918	0.925	0.938	0.940	0.950											
2015	0.678	0.809	0.852	0.875	0.895	0.894	0.903												
2016	0.685	0.819	0.893	0.909	0.914	0.925													
2017	0.680	0.804	0.854	0.863	0.879														
2018	0.690	0.820	0.868	0.887															
2019	0.736	0.847	0.880																
2020	0.673	0.811																	
2021	0.701																		

Missouri

Policy Year—Private Carrier + State Fund—Reported Lost-time Claim Counts

PY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	16	16	17	18	19	
1997																	15,035	14,894	14,889	14,882
1998															16,566	15,756	16,633	15,749	15,748	
1999														15,812	15,558	15,634	15,619	15,619	15,725	
2000													15,791	15,614	15,656	15,591	15,590	15,698	15,247	
2001												14,878	14,776	14,770	14,528	14,529	14,584	14,397	14,398	
2002											14,872	14,730	14,724	14,134	14,132	14,175	13,905	14,085	14,085	
2003										14,776	14,697	14,627	14,265	14,267	14,271	14,266	14,267	14,267	14,265	
2004									13,865	13,791	13,721	13,438	13,382	13,354	13,352	13,351	13,350	13,349		
2005								12,651	12,604	12,599	11,903	12,231	12,201	12,196	12,197	12,196	12,196			
2006							12,491	12,453	12,358	11,906	12,060	12,032	12,029	12,016	12,016	12,016				
2007						13,136	12,985	12,806	12,923	12,738	12,712	12,702	12,680	12,684	12,564					
2008					11,450	11,442	11,435	11,273	11,104	11,088	11,075	11,062	11,063	11,054						
2009				10,342	10,335	10,335	10,167	10,084	10,003	10,049	10,039	10,038	10,011							
2010			11,123	11,081	11,081	11,015	10,919	10,943	10,925	10,925	10,912	10,872								
2011		10,458	10,553	10,441	10,511	10,349	10,275	10,333	10,319	10,301	10,208									
2012	9,515	9,974	10,008	9,997	9,741	9,753	9,768	9,703	9,735	9,618										
2013	9,336	9,703	9,778	9,630	9,620	9,620	9,625	9,560	9,612											
2014	9,231	9,622	9,525	9,522	9,512	9,496	9,480	9,462												
2015	9,167	9,435	9,485	9,491	9,485	9,492	9,492													
2016	8,915	9,285	9,304	9,286	9,288	9,281														
2017	8,974	9,340	9,359	9,380	9,363															
2018	8,776	9,148	9,201	9,209																
2019	7,836	8,167	8,212																	
2020	7,808	8,056																		
2021	8,115																			

**Missouri**  
**Policy Year—Private Carrier + State Fund—Closed Lost-time Claim Counts**

**Exhibit 6d**

PY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	16	16	17	18	19	
1997																	15,000	14,864	14,861	14,855
1998															16,520	15,719	16,596	15,716	15,716	
1999														15,758	15,509	15,590	15,581	15,578	15,688	
2000													15,724	15,555	15,602	15,543	15,547	15,659	15,207	
2001												14,801	14,705	14,709	14,476	14,475	14,534	14,353	14,356	
2002											14,773	14,650	14,665	14,081	14,084	14,129	13,863	14,044	14,046	
2003										14,649	14,589	14,530	14,176	14,188	14,201	14,201	14,202	14,209	14,208	
2004								13,694	13,658	13,602	13,341	13,292	13,281	13,282	13,282	13,282	13,290	13,290		
2005								12,462	12,458	12,477	11,808	12,144	12,126	12,134	12,138	12,144	12,151			
2006							12,235	12,264	12,218	11,796	11,965	11,949	11,953	11,944	11,953	11,956				
2007						12,777	12,730	12,615	12,771	12,614	12,613	12,608	12,599	12,615	12,495					
2008					11,002	11,129	11,222	11,112	10,974	10,981	10,988	10,989	10,995	10,992						
2009				9,639	9,886	10,068	9,988	9,942	9,894	9,957	9,972	9,953	9,935							
2010			9,755	10,300	10,565	10,650	10,647	10,736	10,758	10,773	10,783	10,757								
2011		8,085	9,303	9,691	10,026	10,030	10,047	10,156	10,171	10,180	10,101									
2012	4,801	7,640	8,764	9,286	9,328	9,483	9,592	9,569	9,618	9,535										
2013	4,657	7,434	8,692	9,011	9,266	9,392	9,451	9,420	9,505											
2014	4,562	7,385	8,368	8,873	9,115	9,220	9,277	9,303												
2015	4,582	7,203	8,361	8,863	9,089	9,219	9,281													
2016	4,562	7,179	8,227	8,658	8,863	8,977														
2017	4,402	7,224	8,257	8,721	8,918															
2018	4,501	7,034	8,089	8,510																
2019	4,030	6,228	7,127																	
2020	3,823	6,023																		
2021	3,972																			

Missouri

Policy Year—Private Carrier + State Fund—Closed to Reported Lost-time Claim Count Ratios

PY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	16	16	17	18	19	
1997																	0.998	0.998	0.998	0.998
1998															0.997	0.998	0.998	0.998	0.998	
1999														0.997	0.997	0.997	0.998	0.997	0.998	
2000													0.996	0.996	0.997	0.997	0.997	0.998	0.997	
2001												0.995	0.995	0.996	0.996	0.996	0.997	0.997	0.997	
2002											0.993	0.995	0.996	0.996	0.997	0.997	0.997	0.997	0.997	
2003										0.991	0.993	0.993	0.994	0.994	0.995	0.995	0.995	0.996	0.996	
2004									0.988	0.990	0.991	0.993	0.993	0.995	0.995	0.995	0.996	0.996		
2005								0.985	0.988	0.990	0.992	0.993	0.994	0.995	0.995	0.996	0.996			
2006							0.980	0.985	0.989	0.991	0.992	0.993	0.994	0.994	0.995	0.995				
2007						0.973	0.980	0.985	0.988	0.990	0.992	0.993	0.994	0.995	0.995					
2008					0.961	0.973	0.981	0.986	0.988	0.990	0.992	0.993	0.994	0.994						
2009				0.932	0.957	0.974	0.982	0.986	0.989	0.991	0.993	0.992	0.992							
2010			0.877	0.930	0.953	0.967	0.975	0.981	0.985	0.986	0.988	0.989								
2011		0.773	0.882	0.928	0.954	0.969	0.978	0.983	0.986	0.988	0.990									
2012	0.505	0.766	0.876	0.929	0.958	0.972	0.982	0.986	0.988	0.991										
2013	0.499	0.766	0.889	0.936	0.963	0.976	0.982	0.985	0.989											
2014	0.494	0.768	0.879	0.932	0.958	0.971	0.979	0.983												
2015	0.500	0.763	0.881	0.934	0.958	0.971	0.978													
2016	0.512	0.773	0.884	0.932	0.954	0.967														
2017	0.491	0.773	0.882	0.930	0.952															
2018	0.513	0.769	0.879	0.924																
2019	0.514	0.763	0.868																	
2020	0.490	0.748																		
2021	0.489																			

Missouri

Policy Year—Private Carrier + State Fund—Limited Statewide—On-Levelled Indemnity Case to Open Claims (000s)

PY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
1997																124.3	123.2	140.6	144.9
1998															172.2	185.9	179.8	190.0	157.2
1999														163.5	150.4	170.6	169.3	151.3	172.9
2000													102.3	98.9	91.5	88.4	87.7	53.1	54.0
2001												158.4	163.0	155.8	165.3	146.4	147.6	151.6	141.1
2002											121.0	118.9	136.6	147.9	142.9	145.4	146.6	145.7	143.5
2003										121.9	132.7	136.3	150.8	147.9	155.4	155.9	159.9	177.0	171.1
2004									99.3	120.3	117.4	129.9	152.6	175.0	174.9	167.8	180.4	174.5	
2005								80.3	88.8	95.6	99.0	100.0	112.4	130.4	133.4	160.9	168.3		
2006							72.7	85.1	98.0	110.8	116.4	106.7	110.5	112.8	117.1	112.8			
2007						69.3	72.8	87.1	109.1	121.5	129.0	128.8	139.2	144.3	137.5				
2008					61.9	81.1	98.4	120.8	129.2	128.1	144.5	155.2	136.6	152.5					
2009				43.4	55.7	64.6	75.5	83.8	85.7	88.7	104.2	65.5	62.8						
2010			34.0	44.2	50.8	59.7	68.8	78.2	79.8	61.8	66.4	52.3							
2011		27.6	35.5	48.3	59.1	69.0	65.7	63.3	55.8	61.2	67.5								
2012	17.9	26.3	35.5	44.3	52.9	57.8	68.7	59.5	50.6	62.4									
2013	17.8	26.2	38.1	48.6	74.7	89.1	108.9	117.0	123.6										
2014	20.1	28.8	38.2	49.9	66.4	76.0	109.8	105.1											
2015	20.3	29.0	41.0	52.4	60.0	74.5	85.4												
2016	20.2	29.6	39.2	54.9	68.2	73.2													
2017	19.9	29.2	41.7	55.4	67.9														
2018	23.4	35.8	50.4	60.2															
2019	23.0	34.6	44.6																
2020	24.6	34.6																	
2021	22.8																		

Missouri

Exhibit 6g

Policy Year—Private Carrier + State Fund—Limited Statewide—On-Leveled Medical Case to Open Claims (000s)

PY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
1997																121.8	116.7	137.7	83.8
1998															73.1	107.1	121.7	129.9	126.8
1999														78.4	79.1	81.8	76.4	64.8	64.7
2000													186.0	208.5	163.6	168.2	182.6	193.7	194.2
2001												138.9	145.7	160.0	178.2	129.6	134.2	124.5	129.5
2002											114.0	126.8	173.9	175.7	190.7	189.8	168.0	204.4	217.2
2003										75.3	87.2	84.4	86.7	89.8	117.3	124.5	120.1	120.9	127.4
2004									107.8	128.2	121.7	142.7	155.6	160.2	142.6	123.6	132.8	113.6	
2005								81.3	98.0	145.6	167.3	194.7	217.1	246.2	241.0	209.1	222.1		
2006							57.8	71.1	80.9	95.3	116.0	121.9	133.8	142.5	159.0	165.9			
2007						51.9	61.2	73.2	91.4	107.4	112.1	113.9	125.7	130.9	118.1				
2008					74.8	99.6	134.1	163.7	204.5	198.3	185.0	210.8	204.9	211.4					
2009				26.6	35.3	47.9	68.6	87.5	95.5	98.5	95.4	68.6	69.8						
2010			25.5	31.7	37.2	51.4	64.0	75.6	79.3	77.7	84.5	92.5							
2011		23.5	33.1	35.7	42.1	69.7	74.7	92.5	84.3	94.7	102.2								
2012	16.3	20.4	28.5	42.1	60.4	66.5	83.9	88.6	84.8	116.3									
2013	16.9	20.2	28.5	40.8	61.4	70.1	88.2	131.1	145.7										
2014	15.7	18.3	22.8	30.7	46.5	55.7	73.5	77.2											
2015	18.3	22.9	35.6	54.0	72.2	107.3	127.2												
2016	19.3	23.0	25.9	37.9	52.9	64.1													
2017	20.7	28.1	40.1	63.7	82.9														
2018	21.7	25.5	35.2	47.8															
2019	17.4	20.6	29.3																
2020	22.3	25.4																	
2021	19.7																		



**MISSOURI**

**Statewide - Private Carrier + State Fund**

**Derivation of the Factor to Adjust Losses for Prior Policy Years for Valuation Year 2022**

<b>Indemnity Paid+Case Data</b>							
(1)	(2)		(3)		(4)=(3)/(2)	(5)	(6)
Policy	Older Year's Indemnity		Newer Year's Indemnity		Growth	Inverse	Upward Cum.
Years	Paid + Case Losses		Paid + Case Losses		Ratio	1 / (4)	Product of (5)
1989/1988	PY 1988@2007	198,505,376	PY 1989@2008	220,882,644	1.113	0.899	0.979
1990/1989	PY 1989@2008	219,039,126	PY 1990@2009	232,456,428	1.061	0.942	1.089
1991/1990	PY 1990@2009	227,189,268	PY 1991@2010	225,498,511	0.993	1.007	1.156
1992/1991	PY 1991@2010	225,498,511	PY 1992@2011	200,835,736	0.891	1.123	1.147
1993/1992	PY 1992@2011	200,811,854	PY 1993@2012	183,496,440	0.914	1.094	1.022
1994/1993	PY 1993@2012	183,545,036	PY 1994@2013	165,007,399	0.899	1.112	0.934
1995/1994	PY 1994@2013	163,997,293	PY 1995@2014	141,633,259	0.864	1.158	0.839
1996/1995	PY 1995@2014	141,608,646	PY 1996@2015	148,254,038	1.047	0.955	0.725
1997/1996	PY 1996@2015	148,247,760	PY 1997@2016	154,914,525	1.045	0.957	0.759
1998/1997	PY 1997@2016	154,914,525	PY 1998@2017	182,906,839	1.181	0.847	0.793
1999/1998	PY 1998@2017	192,061,279	PY 1999@2018	195,440,205	1.018	0.983	0.936
2000/1999	PY 1999@2018	187,282,040	PY 2000@2019	199,418,430	1.065	0.939	0.953
2001/2000	PY 2000@2019	196,663,409	PY 2001@2020	203,545,043	1.035	0.966	1.015
2002/2001	PY 2001@2020	207,781,582	PY 2002@2021	197,849,349	0.952	1.050	1.050
Factor to Adjust Losses for Prior Years—10-Year Average							0.903

<b>Medical Paid+Case Data</b>							
(1)	(2)		(3)		(4)=(3)/(2)	(5)	(6)
Policy	Older Year's Medical		Newer Year's Medical		Growth	Inverse	Upward Cum.
Years	Paid + Case Losses		Paid + Case Losses		Ratio	1 / (4)	Product of (5)
1989/1988	PY 1988@2007	152,292,010	PY 1989@2008	169,069,844	1.110	0.901	0.761
1990/1989	PY 1989@2008	167,794,520	PY 1990@2009	186,527,540	1.112	0.900	0.845
1991/1990	PY 1990@2009	182,662,813	PY 1991@2010	191,692,398	1.049	0.953	0.939
1992/1991	PY 1991@2010	191,692,398	PY 1992@2011	166,012,660	0.866	1.155	0.985
1993/1992	PY 1992@2011	166,008,493	PY 1993@2012	170,212,510	1.025	0.975	0.853
1994/1993	PY 1993@2012	170,220,623	PY 1994@2013	152,705,754	0.897	1.115	0.875
1995/1994	PY 1994@2013	151,577,681	PY 1995@2014	134,631,701	0.888	1.126	0.785
1996/1995	PY 1995@2014	134,623,547	PY 1996@2015	128,910,066	0.958	1.044	0.697
1997/1996	PY 1996@2015	128,897,172	PY 1997@2016	153,272,672	1.189	0.841	0.668
1998/1997	PY 1997@2016	153,272,672	PY 1998@2017	156,640,785	1.022	0.978	0.794
1999/1998	PY 1998@2017	164,679,784	PY 1999@2018	177,106,284	1.075	0.930	0.811
2000/1999	PY 1999@2018	169,817,461	PY 2000@2019	189,908,827	1.118	0.894	0.872
2001/2000	PY 2000@2019	186,929,065	PY 2001@2020	183,658,391	0.983	1.018	0.976
2002/2001	PY 2001@2020	186,292,265	PY 2002@2021	194,333,105	1.043	0.959	0.959
Factor to Adjust Losses for Prior Years—10-Year Average							0.829

# Missouri

Note: Class codes discontinued in the proposed filing are not included in this exhibit.

An asterisk indicates non-standard exposure.

<b>Class Code</b>	<b>Latest Policy Period Payroll</b>
0005	22,770,139
0008	10,944,455
0016	2,258,113
0034	52,751,203
0035	39,521,634
0036	8,354,948
0037	75,077,934
0042	98,287,339
0050	21,731,436
0059	-
0065	-
0066	-
0067	-
0079	2,428,568
0083	95,031,900
0106	93,116,925
0113	1,640,158
0170	2,005,653
0251	869,201
0401	8,429,111
0771	-
0908	* 3,033
0913	* 3,685
0917	22,403,301
1005	470,543
1016	-
1164	106,342,063
1165	988,156
1320	2,130,751
1322	11,079
1430	16,903,940
1438	38,788,469
1452	4,968,994
1463	15,984,839
1472	30,407,971
1624	107,691,107
1642	30,706,894
1654	2,812,939
1699	26,822,821
1701	99,678,537
1710	1,921,005
1747	8,433,098
1748	-
1803	23,536,642
1924	13,298,350

Calculation of Tail Adjustment Factors ( $F_T$ ) by Threshold  
 Rate Filing Season 2023–2024  
 ULDF = 1.020

<u>Threshold</u>	<u>ELF<sub>T</sub></u>	<u>ELDF<sub>T</sub></u>	<u>CLDF<sub>T</sub></u>	<u>F<sub>T</sub></u>
9,000,000	0.013	1.815	1.014	0.711
10,000,000	0.011	1.877	1.015	0.745
<b>9,571,063</b>				<b>0.730</b>

Notes:

- (1) ULDF = Uncapped 19th to ultimate tail factor, based on NCCI states except NV, TX, and WV
- (2) ELF<sub>T</sub> = Excess ratio for threshold T
- (3) ELDF<sub>T</sub> = Excess paid+case tail factor, 19th to ultimate, for threshold T
- (4) CLDF<sub>T</sub> = Capped paid+case tail factor, 19th to ultimate:  $(1 - ELF_T) / (1 / ULDF - ELF_T / ELDF_T)$
- (5) F<sub>T</sub> = Tail Adjustment Factor:  $[CLDF_T - 1] / [ULDF - 1]$

## NATIONAL COUNCIL ON COMPENSATION INSURANCE 2023 ANNUAL COUNTRYWIDE ADJUSTING AND OTHER EXPENSE REVIEW

Each year, NCCI calculates a countrywide (CW) adjusting and other expense (AOE) provision. This file provides the CW AOE provision that will be filed as applicable during the 2023–2024 filing season.

NCCI calculates ultimate AOE ratios by accident year, separately for both paid and incurred data (paid plus unpaid). The average of the paid and incurred AOE ratio indications are also calculated. The AOE ratios by year as well as the selected provision are shown in Exhibit 1.

### Exhibit 1: Ultimate AOE Ratios and Countrywide Selection

Accident Year	Ultimate AOE Ratio Based on Paid Data	Ultimate AOE Ratio Based on Incurred Data	Ultimate AOE Ratio Based on Avg. of Paid and Incurred Data
2018	9.2%	9.0%	9.1%
2019	9.6%	9.6%	9.6%
2020	10.5%	9.8%	10.2%
2021	9.6%	9.6%	9.6%
2022	9.3%	9.3%	9.3%
<b>Selected AOE Provision</b>			<b>9.4%</b>

During this year’s analysis, which included an assessment of pandemic-related effects, a provision of 9.4% was selected to balance stability and responsiveness and best reflects the conditions likely to prevail in the proposed effective period. The high paid AOE ratio observed in Accident Year 2020 is likely impacted by temporary pandemic-related effects that resulted in a lower volume of paid losses relative to paid AOE. The Accident Year 2020 ratio of incurred AOE to incurred losses is less affected due to proportional changes in AOE and loss values. The selection corresponds to a 4-year average, excluding Accident Year 2020, and is the same a selection as last year.

# NATIONAL COUNCIL ON COMPENSATION INSURANCE

## 2023 ANNUAL COUNTRYWIDE ADJUSTING AND OTHER EXPENSE REVIEW

### Data Used

NCCI uses private carrier data reported on NCCI Call 19 to calculate the ultimate AOE ratios. Call 19 is a countrywide Call in which data is reported for the most recent ten individual accident years, in addition to an aggregated “prior line” in which data is reported for all years older than the most recent ten. The data reported includes losses and AOE on both a paid and unpaid basis. Further, the Call 19 data is reported for all policy types—including that for large deductible policies.

### Methodology Overview

To determine the ultimate AOE ratios, NCCI uses the following methodology:

- Calculate AOE ratios at a 10<sup>th</sup> report by developing AOE and losses separately to a 10<sup>th</sup>.
  - A two-year average of historical paid loss and AOE development factors is selected.
  - A five-year average of historical incurred loss and AOE development factors is selected.
- Apply a 10th-to-ultimate ratio tail factor
  - An extended history of tail factors is reviewed as they can be influenced by underwriting cycles and changes to system costs.
- Apply the adjustment to reverse AOE credits
  - Carriers may credit their AOE amounts for reimbursement of claims-handling provided to policyholders (such as for claims below a deductible amount) or for other service fees charged related to claims-handling. The purpose of this adjustment is to add these credits back in to put AOE on a first-dollar basis.
- Apply the adjustment for losses associated with Third-Party Administrator (TPA) Agreements
  - As a result of TPA agreements, some carriers report losses on Call 19 without associated AOE. The purpose of this adjustment is to remove these losses from the analysis.
- Apply the adjustment to convert losses from a net-of-deductible to a gross-of-deductible basis
  - Up to this point in the calculation, the data used includes losses from large deductible policies, net of the deductible. The purpose of this adjustment is to convert the data to a full coverage basis, allowing the AOE provision to be on the same basis as the losses used in individual state experience filings.
- Apply an adjustment to exclude COVID-19 pandemic related losses
  - The percentage of COVID-19 pandemic related losses to total losses is removed from the denominator of the AY 2020 through 2022 AOE ratios to better reflect the conditions likely to prevail during the effective period of the 2023–2024 filing season.

## NATIONAL COUNCIL ON COMPENSATION INSURANCE 2023 ANNUAL COUNTRYWIDE ADJUSTING AND OTHER EXPENSE REVIEW

### Exhibit 2: Calculation of Ultimate AOE Ratios—Paid Data

	(1)	(2)	(3)=(1)x(2)	(4)	(5)	(6)=(4)x(5)	(7)
	Paid AOE	Cumulative Paid AOE	Estimated Paid AOE	Paid Losses	Cumulative Paid Loss	Estimated Paid Losses	10th Report- to-Ultimate Paid AOE
Accident Year	at Current Report	Development Factors	Developed to a 10th Report	at Current Report	Development Factors	Developed to a 10th Report	Ratio Tail Factor
2018	2,140,890,665	1.090	2,333,570,825	17,513,982,551	1.117	19,563,118,509	0.93
2019	2,190,577,561	1.138	2,492,877,264	16,521,566,070	1.195	19,743,271,454	0.93
2020	1,899,225,906	1.227	2,330,350,187	12,767,694,975	1.355	17,300,226,691	0.93
2021	1,669,015,562	1.411	2,354,980,958	10,737,284,969	1.751	18,800,985,981	0.93
2022	1,096,907,985	2.121	2,326,541,836	4,860,756,307	3.819	18,563,228,336	0.93

	(8)=(3)/(6)x(7)	(9)	(10)	(11)	(12)	(13)=[(8)+(9)]x(10)x(11)/[1-(12)]
	Estimated Ultimate AOE	Adjustment to Reverse AOE	Adjustment for Losses	Adjustment to Convert Losses	Percentage of COVID-19-Related Losses to Total Losses	Estimated Ultimate AOE Ratio After Adjustments
Accident Year	Ratio Before Adjustments	Adjustment to Reverse AOE Credits	Associated with TPA Agreements	From Net to Gross of Deductible		
2018	11.1%	0.013	1.055	0.70	-	9.2%
2019	11.7%	0.012	1.061	0.70	-	9.6%
2020	12.6%	0.012	1.062	0.70	2.1%	10.5%
2021	11.6%	0.012	1.057	0.70	0.9%	9.6%
2022	11.6%	0.011	1.049	0.70	0.1%	9.3%

## NATIONAL COUNCIL ON COMPENSATION INSURANCE 2023 ANNUAL COUNTRYWIDE ADJUSTING AND OTHER EXPENSE REVIEW

### Exhibit 3: Calculation of Ultimate AOE Ratios—Incurred Data

	(1)	(2)	(3)=(1)x(2)	(4)	(5)	(6)=(4)x(5)	(7)
Accident	Incurred AOE	Cumulative	Estimated	Incurred Losses	Cumulative	Estimated	10th Report-
Year	at Current	Incurred AOE	Incurred AOE	at Current	Incurred Loss	Incurred Losses	to-Ultimate
	Report	Development	Developed to a	Report	Development	Developed to a	Incurred AOE
		Factors	10th Report		Factors	10th Report	Ratio Tail Factor
2018	2,445,766,673	1.012	2,475,115,873	24,686,658,029	0.944	23,304,205,179	1.03
2019	2,635,105,542	1.009	2,658,821,492	25,373,000,620	0.918	23,292,414,569	1.03
2020	2,408,315,419	0.998	2,403,498,788	23,742,010,475	0.890	21,130,389,323	1.03
2021	2,439,100,563	0.994	2,424,465,960	24,859,770,205	0.863	21,453,981,687	1.03
2022	2,489,032,286	1.003	2,496,499,383	25,958,859,934	0.854	22,168,866,384	1.03

	(8)=(3)/(6)x(7)	(9)	(10)	(11)	(12)	(13)=[(8)+(9)]x(10)x(11)/[1-(12)]
Accident	Estimated	Adjustment to	Adjustment for	Adjustment to	Percentage of	Estimated
Year	Ultimate AOE	Reverse AOE	Losses	Convert Losses	COVID-19-Related	Ultimate AOE
	Ratio Before	Credits	Associated with	From Net to Gross	Losses to	Ratio After
	Adjustments		TPA Agreements	of Deductible	Total Losses	Adjustments
2018	10.9%	0.013	1.055	0.70	-	9.0%
2019	11.7%	0.012	1.061	0.70	-	9.6%
2020	11.7%	0.012	1.062	0.70	2.1%	9.8%
2021	11.6%	0.012	1.057	0.70	0.9%	9.6%
2022	11.6%	0.011	1.049	0.70	0.1%	9.3%

**NATIONAL COUNCIL ON COMPENSATION INSURANCE  
2023 ANNUAL COUNTRYWIDE ADJUSTING AND OTHER EXPENSE REVIEW**

**Exhibit 4: AOE Ratio Tail Factor Selection—Paid**

Valuation Date	(1) Paid AOE 10th-to-Ultimate	(2) Paid Loss 10th-to-Ultimate	(3) = (1)/(2) Paid AOE-to-Loss 10th-to-Ultimate Tail Factor
12/31/2008	1.100	1.214	0.906
12/31/2009	1.044	1.204	0.867
12/31/2010	1.134	1.169	0.970
12/31/2011	1.170	1.245	0.940
12/31/2012	1.167	1.221	0.956
12/31/2013	1.118	1.252	0.893
12/31/2014	1.089	1.233	0.883
12/31/2015	1.057	1.214	0.871
12/31/2016	1.081	1.198	0.902
12/31/2017	1.072	1.190	0.901
12/31/2018	1.115	1.136	0.982
12/31/2019	1.089	1.172	0.929
12/31/2020	1.121	1.135	0.988
12/31/2021	1.106	1.135	0.974
12/31/2022	1.087	1.151	0.944
		<b>Selected Paid AOE Tail Factor</b>	<b>0.930</b>



**NATIONAL COUNCIL ON COMPENSATION INSURANCE  
2023 ANNUAL COUNTRYWIDE ADJUSTING AND OTHER EXPENSE REVIEW**

**Exhibit 5: AOE Ratio Tail Factor Selection—Incurred**

Valuation Date	(1) Incurred AOE 10th-to-Ultimate	(2) Incurred Loss 10th-to-Ultimate	(3) = (1)/(2) Incurred AOE-to-Loss 10th-to-Ultimate Tail Factor
12/31/2008	1.051	1.056	0.995
12/31/2009	1.021	1.061	0.962
12/31/2010	1.109	1.043	1.063
12/31/2011	1.112	1.047	1.062
12/31/2012	1.113	1.026	1.085
12/31/2013	1.051	1.039	1.012
12/31/2014	1.027	1.033	0.994
12/31/2015	0.999	1.017	0.982
12/31/2016	1.003	0.995	1.008
12/31/2017	1.000	0.995	1.005
12/31/2018	1.041	0.958	1.087
12/31/2019	1.000	0.978	1.022
12/31/2020	1.024	0.968	1.058
12/31/2021	1.026	0.968	1.060
12/31/2022	1.022	0.973	1.050
		<b>Selected Incurred AOE Tail Factor</b>	<b>1.030</b>

# Missouri AOE Provision Calculation

Exhibit 10c

Policy Year	DSR Premium*		State Fund Calculated Weight^
	Private Carrier	State Fund	
2020	346,120,999	108,886,119	23.9%
2021	394,682,056	110,142,324	21.8%
<b>Selected State Fund Weight</b>			<b>22.8%</b>

\*Designated Statistical Reporting level premium on-leveled and developed to ultimate

^State Fund Premium / Combined Private Carrier and State Fund Premium

	Weight	AOE Provision
Private Carrier	77.2%	9.4%
State Fund	22.8%	12.5%
<b>Overall</b>		<b>10.1%</b>

## Calculation of DCCE Ratios

## Exhibit 11a

<u>Policy Year</u>	Reported Ratio of Paid DCCE to <u>Paid Losses</u>	Age to Ultimate Development <u>Factor</u>	Ultimate DCCE <u>Ratio</u>
2012	10.7%	0.982	10.5%
2013	10.9%	0.979	10.7%
2014	11.3%	0.975	11.0%
2015	10.5%	0.969	10.2%
2016	10.8%	0.972	10.5%

## Paid DCCE to Paid Loss Ratio Development Factors

Exhibit 11b

<u>Report</u>	(1)	(2)
	<u>DCCE Ratio Development</u>	
	<u>To Next Report</u>	<u>To Ultimate</u>
1st	1.069	1.087
2nd	1.026	1.017
3rd	1.018	0.991
4th	1.002	0.973
5th	0.999	0.971
6th	1.003	0.972
7th	0.994	0.969
8th	0.996	0.975
9th	0.997	0.979
10th	1.000	0.982
11th	0.999	0.982
12th	0.999	0.983
13th	0.999	0.984
14th	0.998	0.985
15th	0.998	0.987
16th	0.997	0.989
17th	0.997	0.992
18th	1.000	0.995
19th		0.995*

(1) Derived on next tab

(2) = Cumulative upward product of column (1)

\*Selection

© Copyright 2023 National Council on Compensation Insurance Inc. All Rights Reserved.

**Paid DCCE to Paid Loss Ratio Age-to-Age Development Factors**

**Exhibit 11b**

<u>Valuation</u>	<u>1st/2nd</u>	<u>2nd/3rd</u>	<u>3rd/4th</u>	<u>4th/5th</u>	<u>5th/6th</u>	<u>6th/7th</u>
12/31/2020	1.068	1.029	1.017	0.992	0.994	1.002
12/31/2021	1.071	1.035	1.020	1.013	1.002	1.006
12/31/2022	1.067	1.015	1.016	1.002	1.002	1.002
Average	1.069	1.026	1.018	1.002	0.999	1.003

<u>Valuation</u>	<u>7th/8th</u>	<u>8th/9th</u>	<u>9th/10th</u>	<u>10th/11th</u>	<u>11th/12th</u>	<u>12th/13th</u>
12/31/2020	0.988	0.997	0.994	1.000	1.001	1.001
12/31/2021	0.999	0.997	0.998	0.999	0.999	0.997
12/31/2022	0.994	0.995	0.999	1.001	0.998	1.000
Average	0.994	0.996	0.997	1.000	0.999	0.999

<u>Valuation</u>	<u>13th/14th</u>	<u>14th/15th</u>	<u>15th/16th</u>	<u>16th/17th</u>	<u>17th/18th</u>	<u>18th/19th</u>
12/31/2020	0.996	0.996	0.998	0.998	0.996	1.000
12/31/2021	1.000	0.999	0.998	0.997	0.999	0.998
12/31/2022	1.000	0.999	0.997	0.997	0.997	1.001
Average	0.999	0.998	0.998	0.997	0.997	1.000

© Copyright 2023 National Council on Compensation Insurance Inc. All Rights Reserved.

**Paid DCCE to Paid Loss Development Age-to-Age Factors by Valuation and Report Exhibit 11b**

Valuation	1/2	2/3	3/4	4/5	5/6	6/7	7/8	8/9	9/10	10/11	11/12	12/13	13/14	14/15	15/16	16/17	17/18	18/19
2013	1.089	1.043	1.009	0.999	1.008	0.999	0.995	0.998	0.996	1.000	0.998	0.997	0.995	0.999	0.997	0.998	0.997	1.004
2014	1.081	1.027	1.011	1.002	1.000	1.000	0.991	0.998	0.995	1.000	1.000	0.998	0.999	0.999	0.999	0.996	0.998	0.998
2015	1.093	1.028	1.025	1.004	0.999	0.995	1.000	0.998	0.997	0.998	1.000	0.998	0.995	0.994	0.999	1.000	0.997	1.000
2016	1.037	1.001	0.996	1.016	0.998	1.001	0.997	1.002	0.998	0.998	0.999	1.000	0.998	1.000	0.999	0.995	0.998	0.992
2017	1.070	1.023	0.999	1.007	0.999	0.997	0.999	1.000	1.001	0.999	0.997	0.998	0.998	0.998	1.000	0.999	0.999	0.997
2018	1.098	1.037	1.019	1.002	0.994	0.992	0.997	0.997	0.993	0.996	0.998	0.995	0.995	0.997	1.001	0.995	0.999	0.999
2019	1.090	1.024	1.001	1.000	1.001	0.995	0.995	0.996	0.995	1.000	1.002	0.999	0.997	0.997	0.998	0.995	0.999	1.001
2020	1.068	1.029	1.017	0.992	0.994	1.002	0.988	0.997	0.994	1.000	1.001	1.001	0.996	0.996	0.998	0.998	0.996	1.000
2021	1.071	1.035	1.020	1.013	1.002	1.006	0.999	0.997	0.998	0.999	0.999	0.997	1.000	0.999	0.998	0.997	0.999	0.998
2022	1.067	1.015	1.016	1.002	1.002	1.002	0.994	0.995	0.999	1.001	0.998	1.000	1.000	0.999	0.997	0.997	0.997	1.001

**Determination of the indicated loss cost level change after excluding the assigned risk premium and loss experience reported to NCCI by Missouri's designated assigned risk plan administrator from the filing's experience period**

	<u>PY 2021</u>	<u>PY 2020</u>
<b>Premium:</b>		
(1) Standard Earned Premium Developed to Ultimate (Exhibit 13b)	\$687,247,138	\$619,423,190
(2) Premium On-level Factor	0.724	0.725
(3) Pure Premium Available for Benefit Costs = (1) x (2)	\$497,566,928	\$449,081,813
<b>Indemnity Benefit Cost:</b>		
(4) Limited Indemnity Losses Developed to Ultimate (Exhibit 13b)	\$201,980,624	\$188,644,996
(5) Indemnity Loss On-level Factor	1.000	1.000
(6) Adjusted Limited Indemnity Losses = (4) x (5)	\$201,980,624	\$188,644,996
(7) Adjusted Limited Indemnity Cost Ratio excluding Trend and Benefits = (6) / (3)	0.406	0.420
(8) Factor to Reflect Indemnity Trend	0.927	0.904
(9) Projected Limited Indemnity Cost Ratio = (7) x (8)	0.376	0.380
(10) Factor to Adjust Indemnity Cost Ratio to an Unlimited Basis	1.012	1.012
(11) Projected Indemnity Cost Ratio = (9) x (10)	0.381	0.385
(12) Factor to Reflect Proposed Changes in Indemnity Benefits	1.000	1.000
(13) Projected Indemnity Cost Ratio including Benefit Changes = (11) x (12)	0.381	0.385
<b>Medical Benefit Cost:</b>		
(14) Limited Medical Losses Developed to Ultimate (Exhibit 13b)	\$275,882,737	\$261,241,958
(15) Medical Loss On-level Factor	1.000	1.000
(16) Adjusted Limited Medical Losses = (14) x (15)	\$275,882,737	\$261,241,958
(17) Adjusted Limited Medical Cost Ratio excluding Trend and Benefits = (16) / (3)	0.554	0.582
(18) Factor to Reflect Medical Trend	0.927	0.904
(19) Projected Limited Medical Cost Ratio = (17) x (18)	0.514	0.526
(20) Factor to Adjust Medical Cost Ratio to an Unlimited Basis	1.012	1.012
(21) Projected Medical Cost Ratio = (19) x (20)	0.520	0.532
(22) Factor to Reflect Proposed Changes in Medical Benefits	1.000	1.000
(23) Projected Medical Cost Ratio including Benefit Changes = (21) x (22)	0.520	0.532
<b>Total Benefit Cost:</b>		
(24) Indicated Change Based on Experience, Trend, and Benefits = (13) + (23)	0.901	0.917
(25) Average Indicated Change Based on Experience, Trend, and Benefits = Average of (24)		0.909
(26) Effect of the Change in Loss-based Expenses		1.003
(27) Overall Average Voluntary Loss Cost Level Change		0.912

**Determination of the indicated loss cost level change after excluding the assigned risk premium and loss experience reported to NCCI by Missouri's designated assigned risk plan administrator from the filing's experience period**

**Policy Year 2021**

(1) Standard Earned Premium	\$680,442,711
(2) Factor to Develop Premium to Ultimate	1.010
(3) Standard Earned Premium Developed to Ultimate = (1)x(2)	\$687,247,138
(4) Limited Indemnity Paid Losses	\$58,337,720
(5) Limited Indemnity Paid Development Factor to Ultimate	3.406
(6) Limited Indemnity Paid Losses Developed to Ultimate = (4)x(5)	\$198,698,274
(7) Limited Indemnity Paid+Case Losses	\$151,150,938
(8) Limited Indemnity Paid+Case Development Factor to Ultimate	1.358
(9) Limited Indemnity Paid+Case Losses Developed to Ultimate = (7)x(8)	\$205,262,974
(10) Policy Year 2021 Limited Indemnity Losses Developed to Ultimate = [(6)+(9)]/2	\$201,980,624
(11) Limited Medical Paid Losses	\$188,057,473
(12) Limited Medical Paid Development Factor to Ultimate	1.471
(13) Limited Medical Paid Losses Developed to Ultimate = (11)x(12)	\$276,632,543
(14) Limited Medical Paid+Case Losses	\$267,639,038
(15) Limited Medical Paid+Case Development Factor to Ultimate	1.028
(16) Limited Medical Paid+Case Losses Developed to Ultimate = (14)x(15)	\$275,132,931
(17) Policy Year 2021 Limited Medical Losses Developed to Ultimate = [(13)+(16)]/2	\$275,882,737

**Policy Year 2020**

(1) Standard Earned Premium	\$619,423,190
(2) Factor to Develop Premium to Ultimate	1.000
(3) Standard Earned Premium Developed to Ultimate = (1)x(2)	\$619,423,190
(4) Limited Indemnity Paid Losses	\$94,745,140
(5) Limited Indemnity Paid Development Factor to Ultimate	1.919
(6) Limited Indemnity Paid Losses Developed to Ultimate = (4)x(5)	\$181,815,924
(7) Limited Indemnity Paid+Case Losses	\$162,895,057
(8) Limited Indemnity Paid+Case Development Factor to Ultimate	1.200
(9) Limited Indemnity Paid+Case Losses Developed to Ultimate = (7)x(8)	\$195,474,068
(10) Policy Year 2020 Limited Indemnity Losses Developed to Ultimate = [(6)+(9)]/2	\$188,644,996
(11) Limited Medical Paid Losses	\$213,368,591
(12) Limited Medical Paid Development Factor to Ultimate	1.217
(13) Limited Medical Paid Losses Developed to Ultimate = (11)x(12)	\$259,669,575
(14) Limited Medical Paid+Case Losses	\$260,212,218
(15) Limited Medical Paid+Case Development Factor to Ultimate	1.010
(16) Limited Medical Paid+Case Losses Developed to Ultimate = (14)x(15)	\$262,814,340
(17) Policy Year 2020 Limited Medical Losses Developed to Ultimate = [(13)+(16)]/2	\$261,241,958



**LIMITED INDEMNITY LOSS  
DEVELOPMENT**

**Missouri  
01/01/24**

*Likely*

PY Data	1st Report	2nd Report	3rd Report	4th Report	5th Report	6th Report	7th Report	8th Report	9th Report	10th Report
7/07-6/08	73,384,764	88,893,093	96,462,091	102,638,131	106,241,041	110,514,303	112,143,057	112,672,517	114,190,447	114,251,710
7/08-6/09	56,394,400	68,119,688	76,960,072	81,812,658	86,340,805	88,808,054	90,128,179	91,674,860	91,998,967	92,402,355
7/09-6/10	59,353,135	72,061,974	78,751,760	85,780,165	92,479,110	95,818,557	97,128,246	98,916,286	99,134,325	99,041,531
7/10-6/11	57,436,737	70,737,482	81,332,688	87,004,173	92,401,354	94,585,249	97,054,647	96,688,549	96,992,388	97,153,193
7/11-6/12	55,738,741	68,604,052	76,709,818	82,746,589	87,599,902	90,381,910	91,480,869	92,775,488	93,869,039	94,040,847
7/12-6/13	51,649,527	65,123,357	75,783,336	83,170,638	86,732,361	90,058,936	92,816,773	93,870,976	93,619,793	
7/13-6/14	54,968,314	71,435,377	82,634,607	88,737,880	94,096,928	98,472,054	100,999,975	103,642,885		
7/14-6/15	61,608,234	77,418,150	87,881,801	95,235,403	99,833,443	102,166,305	104,554,933			
7/15-6/16	59,054,007	75,315,134	85,046,318	91,447,299	95,455,932	99,265,797				
7/16-6/17	59,209,539	75,114,892	85,930,045	91,972,008	97,304,431					
7/17-6/18	59,473,145	75,037,374	86,945,080	91,559,985						
7/18-6/19	59,689,102	73,440,761	83,700,684							
7/19-6/20	52,821,146	66,127,543								
7/20-6/21	60,163,341									
Link Ratios	1:2	2:3	3:4	4:5	5:6	6:7	7:8	8:9	9:10	
7/07-6/08	1.211	1.085	1.064	1.035	1.040	1.015	1.005	1.013	1.001	
7/08-6/09	1.208	1.130	1.063	1.055	1.029	1.015	1.017	1.004	1.004	
7/09-6/10	1.214	1.093	1.089	1.078	1.036	1.014	1.018	1.002	0.999	
7/10-6/11	1.232	1.150	1.070	1.062	1.024	1.026	0.996	1.003	1.002	
7/11-6/12	1.231	1.118	1.079	1.059	1.032	1.012	1.014	1.012	1.002	
7/12-6/13	1.261	1.164	1.097	1.043	1.038	1.031	1.011	0.997		
7/13-6/14	1.300	1.157	1.074	1.060	1.046	1.026	1.026			
7/14-6/15	1.257	1.135	1.084	1.048	1.023	1.023				
7/15-6/16	1.275	1.129	1.075	1.044	1.040					
7/16-6/17	1.269	1.144	1.070	1.058						
7/17-6/18	1.262	1.159	1.053							
7/18-6/19	1.230	1.140								
7/19-6/20	1.252									
AVERAGE DEV.	1:2	2:3	3:4	4:5	5:6	6:7	7:8	8:9	9:10	
5 Year Averages	1.258	1.141	1.071	1.051	1.036	1.024	1.013	1.004	1.002	
AVG DEV. TO ULT.	1:U	2:U	3:U	4:U	5:U	6:U	7:U	8:U	9:U	10:U
5 Year Averages	1.824	1.450	1.271	1.187	1.129	1.090	1.064	1.050	1.046	1.044

**LIMITED INDEMNITY LOSS  
DEVELOPMENT  
Not-Likely**

**Missouri  
01/01/24**

PY Data	1st Report	2nd Report	3rd Report	4th Report	5th Report	6th Report	7th Report	8th Report	9th Report	10th Report
7/07-6/08	151,652,570	163,877,064	173,290,952	178,140,039	179,029,607	179,795,548	180,730,058	180,941,175	180,798,553	180,960,930
7/08-6/09	143,348,893	158,385,454	166,673,069	168,886,668	169,362,949	171,114,591	172,071,117	172,827,622	172,575,080	172,995,619
7/09-6/10	137,929,325	149,999,354	158,861,623	161,919,515	164,228,362	164,004,946	164,233,547	166,425,295	166,474,918	166,581,748
7/10-6/11	143,631,111	159,767,585	168,398,468	171,025,417	174,081,280	176,750,088	177,092,378	176,656,627	177,254,742	177,195,719
7/11-6/12	142,885,709	156,413,734	166,865,179	170,200,525	172,641,023	174,270,255	175,650,851	175,046,315	175,717,877	176,153,152
7/12-6/13	156,509,339	172,452,886	181,664,407	186,622,631	188,670,992	191,224,029	192,480,533	192,669,901	192,644,797	
7/13-6/14	157,576,908	175,052,828	185,667,108	192,156,047	194,303,621	196,451,310	197,062,470	197,011,103		
7/14-6/15	163,454,450	183,785,597	195,039,296	201,391,017	204,340,927	207,598,502	208,946,908			
7/15-6/16	167,284,420	184,791,207	194,893,089	199,916,461	202,782,826	204,977,995				
7/16-6/17	167,115,756	185,195,331	197,292,538	204,563,890	207,324,838					
7/17-6/18	179,682,209	199,271,581	210,529,577	215,074,334						
7/18-6/19	180,314,404	201,819,205	209,866,625							
7/19-6/20	166,697,383	185,934,179								
7/20-6/21	181,003,102									
Link Ratios	1:2	2:3	3:4	4:5	5:6	6:7	7:8	8:9	9:10	
7/07-6/08	1.081	1.057	1.028	1.005	1.004	1.005	1.001	0.999	1.001	
7/08-6/09	1.105	1.052	1.013	1.003	1.010	1.006	1.004	0.999	1.002	
7/09-6/10	1.088	1.059	1.019	1.014	0.999	1.001	1.013	1.000	1.001	
7/10-6/11	1.112	1.054	1.016	1.018	1.015	1.002	0.998	1.003	1.000	
7/11-6/12	1.095	1.067	1.020	1.014	1.009	1.008	0.997	1.004	1.002	
7/12-6/13	1.102	1.053	1.027	1.011	1.014	1.007	1.001	1.000		
7/13-6/14	1.111	1.061	1.035	1.011	1.011	1.003	1.000			
7/14-6/15	1.124	1.061	1.033	1.015	1.016	1.006				
7/15-6/16	1.105	1.055	1.026	1.014	1.011					
7/16-6/17	1.108	1.065	1.037	1.013						
7/17-6/18	1.109	1.056	1.022							
7/18-6/19	1.119	1.040								
7/19-6/20	1.115									
AVERAGE DEV.	1:2	2:3	3:4	4:5	5:6	6:7	7:8	8:9	9:10	
5 Year Averages	1.111	1.055	1.031	1.013	1.012	1.005	1.002	1.001	1.001	
AVG DEV. TO ULT.	1:U	2:U	3:U	4:U	5:U	6:U	7:U	8:U	9:U	10:U
5 Year Averages	1.264	1.138	1.079	1.047	1.034	1.022	1.017	1.015	1.014	1.013

**LIMITED MEDICAL LOSS  
DEVELOPMENT**

**Missouri  
01/01/24**

*Likely*

PY Data	1st Report	2nd Report	3rd Report	4th Report	5th Report	6th Report	7th Report	8th Report	9th Report	10th Report
7/07-6/08	95,477,384	101,251,888	105,334,647	108,663,416	109,612,253	109,634,544	109,795,322	109,695,984	109,431,888	109,187,171
7/08-6/09	77,299,299	83,716,216	84,487,702	85,601,036	86,424,633	86,263,145	86,015,817	86,159,079	86,125,504	85,926,982
7/09-6/10	83,954,929	91,556,817	92,066,985	93,080,155	93,556,226	93,040,273	92,810,952	92,672,685	92,409,890	92,240,876
7/10-6/11	84,917,439	90,617,270	94,644,199	95,612,579	95,582,458	95,746,427	95,930,481	95,509,483	95,592,564	95,528,239
7/11-6/12	84,401,586	89,352,612	91,525,169	92,120,542	92,536,044	92,953,231	92,368,583	92,239,180	92,242,314	91,888,189
7/12-6/13	76,660,323	85,094,232	87,538,633	88,463,009	87,963,518	87,873,799	87,533,447	87,617,764	87,628,401	
7/13-6/14	81,502,139	87,838,495	90,690,220	91,042,895	92,663,462	92,890,212	92,890,438	92,894,647		
7/14-6/15	86,668,689	93,528,347	95,213,019	95,331,474	95,534,075	95,991,275	96,388,640			
7/15-6/16	87,479,582	92,103,345	93,767,054	94,652,750	95,591,945	95,435,619				
7/16-6/17	87,198,726	95,048,924	94,829,402	97,443,553	97,747,204					
7/17-6/18	88,720,584	94,961,699	93,849,691	94,326,234						
7/18-6/19	88,502,368	91,525,834	93,364,382							
7/19-6/20	78,999,839	84,913,912								
7/20-6/21	87,640,835									
Link Ratios	1:2	2:3	3:4	4:5	5:6	6:7	7:8	8:9	9:10	
7/07-6/08	1.060	1.040	1.032	1.009	1.000	1.001	0.999	0.998	0.998	
7/08-6/09	1.083	1.009	1.013	1.010	0.998	0.997	1.002	1.000	0.998	
7/09-6/10	1.091	1.006	1.011	1.005	0.994	0.998	0.999	0.997	0.998	
7/10-6/11	1.067	1.044	1.010	1.000	1.002	1.002	0.996	1.001	0.999	
7/11-6/12	1.059	1.024	1.007	1.005	1.005	0.994	0.999	1.000	0.996	
7/12-6/13	1.110	1.029	1.011	0.994	0.999	0.996	1.001	1.000		
7/13-6/14	1.078	1.032	1.004	1.018	1.002	1.000	1.000			
7/14-6/15	1.079	1.018	1.001	1.002	1.005	1.004				
7/15-6/16	1.053	1.018	1.009	1.010	0.998					
7/16-6/17	1.090	0.998	1.028	1.003						
7/17-6/18	1.070	0.988	1.005							
7/18-6/19	1.034	1.020								
7/19-6/20	1.075									
AVERAGE DEV.	1:2	2:3	3:4	4:5	5:6	6:7	7:8	8:9	9:10	
5 Year Averages	1.064	1.008	1.009	1.005	1.002	0.999	0.999	1.000	0.998	
AVG DEV. TO ULT.	1:U	2:U	3:U	4:U	5:U	6:U	7:U	8:U	9:U	10:U
5 Year Averages	1.124	1.056	1.048	1.039	1.034	1.032	1.033	1.034	1.034	1.036

**LIMITED MEDICAL LOSS  
DEVELOPMENT  
Not-Likely**

**Missouri  
01/01/24**

PY Data	1st Report	2nd Report	3rd Report	4th Report	5th Report	6th Report	7th Report	8th Report	9th Report	10th Report
7/07-6/08	248,754,210	252,549,326	255,544,302	255,476,109	254,694,236	254,101,708	254,242,417	254,949,940	255,249,663	255,011,908
7/08-6/09	239,392,040	244,924,400	247,716,387	247,551,813	246,455,377	246,566,197	246,401,538	246,377,727	246,332,065	246,572,160
7/09-6/10	245,550,064	249,616,946	250,588,934	248,945,252	247,958,004	247,523,790	247,989,990	248,003,878	248,512,889	248,277,978
7/10-6/11	262,728,943	267,916,001	267,944,450	267,911,790	268,753,637	268,502,319	268,611,733	268,823,816	268,211,758	267,998,623
7/11-6/12	261,384,678	263,115,056	263,883,686	264,073,123	264,333,041	264,410,330	264,430,667	263,348,529	263,022,695	263,183,320
7/12-6/13	283,456,683	285,309,351	283,719,272	282,530,847	281,966,468	281,813,468	280,609,156	280,680,049	280,741,237	
7/13-6/14	291,924,228	293,750,713	294,779,557	294,792,444	294,387,971	293,834,865	293,179,356	293,087,478		
7/14-6/15	298,851,148	302,325,982	303,069,584	302,547,979	302,410,921	302,960,689	302,431,304			
7/15-6/16	316,404,252	319,012,704	321,251,289	321,353,991	319,938,112	319,245,378				
7/16-6/17	320,901,680	321,766,688	323,086,312	323,441,533	321,688,109					
7/17-6/18	344,077,931	346,986,528	345,691,034	344,683,542						
7/18-6/19	351,842,119	354,940,312	353,885,736							
7/19-6/20	310,807,301	313,463,028								
7/20-6/21	336,363,988									
Link Ratios	1:2	2:3	3:4	4:5	5:6	6:7	7:8	8:9	9:10	
7/07-6/08	1.015	1.012	1.000	0.997	0.998	1.001	1.003	1.001	0.999	
7/08-6/09	1.023	1.011	0.999	0.996	1.000	0.999	1.000	1.000	1.001	
7/09-6/10	1.017	1.004	0.993	0.996	0.998	1.002	1.000	1.002	0.999	
7/10-6/11	1.020	1.000	1.000	1.003	0.999	1.000	1.001	0.998	0.999	
7/11-6/12	1.007	1.003	1.001	1.001	1.000	1.000	0.996	0.999	1.001	
7/12-6/13	1.007	0.994	0.996	0.998	0.999	0.996	1.000	1.000		
7/13-6/14	1.006	1.004	1.000	0.999	0.998	0.998	1.000			
7/14-6/15	1.012	1.002	0.998	1.000	1.002	0.998				
7/15-6/16	1.008	1.007	1.000	0.996	0.998					
7/16-6/17	1.003	1.004	1.001	0.995						
7/17-6/18	1.008	0.996	0.997							
7/18-6/19	1.009	0.997								
7/19-6/20	1.009									
AVERAGE DEV.	1:2	2:3	3:4	4:5	5:6	6:7	7:8	8:9	9:10	
5 Year Averages	1.007	1.001	0.999	0.998	0.999	0.998	0.999	1.000	1.000	
AVG DEV. TO ULT.	1:U	2:U	3:U	4:U	5:U	6:U	7:U	8:U	9:U	10:U
5 Year Averages	1.008	1.001	1.000	1.001	1.003	1.004	1.006	1.007	1.007	1.007

# Missouri

Note: Class codes discontinued in the proposed filing are not included in this exhibit.

An asterisk indicates non-standard exposure.

Class Code	Latest Policy Period Exposure	Current 01/01/2023 Loss Cost	Proposed 01/01/2024 Loss Cost	01/01/2024 Change	01/01/2023 Change	01/01/2022 Change	01/01/2021 Change
0005	227,701.39	2.35	2.19	-6.8%	-7.5%	-12.4%	2.1%
0008	109,444.55	1.92	1.86	-3.1%	-9.9%	-10.9%	-5.5%
0016	22,581.13	3.54	3.02	-14.7%	-12.2%	-16.0%	-7.5%
0034	527,512.03	2.37	2.28	-3.8%	-4.8%	-5.0%	8.7%
0035	395,216.34	1.67	1.48	-11.4%	-6.7%	-11.8%	-1.9%
0036	83,549.48	4.00	3.18	-20.5%	-15.4%	-20.2%	-10.3%
0037	750,779.34	2.81	2.76	-1.8%	-1.4%	-4.7%	-1.0%
0042	982,873.39	4.82	4.83	0.2%	-9.6%	-6.3%	7.0%
0050	217,314.36	4.42	4.18	-5.4%	2.1%	-4.8%	1.6%
0059	-	0.10	N/A	N/A	-9.1%	-8.3%	0.0%
0065	-	0.04	N/A	N/A	0.0%	0.0%	0.0%
0066	-	0.04	N/A	N/A	0.0%	0.0%	0.0%
0067	-	0.04	N/A	N/A	0.0%	0.0%	0.0%
0079	24,285.68	2.58	2.18	-15.5%	-13.1%	-13.2%	-4.2%
0083	950,319.00	3.72	3.40	-8.6%	-3.6%	-9.2%	-2.1%
0106	931,169.25	5.48	4.93	-10.0%	-7.4%	-12.2%	-5.3%
0113	16,401.58	3.81	3.53	-7.3%	-2.1%	-11.4%	-3.3%
0170	20,056.53	1.82	1.61	-11.5%	-6.7%	-2.0%	0.0%
0251	8,692.01	2.98	2.74	-8.1%	-4.2%	-8.0%	0.9%
0401	84,291.11	8.32	7.10	-14.7%	-6.4%	-17.5%	2.9%
0771	-	0.42	0.39	-7.1%	-2.3%	-2.3%	0.0%
0908	303.30 *	105.00	101.00	-3.8%	-5.4%	-5.1%	0.9%
0913	368.50 *	397.00	362.00	-8.8%	-4.8%	-1.4%	7.4%
0917	224,033.01	3.09	2.83	-8.4%	-4.6%	-2.1%	-2.4%
1005	4,705.43	4.64	4.10	-11.6%	-12.3%	-7.2%	9.4%
1016	-	15.73	14.22	-9.6%	-0.1%	7.6%	16.9%
1164	1,063,420.63	3.86	3.80	-1.6%	4.0%	-12.7%	-3.2%
1165	9,881.56	2.27	2.02	-11.0%	-8.1%	-17.7%	-3.8%
1320	21,307.51	1.28	1.19	-7.0%	-3.0%	-7.0%	1.4%
1322	110.79	6.03	5.57	-7.6%	-4.3%	-2.2%	5.6%
1430	169,039.40	4.49	4.09	-8.9%	-9.3%	-5.2%	-3.3%
1438	387,884.69	8.26	6.03	-27.0%	-26.0%	-12.7%	1.1%
1452	49,689.94	2.46	2.19	-11.0%	-9.6%	-8.1%	5.3%
1463	159,848.39	7.56	7.26	-4.0%	-3.2%	-10.9%	-2.7%
1472	304,079.71	2.79	2.60	-6.8%	-0.4%	2.2%	2.2%
1624	1,076,911.07	2.37	2.39	0.8%	-3.3%	-0.4%	-15.2%
1642	307,068.94	2.69	2.67	-0.7%	3.1%	0.4%	7.0%
1654	28,129.39	3.03	3.13	3.3%	-2.3%	-10.1%	-0.6%
1699	268,228.21	2.27	2.20	-3.1%	2.7%	-11.6%	-2.3%
1701	996,785.37	2.42	2.37	-2.1%	-11.0%	-7.5%	-4.5%
1710	19,210.05	3.15	2.96	-6.0%	-4.0%	0.0%	8.3%
1747	84,330.98	2.33	2.56	9.9%	13.7%	3.0%	2.1%
1748	-	4.92	4.50	-8.5%	-6.6%	-5.9%	5.5%
1803	235,366.42	6.39	5.32	-16.7%	-8.5%	-3.6%	1.1%
1924	132,983.50	2.45	2.27	-7.3%	-9.9%	-18.1%	-7.3%
1925	455,036.66	2.62	2.24	-14.5%	-14.4%	-8.7%	3.1%
2002	304,756.37	3.03	2.81	-7.3%	0.3%	-1.9%	5.8%
2003	998,914.14	3.18	2.94	-7.5%	-3.0%	-10.1%	3.7%
2014	739,352.63	4.09	3.71	-9.3%	-4.4%	-7.4%	2.2%
2016	302,280.00	2.31	2.17	-6.1%	-9.4%	-10.2%	-1.4%
2021	140,536.13	2.49	2.26	-9.2%	-3.1%	3.2%	20.9%
2039	554,835.55	2.60	2.42	-6.9%	4.8%	-7.5%	7.2%
2041	44,449.69	2.27	2.20	-3.1%	-3.8%	-7.1%	2.8%
2065	5,905.72	1.54	1.44	-6.5%	-3.8%	-5.9%	-2.9%



NATIONAL COUNCIL ON COMPENSATION INSURANCE, INC.

MISSOURI  
ADVISORY LOSS COSTS AND RATING VALUES FILING  
EFFECTIVE JANUARY 1, 2024

RESPONSES TO THE DEPARTMENT OF COMMERCE AND INSURANCE'S  
REQUESTS DATED OCTOBER 23, 2023

- 1. Please provide the Missouri Employers Mutual (MEM) ultimate AOE ratios by accident year which led to the selected MEM provision of 12.5% found on Exhibit 10c of your response to interrogatory #10.**

Please see the attached Exhibit 1 for the requested information. In consideration of the observed volatility in the ultimate AOE ratios, the selected MEM provision of 12.5% is based on the five-year average of the values shown in column (3), excluding the highest and lowest.

- 2. Please provide the underlying calculations which support and lead to the selected 19-to-ultimate ratio of DCCE-to-loss development factor of 0.995 shown in Column (2) of Exhibit 11b of your response to interrogatory #11.**

Please see the attached Exhibit 2 for the available DCCE-to-loss development factors past 19th report. The italicized factors reflect years for which the reporting of DCCE is not mandatory. The selected 19-to-ultimate ratio of DCCE-to-loss development factor of 0.995 is intended to recognize that the observed development between 19th and 30th reports is generally slightly below unity. The selection is supported by the average observed cumulative 19<sup>th</sup>/30<sup>th</sup> development factor of 0.993.

- 3. Please provide the Supplemental Loss Development and Trend Information associated with the 1/1/24 filing which presents information for the latest 15 policy years.**

Please see the attached Exhibit 3 for the requested information.

**Missouri**  
**Derivation of the Adjusting and Other Expense (AOE) Provision**

Missouri Employers Mutual

	(1)	(2)	(3) = [(1)+(2)]/2
	Ultimate AOE	Ultimate AOE	Average
	Ratio Based on	Ratio Based on	Ultimate AOE
<u>AY</u>	<u>Paid Data</u>	<u>Incurred Data</u>	<u>Ratio</u>
2018	10.5%	10.0%	10.3%
2019	12.1%	11.4%	11.8%
2020	13.6%	11.7%	12.7%
2021	14.5%	12.5%	13.5%
2022	12.5%	13.4%	<u>13.0%</u>
(4) Selected AOE ratio			<b>12.5%</b>

## MISSOURI

### Workers Compensation Loss Adjustment Expense Provision

#### Paid DCCE to Paid Loss Ratio Development Factors (LDFs)

##### Age-to-Age LDFs

<u>Valuation</u>	<u>19th/20th</u>	<u>20th/21st</u>	<u>21st/22nd</u>	<u>22nd/23rd</u>	<u>23rd/24th</u>	<u>24th/25th</u>
12/31/2020	0.999	1.000	0.999	0.995	1.000	0.998
12/31/2021	0.999	1.001	0.999	0.997	0.998	0.997
12/31/2022	0.999	1.001	1.000	1.000	0.999	0.996
Average	0.999	1.001	0.999	0.997	0.999	0.997

<u>Valuation</u>	<u>25th/26th</u>	<u>26th/27th</u>	<u>27th/28th</u>	<u>28th/29th</u>	<u>29th/30th</u>
12/31/2020	0.999	0.996	1.001	1.001	1.001
12/31/2021	0.999	1.005	0.999	1.001	1.001
12/31/2022	0.999	1.001	0.995	1.003	1.001
Average	0.999	1.001	0.998	1.002	1.001

##### Cumulative LDFs

<u>Valuation</u>	<u>19th/30th</u>
12/31/2020	0.989
12/31/2021	0.996
12/31/2022	0.994
Average	0.993





**Trend Information—Rate Filing Supplement**  
**Missouri January 1, 2024 Filing**  
**Limited—Statewide—Private Carrier + State Fund—Policy Year**

**Lost-Time Claim Frequency and Severity—Based on Data in Excess of Wage Inflation**

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Policy Year	Claim Freq	Indemnity Severity			Medical Severity		
	per Million On-level Premium	Paid	Paid + Case	Average Pd/P+C	Paid	Paid + Case	Average Pd/P+C
2007	25.172	25,045	25,193	25,119	30,300	30,014	30,157
2008	23.325	25,942	26,123	26,032	33,368	33,703	33,536
2009	21.858	25,757	25,398	25,578	32,596	31,910	32,253
2010	23.177	26,151	25,758	25,954	35,020	34,797	34,909
2011	21.940	27,264	26,777	27,021	35,798	35,606	35,702
2012	21.241	26,727	25,920	26,324	35,165	34,602	34,884
2013	20.758	27,167	27,312	27,239	33,914	34,053	33,983
2014	20.103	27,500	27,710	27,605	34,750	34,028	34,389
2015	19.425	27,100	26,854	26,977	36,323	37,327	36,825
2016	18.438	27,546	27,567	27,557	35,788	35,516	35,652
2017	18.149	26,278	26,642	26,460	38,618	39,776	39,197
2018	18.185	26,944	27,924	27,434	37,657	37,980	37,818
2019	16.784	26,231	27,228	26,729	36,921	36,804	36,863
2020	16.711	24,480	26,408	25,444	35,525	36,342	35,934
2021	16.778	23,898	24,647	24,272	33,280	33,166	33,223

(9)	(10)	(11)
Annual Percentage Change		
Claim Frequency	Ind Severity (Avg Paid & P+C)	Med Severity (Avg Paid & P+C)
-7.3%	3.6%	11.2%
-6.3%	-1.7%	-3.8%
6.0%	1.5%	8.2%
-5.3%	4.1%	2.3%
-3.2%	-2.6%	-2.3%
-2.3%	3.5%	-2.6%
-3.2%	1.3%	1.2%
-3.4%	-2.3%	7.1%
-5.1%	2.1%	-3.2%
-1.6%	-4.0%	9.9%
0.2%	3.7%	-3.5%
-7.7%	-2.6%	-2.5%
-0.4%	-4.8%	-2.5%
0.4%	-4.6%	-7.5%

Notes: (2) = (15) / [(22) / 1,000,000]  
 (3) = (27) / (15)  
 (4) = (31) / (15)  
 (5) = (33) / (15)

(6) = (39) / (15)  
 (7) = (43) / (15)  
 (8) = (45) / (15)

(9) is based on (2)  
 (10) is based on (5)  
 (11) is based on (8)

**Claim Counts**

(12)	(13)	(14)	(15)
Policy Year	Incurred Lost-Time Claim	Ultimate Development Factor	Ultimate Incurred Lost-Time Claim
	Count	Factor	Count
2007	12,685	1.000	12,685
2008	11,054	1.000	11,054
2009	10,011	1.000	10,011
2010	10,872	1.000	10,872
2011	10,208	1.000	10,208
2012	9,665	1.000	9,665
2013	9,612	1.000	9,612
2014	9,492	1.000	9,492
2015	9,492	1.000	9,492
2016	9,281	1.000	9,281
2017	9,363	1.000	9,363
2018	9,209	0.999	9,200
2019	8,212	0.998	8,196
2020	8,056	1.004	8,088
2021	8,121	1.043	8,470

Notes: (15) = (13) x (14)

**Premium**

(16)	(17)	(18)	(19)	(20)	(21)	(22)
Policy Year	DSR Level Premium	Ultimate Development Factor	Ultimate Premium	On-level Factor	Factor to Adjust to 2021 Wage Levels	Wage-Adj On-level Ult. Prem
	2007	691,265,257	1.000	691,265,257	0.493	1.479
2008	601,415,178	1.000	601,415,178	0.544	1.448	473,915,160
2009	539,466,553	1.000	539,466,553	0.586	1.449	458,007,103
2010	555,788,645	1.000	555,788,645	0.593	1.423	469,085,616
2011	541,022,320	1.000	541,022,320	0.620	1.387	465,279,195
2012	516,470,664	1.000	516,470,664	0.650	1.356	455,010,655
2013	538,435,550	1.000	538,435,550	0.645	1.334	463,054,573
2014	627,873,840	1.000	627,873,840	0.580	1.296	472,161,128
2015	641,268,671	1.000	641,268,671	0.601	1.268	488,646,727
2016	653,710,907	1.000	653,710,907	0.618	1.246	503,357,398
2017	657,180,633	1.000	657,180,633	0.650	1.207	515,886,797
2018	633,987,640	1.000	633,987,640	0.684	1.167	505,922,137
2019	617,336,983	1.000	617,336,983	0.706	1.121	488,313,554
2020	627,746,363	1.000	627,746,363	0.725	1.063	483,992,446
2021	690,352,096	1.010	697,255,617	0.724	1.000	504,813,067

(19) = (17) x (18)  
 (22) = (19) x [(20) x (21)]



**Trend Information—Rate Filing Supplement**  
**Missouri January 1, 2024 Filing**  
**Limited—Statewide—Private Carrier + State Fund—Policy Year**

**Limited Indemnity Losses**

(23)	(24)	(25)	(26)	(27)	(28)	(29)	(30)	(31)	(32)	(33)	(34)
Policy Year	Paid			Paid + Case			Average Pd/P+C			Loss On-level Factor	
	Losses	Ultimate Development Factor	Ultimate Losses	Wage-Adj On-level Ult. Losses	Losses	Ultimate Development Factor	Ultimate Losses	Wage-Adj On-level Ult. Losses	Ultimate Losses		Wage-Adj On-level Ult. Losses
		Factor	Losses	Ult. Losses		Factor	Losses	Ult. Losses	Losses		Ult. Losses
2007	202,235,543	1.055	213,358,498	317,690,804	211,658,156	1.014	214,621,370	319,571,220	213,989,934	318,631,012	1.007
2008	185,547,499	1.060	196,680,349	286,759,949	194,934,524	1.016	198,053,476	288,761,968	197,366,913	287,760,959	1.007
2009	165,947,199	1.065	176,733,767	257,854,566	170,687,553	1.021	174,271,992	254,262,836	175,502,880	256,058,702	1.007
2010	185,248,295	1.071	198,400,924	284,308,524	191,218,015	1.022	195,424,811	280,043,754	196,912,868	282,176,140	1.007
2011	184,463,358	1.080	199,220,427	278,310,937	191,640,511	1.021	195,664,962	273,343,952	197,442,695	275,827,445	1.007
2012	174,259,705	1.086	189,246,040	258,320,845	179,402,369	1.023	183,528,623	250,516,570	186,387,332	254,418,708	1.007
2013	178,100,552	1.095	195,020,104	261,131,919	191,274,637	1.025	196,056,503	262,519,658	195,538,304	261,825,789	1.004
2014	181,291,968	1.111	201,415,376	261,034,327	198,001,391	1.025	202,951,426	263,025,048	202,183,401	262,029,688	1.000
2015	177,329,624	1.144	202,865,090	257,232,934	195,355,074	1.029	201,020,371	254,893,830	201,942,731	256,063,383	1.000
2016	174,621,435	1.175	205,180,186	255,654,512	196,872,536	1.043	205,338,055	255,851,217	205,259,121	255,752,865	1.000
2017	164,923,071	1.236	203,844,916	246,040,814	195,153,957	1.059	206,668,040	249,448,324	205,256,478	247,744,569	1.000
2018	159,706,175	1.330	212,409,213	247,881,552	201,777,724	1.091	220,139,497	256,902,793	216,274,355	252,392,172	1.000
2019	127,939,658	1.499	191,781,547	214,987,114	176,323,589	1.129	199,069,332	223,156,721	195,425,440	219,071,918	1.000
2020	97,061,405	1.919	186,260,836	197,995,269	167,443,953	1.200	200,932,744	213,591,507	193,596,790	205,793,388	1.000
2021	59,428,405	3.406	202,413,147	202,413,147	153,728,106	1.358	208,762,768	208,762,768	205,587,958	205,587,958	1.000

Notes: (26) = (24) x (25)  
 (27) = (26) x [(34) x (21)]

(30) = (28) x (29)  
 (31) = (30) x [(34) x (21)]

(32) = [0.50 x (26)] + [0.50 x (30)]  
 (33) = (32) x [(34) x (21)]

**Limited Medical Losses**

(35)	(36)	(37)	(38)	(39)	(40)	(41)	(42)	(43)	(44)	(45)	(46)
Policy Year	Paid			Paid + Case			Average Pd/P+C			Loss On-level Factor	
	Losses	Ultimate Development Factor	Ultimate Losses	Wage-Adj On-level Ult. Losses	Losses	Ultimate Development Factor	Ultimate Losses	Wage-Adj On-level Ult. Losses	Ultimate Losses		Wage-Adj On-level Ult. Losses
		Factor	Losses	Ult. Losses		Factor	Losses	Ult. Losses	Losses		Ult. Losses
2007	244,935,537	1.061	259,876,605	384,357,499	253,122,377	1.017	257,425,457	380,732,251	258,651,031	382,544,875	1.000
2008	239,633,300	1.063	254,730,198	368,849,327	252,739,995	1.018	257,289,315	372,554,928	256,009,757	370,702,128	1.000
2009	211,257,453	1.066	225,200,445	326,315,445	216,563,260	1.018	220,461,399	319,448,567	222,830,922	322,882,006	1.000
2010	250,526,110	1.068	267,561,885	380,740,562	261,158,861	1.018	265,859,720	378,318,382	266,710,803	379,529,473	1.000
2011	246,231,442	1.070	263,467,643	365,429,621	257,166,202	1.019	262,052,360	363,466,623	262,760,002	364,448,123	1.000
2012	233,808,493	1.072	250,642,704	339,871,507	243,462,879	1.013	246,627,896	334,427,427	248,635,300	337,149,467	1.000
2013	227,100,943	1.076	244,360,615	325,977,060	242,693,856	1.011	245,363,488	327,314,893	244,862,052	326,645,977	1.000
2014	235,224,002	1.082	254,512,370	329,848,032	247,490,919	1.007	249,223,355	322,993,468	251,867,863	326,420,750	1.000
2015	248,999,253	1.092	271,907,184	344,778,309	275,836,428	1.013	279,422,302	354,307,479	275,664,743	349,542,894	1.000
2016	241,679,494	1.103	266,572,482	332,149,313	261,153,923	1.013	264,548,924	329,627,959	265,560,703	330,888,636	1.000
2017	268,913,239	1.114	299,569,348	361,580,203	305,802,292	1.009	308,554,513	372,425,297	304,061,931	367,002,751	1.000
2018	262,482,460	1.131	296,867,662	346,444,562	295,861,027	1.012	299,411,359	349,413,056	298,139,511	347,928,809	1.000
2019	233,314,578	1.157	269,944,967	302,608,308	265,110,157	1.015	269,086,809	301,646,313	269,515,888	302,127,310	1.000
2020	222,103,998	1.217	270,300,566	287,329,502	273,772,966	1.010	276,510,696	293,930,870	273,405,631	290,630,186	1.000
2021	191,624,167	1.471	281,879,150	281,879,150	273,263,364	1.028	280,914,738	280,914,738	281,396,944	281,396,944	1.000

Notes: (38) = (36) x (37)  
 (39) = (38) x [(46) x (21)]

(42) = (40) x (41)  
 (43) = (42) x [(46) x (21)]

(44) = [0.50 x (38)] + [0.50 x (42)]  
 (45) = (44) x [(46) x (21)]



**Trend Information—Rate Filing Supplement**  
**Missouri January 1, 2024 Filing**  
**Limited—Statewide—Private Carrier + State Fund—Calendar—Accident Year**

**Lost-Time Claim Frequency and Severity—Based on Data in Excess of Wage Inflation**

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Calendar-Accident Year	Claim Freq	Indemnity Severity		Medical Severity			
	per Million On-level Premium	Paid	Paid + Case	Average Pd/P+C	Paid	Paid + Case	Average Pd/P+C
2007		24,862	24,946	24,904	29,364	29,443	29,404
2008		24,677	24,801	24,739	31,703	31,736	31,719
2009		27,256	27,240	27,248	33,734	33,489	33,612
2010		25,426	25,245	25,336	33,173	32,756	32,964
2011		27,427	26,743	27,085	36,718	36,673	36,696
2012		26,268	25,557	25,912	34,792	33,725	34,258
2013		27,981	27,611	27,796	34,430	34,590	34,510
2014		26,837	26,957	26,897	35,103	34,941	35,022
2015		27,147	26,494	26,820	33,986	33,424	33,705
2016		27,428	27,830	27,629	36,702	37,879	37,290
2017		26,808	26,844	26,826	38,108	38,700	38,404
2018	18.221	26,879	27,965	27,422	37,812	38,293	38,053
2019	17.969	26,254	26,591	26,422	37,177	36,315	36,746
2020	16.144	25,334	27,924	26,629	35,526	36,340	35,933
2021	16.957	24,589	24,522	24,555	34,562	34,092	34,327
2022	16.641	24,754	24,849	24,802	33,991	34,287	34,139

(9)	(10)	(11)
Annual Percentage Change		
Claim Frequency	Ind Severity (Avg Paid & P+C)	Med Severity (Avg Paid & P+C)
	-0.7%	7.9%
	10.1%	6.0%
	-7.0%	-1.9%
	6.9%	11.3%
	-4.3%	-6.6%
	7.3%	0.7%
	-3.2%	1.5%
	-0.3%	-3.8%
	3.0%	10.6%
	-2.9%	3.0%
	2.2%	-0.9%
	-1.4%	-3.6%
	-10.2%	0.8%
	5.0%	-7.8%
	-1.9%	1.0%

Notes: (2) = (15) / [(1) / 1,000,000]  
 (3) = (26) / (15)  
 (4) = (30) / (15)  
 (5) = (32) / (15)

(6) = (38) / (15)  
 (7) = (42) / (15)  
 (8) = (44) / (15)

(9) is based on (2)  
 (10) is based on (5)  
 (11) is based on (8)

**Claim Counts**

(12)	(13)	(14)	(15)
Accident Year	Incurred Lost-Time Claim Count	Ultimate Development Factor	Ultimate Incurred Lost-Time Claim Count
2007	12,579	1.000	12,579
2008	11,850	1.000	11,850
2009	10,267	1.000	10,267
2010	10,449	1.000	10,449
2011	10,639	1.000	10,639
2012	10,001	1.000	10,001
2013	9,418	1.000	9,418
2014	9,562	1.000	9,562
2015	9,515	1.000	9,515
2016	9,506	1.000	9,506
2017	9,125	1.000	9,125
2018	9,342	1.000	9,342
2019	8,952	0.999	8,943
2020	7,634	1.000	7,634
2021	8,274	1.016	8,406
2022	7,231	1.167	8,439

Notes: (15) = (13) x (14)

**Premium**

(16)	(17)	(18)	(19)	(20)	(21)
Calendar Year	DSR Level Premium	On-level Factor	Audit Adjustment Factor*	Factor to Adjust to 2021 Wage Levels	Wage-Adj On-level Premium
2007				1.508	
2008				1.440	
2009				1.459	
2010				1.435	
2011				1.406	
2012				1.360	
2013				1.351	
2014				1.311	
2015				1.274	
2016				1.260	
2017				1.226	
2018	646,534,204	0.671	1.000	1.182	512,701,624
2019	625,231,828	0.694	0.996	1.147	497,684,535
2020	610,934,132	0.713	0.995	1.086	472,863,018
2021	650,549,108	0.738	1.020	1.033	495,718,420
2022	698,511,650	0.759	1.002	0.957	507,119,458

(21) = (17) x [(18) x (20)]  
 \*Included in On-level Factor (18)



**Trend Information—Rate Filing Supplement**  
**Missouri January 1, 2024 Filing**  
**Limited—Statewide—Private Carrier + State Fund—Calendar—Accident Year**

**Limited Indemnity Losses**

(22)	(23)	(24)	(25)	(26)	(27)	(28)	(29)	(30)	(31)	(32)	(33)
Accident Year	Paid			Paid + Case			Average Pd/P+C			Loss On-level Factor	
	Losses	Ultimate Development Factor	Ultimate Losses	Wage-Adj On-level Ult. Losses	Losses	Ultimate Development Factor	Ultimate Losses	Wage-Adj On-level Ult. Losses	Ultimate Losses		Wage-Adj On-level Ult. Losses
		Factor	Losses	Ult. Losses		Factor	Losses	Ult. Losses	Losses		Ult. Losses
2007	195,891,126	1.051	205,881,573	312,734,109	203,931,004	1.013	206,582,107	313,798,221	206,231,840	313,266,165	1.007
2008	190,979,512	1.056	201,674,365	292,427,829	199,684,778	1.015	202,680,050	293,886,073	202,177,208	293,156,952	1.007
2009	179,372,479	1.062	190,493,573	279,835,059	186,648,489	1.020	190,381,459	279,670,363	190,437,516	279,752,711	1.007
2010	171,994,301	1.069	183,861,908	265,680,457	178,620,928	1.022	182,550,588	263,785,600	183,206,248	264,733,028	1.007
2011	190,979,739	1.079	206,067,138	291,791,067	196,795,549	1.021	200,928,256	284,514,410	203,497,697	288,152,739	1.007
2012	176,732,253	1.085	191,754,495	262,703,658	182,548,917	1.022	186,564,993	255,594,040	189,159,744	259,148,849	1.007
2013	177,283,460	1.093	193,770,822	263,528,318	186,907,427	1.023	191,206,298	260,040,565	192,488,560	261,784,442	1.007
2014	177,137,226	1.105	195,736,635	256,610,728	191,631,599	1.026	196,614,021	257,760,982	196,175,328	257,185,855	1.000
2015	179,107,003	1.132	202,749,127	258,302,388	192,856,138	1.026	197,870,398	252,086,887	200,309,763	255,194,638	1.000
2016	178,235,837	1.161	206,931,807	260,734,077	202,663,226	1.036	209,959,102	264,548,469	208,445,455	262,641,273	1.000
2017	165,720,965	1.204	199,528,042	244,621,379	190,466,295	1.049	199,799,143	244,953,749	199,663,593	244,787,565	1.000
2018	165,062,711	1.287	212,435,709	251,099,008	205,795,945	1.074	221,024,845	261,251,367	216,730,277	256,175,187	1.000
2019	143,949,817	1.422	204,696,640	234,787,046	186,445,230	1.112	207,327,096	237,804,179	206,011,868	236,295,613	1.000
2020	106,829,024	1.667	178,083,983	193,399,206	168,347,695	1.166	196,293,412	213,174,645	187,188,698	203,286,926	1.000
2021	81,703,806	2.449	200,092,621	206,695,677	158,746,945	1.257	199,544,910	206,129,892	199,818,766	206,412,785	1.000
2022	30,705,990	7.109	218,288,883	208,902,461	132,163,590	1.658	219,127,232	209,704,761	218,708,058	209,303,612	1.000

Notes: (25) = (23) x (24) (29) = (27) x (28) (31) = [0.50 x (25)] + [0.50 x (29)]  
 (26) = (25) x [(33) x (20)] (30) = (29) x [(33) x (20)] (32) = (31) x [(33) x (20)]

**Limited Medical Losses**

(34)	(35)	(36)	(37)	(38)	(39)	(40)	(41)	(42)	(43)	(44)	(45)
Accident Year	Paid			Paid + Case			Average Pd/P+C			Loss On-level Factor	
	Losses	Ultimate Development Factor	Ultimate Losses	Wage-Adj On-level Ult. Losses	Losses	Ultimate Development Factor	Ultimate Losses	Wage-Adj On-level Ult. Losses	Ultimate Losses		Wage-Adj On-level Ult. Losses
		Factor	Losses	Ult. Losses		Factor	Losses	Ult. Losses	Losses		Ult. Losses
2007	231,949,965	1.056	244,939,163	369,368,258	241,023,511	1.019	245,602,958	370,369,261	245,271,061	369,868,760	1.000
2008	246,353,395	1.059	260,888,245	375,679,073	256,794,106	1.017	261,159,606	376,069,833	261,023,926	375,874,453	1.000
2009	223,530,568	1.062	237,389,463	346,351,227	231,722,136	1.017	235,661,412	343,830,000	236,525,438	345,090,614	1.000
2010	226,806,327	1.065	241,548,738	346,622,439	234,523,826	1.017	238,510,731	342,262,899	240,029,735	344,442,670	1.000
2011	260,393,751	1.067	277,840,132	390,643,226	272,861,771	1.017	277,500,421	390,165,592	277,670,277	390,404,409	1.000
2012	239,334,618	1.069	255,848,707	347,954,242	245,302,859	1.011	248,001,190	337,281,618	251,924,949	342,617,931	1.000
2013	223,894,034	1.072	240,014,404	324,259,460	238,509,903	1.011	241,133,512	325,771,375	240,573,958	325,015,417	1.000
2014	237,506,285	1.078	256,031,775	335,657,657	253,075,549	1.007	254,847,078	334,104,519	255,439,427	334,881,089	1.000
2015	233,724,706	1.086	253,825,031	323,373,089	248,141,875	1.006	249,630,726	318,029,545	251,727,879	320,701,318	1.000
2016	252,642,205	1.096	276,895,857	348,888,780	282,943,892	1.010	285,773,331	360,074,397	281,334,594	354,481,588	1.000
2017	255,985,733	1.108	283,632,192	347,733,067	286,325,500	1.006	288,043,453	353,141,273	285,837,823	350,437,171	1.000
2018	265,879,857	1.124	298,848,959	353,239,470	299,954,194	1.009	302,653,782	357,736,770	300,751,371	355,488,121	1.000
2019	253,159,534	1.145	289,867,666	332,478,213	279,235,814	1.014	283,145,115	324,767,447	286,506,391	328,622,830	1.000
2020	211,276,105	1.182	249,728,356	271,204,995	253,924,427	1.006	255,447,974	277,416,500	252,588,165	274,310,747	1.000
2021	218,697,017	1.286	281,244,364	290,525,428	276,318,803	1.004	277,424,078	286,579,073	279,334,221	288,552,250	1.000
2022	129,196,581	2.320	299,736,068	286,847,417	257,099,518	1.176	302,349,033	289,348,025	301,042,551	288,097,721	1.000

Notes: (37) = (35) x (36) (41) = (39) x (40) (43) = [0.50 x (37)] + [0.50 x (41)]  
 (38) = (37) x [(45) x (20)] (42) = (41) x [(45) x (20)] (44) = (43) x [(45) x (20)]