

LOSS COSTS – IMPLEMENTATION

AUGUST 25, 2021

BUSINESSOWNERS

LI-BP-2021-096

## MISSOURI BUSINESSOWNERS ADVISORY PROSPECTIVE LOSS COST REVISION TO BE IMPLEMENTED; EXHIBITS PRESENTED IN EXCEL

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### KEY MESSAGE

Revised loss costs representing a combined +13.3% statewide change to be implemented.

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### UPGRADE TO WORD AND EXCEL DOCUMENTS

As previously noted, ISO is implementing changes to our authoring and delivery systems so that **newly created** documents will be delivered in Office 365 .docx/.xlsx format to be phased in by product/service. In addition to **form** documents, we are pleased to announce that during the third quarter 2021, you will be receiving **circular cover letter** and **Notice To Manualholders (NTM)** documents in .docx format delivered/accessed via Circulars, CLM, EFD, ERC, Filings, FIRST, Forms Library, PRM and Suite +. Changes continue for other document types to be phased in by product/service. Products impacted include, but are not limited to, documents delivered/accessed via Circulars, CLM, EFD, ERC, Filings, FIRST, Forms Library (including PolicyWriting Support Forms Instructional Supplement), PRM, Statistical Plans and Suite +.

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### BACKGROUND

In circular [LI-BP-2021-081](#), we provided you with information about the Businessowners loss cost experience review.

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### CONSIDERATION OF COVID-19

In anticipation of long-term behavioral, social and economic changes as a result of COVID-19, we expect, based on the information currently available, that those changes will have a modest but material impact on prospective loss costs for certain risks. In this filing, we have accounted for the impact that the COVID-19 pandemic had on the March-June 2020 data by adjusting the yearly weights used in the calculation of the statewide loss cost level indications for all Liability risks so that experience year 2020 receives less weight.

While there is still great uncertainty around COVID-19, the above referenced adjustment does not contemplate the possibility of widespread viral resurgence or the renewal of stay-at-home orders during the period in which the newly filed loss costs will be in effect. We have assumed that any recurrence of such extreme and unpredictable circumstances would generally be addressed, as appropriate, by individual carriers.

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### ISO ACTION

We are implementing BP-2021-RLA1, which presents a review of Businessowners loss cost experience. Refer to the attachment(s) for complete details.

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## IMPORTANT NOTE

### Change in Format

This circular offers several enhancements for customers. In addition to the PDF version, exhibits and loss cost tables are now available in user-friendly Excel format rather than Word. Where possible, exhibits are linked together formulaically to clarify how calculations flow through the entire ratemaking process and to enable customers to test the effects of different assumptions on the results.

To facilitate this change, the filing has been restructured. All explanatory text, for all sections of the filing, appears first; all exhibits and tables are grouped together and appear thereafter. Exhibits have been relabeled (Exhibit A1, Exhibit A2, etc.).

We invite customers to share feedback on this revised format and suggestions for further enhancements by contacting the individuals listed in the Contact Information block.

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## SUPPLEMENTARY INFORMATION

We are including a Missouri Supplement, which provides additional information on the loss cost level experience review.

NOTE: This supplementary information is **not** part of the experience review document and, in states where we are making a filing, is **not** part of the filing.

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## EFFECTIVE DATE

The ISO revision is subject to the following rule of application:

These changes are applicable to all policies written on or after March 1, 2022.

This effective date applies only to those insurers who have filed their Businessowners loss cost adjustments to be automatically applicable to future ISO loss cost revisions.

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## COMPANY ACTION

You must independently determine the final rates you will use. The action, if any, you must take in response to this filing is dependent upon how you filed to have your loss cost adjustments apply to subsequent revisions of ISO loss costs. Any submission you make with respect to this revision must comply with applicable regulatory filing requirements.

For guidance on submission requirements, consult the ISO State Filing Handbook.

WE WILL SUBMIT OUR REFERENCE FILING TO THE INSURANCE DEPARTMENT ON FEBRUARY 9, 2022. ANY SUBMISSION YOU MAY MAKE WITH THE INSURANCE DEPARTMENT WITH RESPECT TO THIS FILING SHOULD NOT BE SUBMITTED PRIOR TO THIS DATE.

In all correspondence with the Insurance Department on this revision, you should refer to ISO Filing Number **BP-2021-RLA1**, NOT this circular number.

CAUTION: This reference filing revises only certain advisory prospective loss costs for Businessowners in this state. In determining whether or not to revise your rates, you should consider the application of your loss cost adjustments to any loss costs not included in this revision.

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## RATING SOFTWARE IMPACT

No new attributes are being introduced with this revision.

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## POLICYHOLDER NOTIFICATION

If you decide to implement this revision, you should check all applicable laws for the state(s) to which this revision applies, to determine whether or not a specific policyholder notice requirement may apply. Please note that circular [LI-CL-2021-004](#) contains the ISO Guide To Renewals With Changed Conditions For Commercial Lines, which is available only as a guide to assist participating companies in complying with various conditional renewal statutes or regulations, for the major commercial lines of insurance serviced by ISO. The information in the Guide does not necessarily reflect all requirements or exceptions that may apply, and it is not intended as a substitute for your review of all applicable statutes and regulations concerning policyholder notification.

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## REVISION DISTRIBUTION

We will issue a Notice to Manualholders with an edition date of 3-22 (or the earliest possible subsequent date), along with any new and/or revised manual pages.

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## RELATED RULES REVISION

We are announcing in a separate circular the implementation of a corresponding rules revision. Please refer to the Reference(s) block for identification of that circular.

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## REFERENCE(S)

- [LI-BP-2021-097](#) (08/25/2021) Missouri Businessowners Rule 23. Revision To Be Implemented
- [LI-BP-2021-081](#) (07/09/2021) Businessowners Policy Experience Reviewed By Staff
- [LI-CL-2021-004](#) (02/17/2021) Revised Lead Time Requirements Listing

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## ATTACHMENT(S)

- Filing [BP-2021-RLA1](#)
- Missouri Supplement

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## FILES AVAILABLE FOR DOWNLOAD

To download all files associated with this circular, including attachments in the full circular PDF and/or any additional files not included in the PDF, search for the circular number on [ISOnet Circulars](#). Then click the Word/Excel link under the Full Circular column on the Search Results screen.

Please note that in some instances, not all files listed in the Attachment(s) block (if applicable) are included in the PDF.

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## DATA QUALITY

Statistical plan data reported to ISO is first processed through a system of rigorous automated data verification procedures so that only valid data would be used for ratemaking. Subsequent to this initial data submission review, additional analyses on the statistical plan data involving an even more customized data review for this line were performed by staff. During these processes, various data records were excluded from the review. The ISO staff responsible for this circular also reviewed the data for reasonableness.

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## ACKNOWLEDGMENT OF ACTUARIAL QUALIFICATIONS

The American Academy of Actuaries' "Qualifications Standards for Actuaries Issuing Statements of Actuarial Opinion in the United States" requires that an actuary issuing a Statement of Actuarial Opinion should include an acknowledgment with the opinion that he/she has met the qualification standards of the AAA. ISO considers this loss cost document a Statement of Actuarial Opinion; therefore, we are including the following acknowledgment:

I, Nancy A. Narisi, am a Senior Actuarial Associate of Strategic Actuarial Operations for ISO, and I, Michael Doyle, am an Actuarial Product Director for Specialty Lines for ISO. We are jointly responsible for the content of this Statement of Actuarial Opinion. We are both members of the American Academy of Actuaries and we meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinion contained herein.

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## ISO RISK ANALYZER®

The loss cost analysis in this circular is reflected in ISO Risk Analyzer®, a suite of predictive models that help with granular pricing of insurance risks. Risk Analyzer can provide loss costs for refined territories and classes, as well as feed custom modeling efforts. For more information, please visit [www.verisk.com/riskanalyzer](http://www.verisk.com/riskanalyzer).

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## CONTACT INFORMATION

If you have any questions concerning:

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Callers outside the United States, Canada, and the Caribbean may contact us using our global toll-free number (International Access Code + 800 48977489). For information on all ISO products, visit us at [www.verisk.com/iso](http://www.verisk.com/iso). To keep abreast of the latest Insurance Lines Services updates, view [www.verisk.com/ils](http://www.verisk.com/ils).

MISSOURI

ADVISORY LOSS COST LEVEL REVIEW - BUSINESSOWNERS  
FILING BP-2021-RLA1

EXECUTIVE SUMMARY

PURPOSE

This document:

- revises advisory prospective loss costs for the major Businessowners coverages. These loss costs represent a combined +13.3% statewide change from the current loss costs for all classes.
  - provides the analyses used to derive these advisory loss costs.
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DEFINITION OF  
THE ISO  
ADVISORY  
PROSPECTIVE  
LOSS COST

Advisory prospective loss costs in this document are the expected value of that portion of a rate that does not include provisions for expenses (other than loss adjustment expenses) or profit, and are based on historical aggregate losses and loss adjustment expenses adjusted through development to their ultimate value (for liability) and projected through trending to a future point in time.

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CONSIDERATION  
OF COVID-19

In anticipation of long-term behavioral, social and economic changes as a result of COVID-19, we expect, based on the information currently available, that those changes will have a modest but material impact on prospective loss costs for certain risks. In this filing, we have adjusted the yearly weights used in the calculation of the statewide loss cost level indications for all Liability risks so that experience year 2020 receives less weight. This adjustment was made because the March-June 2020 data was particularly impacted by the COVID-19 pandemic, causing the experience year to be less representative of the loss exposure that can be expected in the prospective period.

While there is still great uncertainty around COVID-19, the above referenced adjustment does not contemplate the possibility of widespread viral resurgence or the renewal of stay-at-home orders during the period in which the newly filed loss costs will be in effect. We have assumed that any recurrence of such extreme and unpredictable circumstances would generally be addressed, as appropriate, by individual carriers.

MISSOURI

ADVISORY LOSS COST LEVEL REVIEW - BUSINESSOWNERS  
FILING BP-2021-RLA1

EXECUTIVE SUMMARY

LOSS COST  
LEVEL CHANGES

The statewide indicated and filed loss cost level changes are:

	<u>Indicated</u>	<u>Filed</u>
Lessors/Occupants	- 3.9%	- 3.2%
Sales	- 7.0%	- 7.0%
Payroll	+ 4.9%	- 1.2%
Liability Sub-Total	- 4.8%	- 4.3%
Property Sub-Total	+15.3%	+15.3%
TOTAL	+13.2%	+13.3%

Indicated and filed loss cost level changes are changes from the current loss costs.

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INDICATED VS  
FILED

Indicated and filed statewide changes may differ due to the rounding of the filed territory loss costs and the territory weights used to calculate the statewide loss cost level changes. The filed Payroll change includes an adjustment factor of 0.942 to introduce the change in payroll amount for executive officers, individual insureds or copartners from companion filing BP-2020-RPAY on a revenue neutral basis.

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REVISION OF  
EXECUTIVE OFFICERS,  
INDIVIDUAL INSUREDS  
AND CO-PARTNERS  
PAYROLL AMOUNTS  
(RULE 23)

This filing reflects revisions being made to Rule 23 in the companion rule filing BP-2020-RPAY. In determining the exposure amounts for payroll-based risks, the payroll amounts to be used for executive officers, individual insureds and copartners are subject to Rule 23.B.8.a.(2)(c). In the companion rule filing, the current payroll amounts are being increased by 25% relative to the current amounts for Missouri. An offset of 0.942 has been applied to the loss costs for payroll-based classes to introduce the change on a revenue neutral basis.

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HISTORICAL SOURCE  
DATA

The data used in this review is based on accident year experience through 6/30/2020 (evaluated as of 9/30/2020) of ISO reporting companies.

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WINDSTORM OR HAIL  
EXCLUSION CREDITS

The windstorm or hail exclusion credits shown on Table 29.A.39.d.(LC) in Section D are calculated by taking a percentage of the base loss cost. This percentage is based on the ratio of adjusted wind and hail losses to adjusted total property losses.

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MISSOURI

ADVISORY LOSS COST LEVEL REVIEW - BUSINESSOWNERS  
FILING BP-2021-RLA1

EXECUTIVE SUMMARY

PRIOR ISO  
REVISIONS

The latest loss cost revisions in this state are:

<u>Filing</u>	BP-2020-RLA1	BP-2019-RLA1	BP-2018-RLA1
<u>Dates</u>			
Effective Date	3/1/2021	3/1/2020	2/1/2019
<u>Changes</u>			
Indicated	+ 8.9%	- 5.5%	+ 3.5%
Filed	+ 9.0%	- 4.8%	+ 3.6%
Implemented	+ 9.0%	- 4.8%	+ 3.6%

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FORMAT

In this document, all explanatory material appears first, followed by all exhibits and the revised prospective loss cost pages. Explanatory pages are numbered BP-1 through BP-40, and exhibits are labeled Exhibit A1 through D1. The revised loss cost pages are numbered BP-41-42.

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ADJUSTMENTS  
TO REPORTED  
EXPERIENCE

To adjust the loss and exposure data to levels expected to prevail during the period when the revised loss costs will be in effect, historical losses and exposures have been multiplied by trend factors. These trend factors are based on the changes in claim cost, claim frequency and inflation sensitive exposure base that are expected to arise between the historical experience period and prospective period during which the revised loss costs will be in effect.

Standard actuarial procedures have been used in calculating the loss costs including adjusting the liability losses to ultimate settlement level and for all coverages, reflecting all loss adjustment expenses. In addition, smoothing procedures have been applied to recognize the potential for large or excess losses.

To trend losses and exposures to a future level, a prospective effective date must be assumed. In this review, the assumed effective date is December 1, 2021.

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MISSOURI

ADVISORY LOSS COST LEVEL REVIEW - BUSINESSOWNERS  
FILING BP-2021-RLA1

EXECUTIVE SUMMARY

TEN LARGEST  
GROUPS IN ISO  
DATABASE

Insurers are listed in descending order based on the percent of statewide Businessowners written premium volume from ISO's 2019 Premium Reporting Form. The Premium Reporting Form is submitted by all companies affiliated to report statistics to ISO. This list does not necessarily correspond to the ten largest groups included in the calculation of the statewide advisory loss cost level changes shown on Exhibits B1-1 and B1-2.

1. The Travelers Companies, Inc.
2. AMCO Insurance Company
3. Acuity, A Mutual Insurance Company
4. Columbia Insurance Group
5. Country Mutual Insurance Company
6. Commercial Insurance-Business Insurance
7. Guard Insurance Group
8. State Auto Property & Casualty Company
9. United Fire & Casualty Companies
10. Federated Insurance Companies

SIZE OF ISO  
DATABASE

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The market share of ISO participating insurers cannot be measured by Annual Statement Page 15 written premium because Businessowners data is combined with Commercial Package Policy data. The market share of ISO participating insurers as measured by the Premium Reporting Form written premium for the year ending 12/31/2019 is:

Businessowners: 45.5%

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MISSOURI

ADVISORY LOSS COST LEVEL REVIEW - BUSINESSOWNERS  
FILING BP-2021-RLA1

EXECUTIVE SUMMARY

COMPANY  
DECISION

We encourage each insurer to decide independently whether the judgments made and the procedures or data used by ISO in developing the loss costs contained herein are appropriate for its use. We have included within this document the information upon which ISO relied in order to enable companies to make such independent judgments.

The data underlying the enclosed material comes from companies reporting to Insurance Services Office, Inc. Therefore, the ISO experience permits the establishment of a much broader statistical ratemaking base than could be employed by using any individual company's data. A broader data base enhances the validity of ratemaking analysis derived therefrom. At the same time, however, an individual company may benefit from a comparison of its own experience to the aggregate ISO experience, and may reach valid conclusions with respect to the manner in which its own costs can be expected to differ from ISO's projections based on the aggregate data.

Some calculations included in this document involve areas of ISO staff judgment. Each company should carefully review and evaluate its own experience in order to determine whether the ISO advisory loss costs are appropriate for its use.

The material has been developed by the staff of Insurance Services Office, Inc.

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MISSOURI  
BUSINESSOWNERS  
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SECTION A: SCOPE OF REVISION

EXHIBIT A1

LOSS COST LEVEL CHANGE SUMMARY

Please refer to **Exhibit A1** for a summary of Aggregate Loss Costs at Current Level and Filed Loss Cost Level Changes.

Aggregate loss costs at current level are for year ending 6/30/2020 and based on ISO staff developed loss costs contained in the latest implemented filing.

EXHIBIT A2

LOSS COST LEVEL CHANGES

Please refer to **Exhibit A2** for a comparison of Aggregate Loss Costs at Current Level and Filed Loss Cost Level Changes by Territory for Property and Liability, and on a multistate basis for Sales and Payroll.

Aggregate loss costs at current level are for year ending 6/30/2020 and based on ISO staff developed loss costs contained in the latest implemented filing.

EXHIBIT A3

PRESENT AND REVISED LOSS COSTS

Please refer to **Exhibit A3** for the Present and Revised Base Loss Costs.

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SECTION B: CALCULATION OF CHANGES

OVERVIEW OF ISO ACTUARIAL PROCEDURES

INTRODUCTION

Businessowners advisory prospective loss costs are determined by evaluating the adequacy of the current loss costs to pay for our best estimate of losses and all loss adjustment expenses that will be incurred in the prospective (or future) period.

STEP 1:  
CALCULATION  
OF STATEWIDE  
LOSS COST  
INDICATION

The first step in this process is the calculation of the statewide loss cost indication. In other words, what percentage change on average must be made to the current loss costs in order to achieve adequacy for the prospective conditions? The percentage changes are presented in **Exhibits B1-1** through **B1-4**. For Liability, separate calculations are done for classes with amount of insurance, sales, and payroll exposure bases. For sales and payroll classes, the loss cost indication is based on multistate data due to the paucity of data on a statewide basis.

STEP 2:  
RELATIVE CHANGE  
ANALYSIS OF  
STATEWIDE LOSS COST  
INDICATION

For Property, ISO calculates relative changes by territory and coverage using a minimum bias iterative technique. For Liability, an equivalent technique is used to calculate relative changes by territory and by lessors vs. occupants. For further explanation of this minimum bias technique, refer to the "Explanatory Notes To Relative Change Analysis" in Section B.

STEP 3:  
APPLICATION OF  
PERCENTAGE  
CHANGES

The last step is the calculation of the advisory prospective loss costs. For Liability sales and payroll, this is achieved by simply applying the indicated changes to the current loss costs. For Property and Liability lessors/occupants, this is achieved by applying the product of the indicated changes and the combined relativity changes to the current loss costs. Percent changes for individual loss costs may be capped to mitigate loss cost swings. (See footnotes for **Exhibit A2** for a description of the capping, if any, for individual loss costs.) If capping is applied, a "build-back" factor is utilized to ensure that the selected overall changes for property and liability are achieved. After the build-back procedure is completed, the resulting loss costs are displayed in Section D.

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SECTION B: CALCULATION OF CHANGES  
OVERVIEW OF ACTUARIAL PROCEDURES

STEP 1 - CALCULATION OF STATEWIDE ADVISORY  
LOSS COST LEVEL CHANGES

OBJECTIVE	The objective of this procedure is to determine the indicated statewide advisory loss cost level change. This procedure answers the question: what percentage change must be made on average to the current loss costs in order for them to be adequate to cover indemnity losses and all associated loss adjustment expenses incurred in the prospective period in which the revised loss costs will be used?
DESCRIPTION	This procedure compares the developed (for liability) and trended incurred losses and loss adjustment expenses with the aggregate loss costs at current loss cost level, which is the aggregate amount that would have been collected if the current loss costs were used during the experience period. This experience ratio (losses and all loss adjustment expenses divided by aggregate loss costs) is calculated for five years and a weighted average is calculated. The average experience ratio is then credibility-weighted with an expected experience ratio in order to minimize the impact of random variation in the observed losses. This credibility-weighted experience ratio is the indicated statewide advisory loss cost level change in decimal form.
EXPERIENCE INCLUDED	The review of the statewide loss cost level is based on the latest available experience on Businessowners policies reported to ISO under the Commercial Statistical Plan (CSP) and the Commercial Minimum Statistical Plan (CMSP). In this review we have used accident year data through June 30, 2020 evaluated as of September 30, 2020.
EXPERIENCE EXCLUDED	Experience reported on miscellaneous coverages such as Employee Dishonesty, Outdoor Signs, Glass, Money and Securities and Hired and Non-Owned Auto Liability is not part of this review. Liability indemnity loss experience in excess of the \$300,000 basic coverage has also been excluded from the review.

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BUSINESSOWNERS  
SECTION B: CALCULATION OF CHANGES

CALCULATION OF STATEWIDE ADVISORY  
LOSS COST LEVEL CHANGES

Exhibit B1

CALCULATION OF STATEWIDE ADVISORY LOSS COST LEVEL  
CHANGE

Please refer to **Exhibits B1-1** through **B1-4** for the calculations of the prospective loss cost level changes for Property, Liability Lessors/Occupants, Liability Sales, and Liability Payroll, respectively. Explanatory notes for **Exhibit B1** follow.

COLUMN (1)

AGGREGATE LOSS COSTS AT CURRENT LEVEL

In this analysis, aggregate loss costs at current level are calculated by re-rating each policy premium transaction using the current manual loss costs and applicable rating variables such as territory, occupancy and building construction, and the number of exposures (buildings or contents amount of insurance in hundreds of dollars, sales and payroll in thousands of dollars). Where appropriate, certain reported data elements have been adjusted prior to being used in the calculations. In addition, exposures are trended using exposure trend factors developed from Commercial Property and General Liability data as shown in Section C.

COLUMN (2)

INCURRED LOSSES AND LOSS ADJUSTMENT EXPENSES

The incurred losses displayed are losses including all loss adjustment expenses and trend, and for liability are developed to an ultimate settlement basis. Where appropriate, certain reported data elements have been adjusted prior to being used in the calculations. In this review, the assumed effective date for trending purposes is December 1, 2021.

Businessowners losses are adjusted separately by type of loss, descriptions of which are provided in Section C. Adjustment procedures are summarized below, and details regarding the loss adjustment procedures by type of loss group can be found in Section C.

Property losses are trended and loaded for all loss adjustment expenses. Large losses are smoothed using the method appropriate for the type of loss.

Liability losses are trended, loaded for unallocated loss adjustment expenses, and adjusted to their ultimate settlement value by application of loss development factors. Businessowners basic limits coverage includes \$300,000 for liability. Therefore, liability losses greater than \$300,000 are excluded from this analysis. Losses between \$50,000 and \$300,000 are smoothed by replacing actual excess losses with expected excess losses.

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BUSINESSOWNERS  
SECTION B: CALCULATION OF CHANGES

CALCULATION OF STATEWIDE ADVISORY  
LOSS COST LEVEL CHANGES

COLUMN (3)

EXPERIENCE RATIO

The experience ratios in this column are calculated by dividing the incurred losses and loss adjustment expenses in column (2) by the aggregate loss costs at current level in column (1).

COLUMNS (3a)-(3d)

PARTIAL EXPERIENCE RATIOS

Partial experience ratios are displayed for each of the four Property type of loss groups. These partial experience ratios are calculated by taking the ratio of the incurred losses and loss adjustment expenses in each of the groups to the indivisible aggregate loss costs at current level in column (1). Because all these ratios are rounded, the sum of the partial experience ratios in columns (3a) to (3d) may not exactly equal the total experience ratio in column (3).

Line (4)

WEIGHTED EXPERIENCE RATIO

For Property, the experience ratios shown in column (3) are weighted using weights of .10, .15, .20, .25 and .30 from earliest to most recent accident year.

For Liability Lessors/Occupants, Sales and Payroll, the experience ratios shown in column (3) are weighted using the weights of .10, .15, .20, .275 and .275 from earliest to most recent accident year. The weights have been adjusted for Liability risks to account for the impact of the COVID-19 pandemic on the March-June 2020 data, so that experience year 2020 receives less weight.

Line (5)

CREDIBILITY

Credibility is based on the five-year number of earned risks. See "Explanatory Notes to Relative Change Analysis" in Section B.

Line (6)

EXPECTED EXPERIENCE RATIO

The expected experience ratio is our best prediction of the experience ratio if the most recent data was not available. For this review we have assumed that the current loss costs were adequate when implemented and will be inadequate for the prospective period to the extent of the net trend. The net trend is calculated as the combined trend factor (loss trend/premium trend) projected for the number of years between the last revision (or review) and this revision. See **Exhibit B3**.

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BUSINESSOWNERS  
SECTION B: CALCULATION OF CHANGES

CALCULATION OF STATEWIDE ADVISORY  
LOSS COST LEVEL CHANGES

Line (7) CREDIBILITY WEIGHTED EXPERIENCE RATIO

The credibility weighted experience ratio is calculated using the formula:

$$(WER)(Z) + (EER)(1 - Z)$$

where WER = Weighted Experience Ratio

Z = Credibility Factor

EER = Expected Experience Ratio

Line (8) INDICATED LOSS COST LEVEL CHANGE

The indicated statewide loss cost level change is equal to the credibility weighted experience ratio. The indication is converted to a percentage by subtracting one, and multiplying by 100.

Line (9) SELECTED LOSS COST LEVEL CHANGE

The selected loss cost level change is equal to the indicated loss cost level change.

The selected loss cost level change for Payroll includes an offset factor of 0.942 to introduce the changes in payroll amount for executive offices, individual insureds or co-partners on a revenue neutral basis.

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BUSINESSOWNERS

SECTION B: CALCULATION OF CHANGES

OVERVIEW OF ACTUARIAL PROCEDURES

STEP 2 - RELATIVE CHANGE ANALYSIS

OBJECTIVE	The objective of this procedure is to determine the indicated changes to the Businessowners' territory and coverage relativities for property as well as the indicated changes to the territory and lessors/occupant relativities for liability.
EXPERIENCE BASE	The review is based on Businessowners state data for five policy years ending 6/30/2020. Losses were trended and developed to an ultimate settlement basis.
SIMULTANEOUS DETERMINATION OF RATING VARIABLE RELATIVE CHANGES	Once the aggregate loss costs at current level and incurred losses used in the analysis have been appropriately adjusted, experience ratios are calculated by dividing the trended and developed losses by the aggregate loss costs at current level for each rating variable. A Bailey's minimum bias iterative procedure, the two-dimensional balance principle multiplicative model, is used to calculate the relative changes for each rating variable. The purpose of the simultaneous review procedure is to arrive at a set of relative changes for each rating variable that best represent the experience by minimizing the errors between actual and estimated relativity changes.
RATING VARIABLES USED	The rating variables used in the relative change analysis are as follows:  Property - territory and coverage Liability - territory and lessors/occupant
ITERATIVE PROCEDURE	The iterative technique referred to in the previous paragraph solves for a set of relative changes for each rating variable based on the experience for the cells. This experience is based on the experience ratio and latest year adjusted aggregate loss cost volume for each combination of rating variables relative to the experience ratio and adjusted aggregate loss cost volume for all combinations or rating variables combined. Specifically, the iterative procedure uses the following formulas:

For Property:

$$TERR_i = \frac{\sum_j W_{ij} R_{ij}}{\sum_j W_{ij} COV_j}$$

$$COV_j = \frac{\sum_i W_{ij} R_{ij}}{\sum_i W_{ij} TERR_i}$$

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BUSINESSOWNERS

SECTION B: CALCULATION OF CHANGES

OVERVIEW OF ACTUARIAL PROCEDURES

STEP 2 - RELATIVE CHANGE ANALYSIS (cont'd)

ITERATIVE  
PROCEDURE (Cont'd)

Where:

$$1 \leq i \leq m \quad \text{And} \quad 1 \leq j \leq 2,$$

TERR<sub>i</sub> = the relative change for the i<sup>th</sup> territory,

COV<sub>j</sub> = the relative change for the j<sup>th</sup> coverage,  
where j=1 is buildings and j=2 is contents.

W<sub>ij</sub> = the aggregate loss cost at current level (ALCCL),

R<sub>ij</sub> = the loss ratio relativities for the i<sup>th</sup> territory and  
j<sup>th</sup> coverage,

m = the number of territories in the analysis.

For Liability:

$$\text{TERR}_i = \frac{\sum_j W_{ij} R_{ij}}{\sum_j W_{ij} \text{EIND}_j}$$

$$\text{EIND}_j = \frac{\sum_i W_{ij} R_{ij}}{\sum_i W_{ij} \text{TERR}_i}$$

Where:

$$1 \leq i \leq m \quad \text{And} \quad 1 \leq j \leq 2,$$

TERR<sub>i</sub> = the relative change for the i<sup>th</sup> territory,

EIND<sub>j</sub> = the relative change for the j<sup>th</sup> exposure indicator,  
where j=1 is lessors and j=2 is occupant.

W<sub>ij</sub> = the aggregate loss cost at current level (ALCCL),

R<sub>ij</sub> = the loss ratio relativities for the i<sup>th</sup> territory and j<sup>th</sup>  
exposure indicator,

m = the number of territories in the analysis.

## MISSOURI

### BUSINESSOWNERS

#### SECTION B: CALCULATION OF CHANGES

##### OVERVIEW OF ACTUARIAL PROCEDURES

###### STEP 2 - RELATIVE CHANGE ANALYSIS (cont'd)

###### ITERATIVE PROCEDURE (Cont'd)

For example, for property the procedure starts by inserting the actual relative changes for territory into the second formula to get a coverage relative change. This result is then entered into the first formula to get a new territory relative change. The process continues on until there is no appreciable difference from one iteration to the next. After completion of all iterations, the relative changes are balanced to assure that the average relativity change across all rating variables remains at unity.

###### APPLICATION OF CREDIBILITY

Consideration is then given to the credibility of experience for each rating variable using the following classic credibility formula:

$$Z = \sqrt{\frac{P}{K}}$$

Where:

P is the five-year aggregate earned risks;  
K is the full standard credibility.

The partial credibility standards for property and liability respectively are:

$$Z = \sqrt{P/455,800} \quad \& \quad Z = \sqrt{P/651,890}$$

Credibility-weighted relative changes are then calculated as follows:

$$W = R^z \text{ where:}$$

Z is the credibility,

R is the minimum bias relative change,

W is the credibility-weighted relative change for a given rating variable

###### CALCULATION OF FINAL RELATIVE CHANGES

Once again rebalancing is used to assure the credibility-weighted relativity changes remain at unity across all rating variables. This process results in the indicated relative changes for both territory and coverage within property, and for both territory and lessors/occupant within liability.

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BUSINESSOWNERS  
SECTION B: CALCULATION OF CHANGES

RELATIVE CHANGE ANALYSIS (cont'd)

Exhibit B2

Calculation of Relative Changes

Please refer to **Exhibits B2-1** and **B2-2** for the calculations of the relative changes for Property and Liability, respectively. Explanatory notes for **Exhibit B2** follow below.

COLUMN (1)

AGGREGATE LOSS COSTS AT CURRENT LEVEL

Aggregate loss costs at current level are calculated in the same way as described in the explanatory notes to **Exhibit B1**.

COLUMN (2)

INCURRED LOSSES AND LOSS ADJUSTMENT EXPENSES

The incurred losses and loss adjustment expenses are the same as those described in the explanatory notes to **Exhibit B1**.

COLUMN (3)

EXPERIENCE RATIO

The experience ratios in this column are calculated by dividing the incurred losses and loss adjustment expenses in column (2) by the aggregate loss costs at current level in column (1).

COLUMNS (4)

EXPERIENCE RELATIVITY

The experience relativities in this column are calculated by dividing each experience ratio in column (3) by the total experience ratio in column (3).

COLUMNS (5)

MINIMUM BIAS RELATIVE CHANGE

The relative changes in this column are the final balanced results of the relative change iterative process as described in the "Explanatory Notes to Relative Change Analysis" in Section B.

COLUMNS (6)

EARNED RISKS

This is the number of earned risks in the state for the five-year period ending June 30, 2020.

COLUMNS (7)

CREDIBILITY

Credibility is based on the five-year number of earned risks. See "Explanatory Notes to Relative Change Analysis" in Section B.

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SECTION B: CALCULATION OF CHANGES

RELATIVE CHANGE ANALYSIS (cont'd)

COLUMNS (8) CREDIBILITY WEIGHTED CHANGE

The credibility change is calculated using the formula:

$$W = R^z$$

Where:

Z is the credibility,

R is the minimum bias relative change,

W is the credibility-weighted relative change for a given rating variable.

COLUMNS (9) BALANCED CHANGE

The balanced change is the rebalancing of the credibility weighted changes to assure that the average relative change for each rating variable remains at unity.

COLUMNS (10) FINAL BALANCED INDICATED CHANGES

The final balanced indicated changes are the result of multiple rebalancing iterations.

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BUSINESSOWNERS

SECTION C: SUPPORTING MATERIAL

CALCULATION OF ADJUSTED PROPERTY LOSSES

DEFINITIONS OF TYPE  
OF LOSS GROUPS

Each Businessowners property loss is assigned to one of the following type of loss groups: fire, extended coverage, all other property or burglary and theft.

Fire losses are defined as losses due to fire, lightning and removal that cause property damage to buildings, property damage to contents and time element losses.

Extended coverage (EC) losses are losses causing property damage to buildings, property damage to contents and time element losses due to wind and hail, explosion, riot, riot attending a strike and civil commotion, and vandalism and malicious mischief.

All other property (AOP) losses are losses due to sprinkler leakage and all other insurable perils which cause property damage to the building, property damage to the contents or time element losses. Included in this type of loss group are losses due to water damage, freezing, vehicles, aircraft and smoke.

Burglary and theft losses are losses due to burglary, theft and robbery of property other than money and securities. This includes time element losses and losses resulting from property damage to contents.

Businessowners property losses are adjusted separately by type of loss group.

ADJUSTMENT  
OF PROPERTY  
LOSSES

All property losses are trended, and large losses are smoothed based on the procedure appropriate for the type of loss. Trended and smoothed losses are loaded for all loss adjustment expenses.

## MISSOURI

### BUSINESSOWNERS CALCULATION OF ADJUSTED PROPERTY LOSSES

#### LOSS TREND

#### CALCULATION OF TRENDED PROPERTY INCURRED LOSSES

For the fire, extended coverage and all other property type of loss groups, building and contents losses are trended separately using the Current Cost Factors, Loss Projection Factors and Loss Trend Adjustments. These factors are summarized in **Exhibit C1**. Burglary and theft losses are trended using the internal annual rates of change. The calculations of all loss trend factors are detailed below.

Since cost changes affect the whole loss (loss to the insured) and not just the loss net of the deductible, the deductible must be included in the trend calculation. Since this review tests aggregate loss costs and incurred losses at the standard \$500 deductible level, this calculation varies based on the reported deductible amount.

#### CALCULATION OF LOSS TREND FACTORS

For the fire, extended coverage and all other property type of loss groups, the loss trend factors are referred to as Current Cost Factors (CCFs) and Loss Projection Factors (LPFs). These factors are based on the following external economic indices:

1. Xactware Commercial Index (XCI) for buildings loss projection factors and current cost factors beginning 1/1/08
2. Producer Price Index (PPI) published by the US Department of Labor (Finished Goods Less Energy, Not Seasonally Adjusted) for contents factors

The CCFs adjust losses for inflationary changes, as measured by the external indices, which have taken place between the actual accident date and the midpoint of the latest period of external trend information. The LPF adjusts losses for projected inflationary changes from the midpoint of the latest period of external trend information to the anticipated average accident date for policies written under the proposed loss costs (assumed to be 12.0 months after the assumed revision date). For external trend purposes, the CCF's and LPF's in **Exhibit C3** are calculated annually to correspond with other components of the external trend that are calculated annually.

The most recent CCFs and LPFs are calculated in **Exhibit C2**. Due to the historical volatility of the PPI index, the CCFs for contents were calculated as ratios of the weighted average of the latest two PPI points to the average annual indexes. The weights assigned to the latest PPI points for the purpose of this calculation are 67% to the latest point and 33% to the earliest point. This procedure should enhance stability of the contents CCFs.

Since the CCFs and LPFs are calculated separately for buildings and contents coverages and the losses reported under CSP and CMSP are adjusted on an individual occurrence basis, the building trend factors are applied to building losses and the contents trend factors to business personal property losses.

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BUSINESSOWNERS

CALCULATION OF ADJUSTED PROPERTY LOSSES

EXTERNAL LOSS TREND

CURRENT COST FACTORS AND LOSS PROJECTION FACTORS

Exhibit C2

Development of Current Cost Factors and Loss Projection Factors

Please refer to **Exhibit C2** for the development of the current cost factors and loss projection factors. Explanatory notes for **Exhibit C2** follow below.

PART A: QUARTERLY XACTWARE AND PRODUCER PRICE INDICES

XCI

The Xactware Commercial Index, based on Xactware's XactAnalysis reports, measures the costs of building material and repairs for commercial properties. The index, which has been available since 2nd Quarter 2005, is being used by ISO to calculate trends in building costs. The Xactware index is based on regular surveys of nearly 25,000 material and equipment suppliers and contractors, in addition to claims settlement data. The index values are created by estimating the cost to rebuild a sample set of different structures ranging in size, style, and quality in each economic market. The Xactware index is used in this filing to adjust for current cost from in determining the loss projection factor.

PPI

The Producer Price Index is a time series which measures the price level for a predetermined group of goods produced in all stages of processing relative to the price level for an earlier point in time (which is denoted the base and is currently 2008). There are many sub-indices which comprise the PPI, however the composite index based on the weights assigned by the U.S. government is used.

PART B: CALCULATION OF CURRENT COST FACTORS (CCFs)

FISCAL YEAR  
AVERAGES

The fiscal year averages are simply the means of the appropriate quarterly indices for the given fiscal years ending June 30. These measure the average cost level of the year relative to the base year.

CURRENT COST  
FACTORS

The current cost factors are the ratios of the indices for the latest period of cost information divided by the fiscal year average indices for each year. These factors measure the changes in cost levels which have occurred from the midpoint of the given year to the latest point of cost information; in this regard they represent average factors which would result if each year's losses were distributed evenly throughout the year.

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BUSINESSOWNERS

CALCULATION OF ADJUSTED PROPERTY LOSSES

EXTERNAL LOSS TREND

CURRENT COST FACTORS AND LOSS PROJECTION FACTORS (cont'd)

PART C: COMPUTATION OF LOSS PROJECTION FACTORS

LOSS PROJECTION  
FACTORS

This part of the table shows the calculation of the Loss Projection Factors. This is done by fitting a least squares exponential curve to the quarterly points. For this review, 12 points are used for buildings, and 12 points are used for contents.

The indices for the points used in fitting the curve are displayed in Part A. The annual rates of change in the indices based on the exponential fit are displayed in Part C. These annual rates of change are projected over the period which extends from the latest period of cost information to the average accident date in order to calculate the respective Loss Projection Factors.

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BUSINESSOWNERS  
CALCULATION OF ADJUSTED PROPERTY LOSSES  
EXTERNAL LOSS TREND

DEVELOPMENT OF LOSS TREND ADJUSTMENTS

Exhibit C3

Development of Loss Trend Adjustments

Please refer to **Exhibit C3** for the development of the loss trend adjustments. Explanatory notes for **Exhibit C3** follow below.

I. EXTERNAL RATE OF CHANGE

COLUMN (1)

WEIGHTS

The selected weights are the same for each type of loss group.

COLUMN (2)

CURRENT COST FACTORS (CCF)

The CCFs are shown here for buildings and contents.

LINE (3)

AVERAGE CCFs

The average CCFs for the experience period are calculated based on the weights shown in column (1).

LINE (4)

LOSS PROJECTION FACTORS

The annual rate of change, projection period in years (Exponent), and LPF are shown here.

LINE (5)

TOTAL TREND

The total trend is the product of the average CCF and LPF. The total trend is converted to an annual basis by raising it to the reciprocal of the number of years between the weighted midpoint of the experience period and the assumed average accident date. For Fire, EC and AOP the weighted midpoint of the experience period is 4/1/2018. Accordingly, there are 53 months to the assumed average accident date of 9/1/2022.

II. INTERNAL ANNUAL RATES OF CHANGE

COLUMN (6)

SELECTED BOP

The displayed annual rates of change in the average claim costs for Fire, EC, and AOP were selected based on several least squares exponential fits of the annual claim costs for each type of loss group. This was done to the most recent nine years of Businessowners data. Refer to **Exhibits C4-1** through **C4-6** for the least squares exponential fits.

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BUSINESSOWNERS

CALCULATION OF ADJUSTED PROPERTY LOSSES  
EXTERNAL LOSS TREND

DEVELOPMENT OF LOSS TREND ADJUSTMENTS (cont'd)

III. LTA CALCULATION

COLUMN (7)

ANNUAL EXTERNAL

The annual external rates of change from line (5c) are shown here.

COLUMN (8)

ANNUAL INTERNAL

The annual internal rates of change in average loss from column (6) are shown here.

COLUMN (9)

INDICATED LTA

The indicated severity LTAs are calculated by dividing the annual internal rates of change by the annual external rates of change.

COLUMN (10)

FORMULA LTA

The severity LTAs in column (10) were selected to temper the full effect of internal trend data. Without such tempering, full weight would in effect be given to the internal data without any consideration of the external cost indices.

COLUMN (11)

FREQUENCY EFFECT

The displayed annual rates of change in claim frequency for Fire, EC and AOP were selected based on several least squares exponential fits of the claim frequency by type of loss group.

COLUMN (12)

FINAL LTA

The final LTA is the combination of the severity and frequency trend adjustments, calculated as column (10) times column (11).

## MISSOURI

### BUSINESSOWNERS

#### CALCULATION OF ADJUSTED PROPERTY LOSSES

##### INTERNAL LOSS TREND

##### CALCULATION OF LOSS TREND ADJUSTMENTS

An evaluation of the latest Businessowners insurance data shows that the cost and frequency levels inherent in these coverages are changing at a different rate than those measured by the external indices. Therefore, to insure adequate loss cost levels during the period for which loss costs are to be determined, Loss Trend Adjustments (LTAs) have been applied. These factors were developed by comparing the annual rates of change in the internal and external indices. (Refer to **Exhibit C3** for the underlying data and calculations). The LTAs vary by coverage (building vs. contents) and type of loss.

The method of internal trend determination utilized in this review makes use of the Least Squares Method fitted to the reported time series data; specifically, an exponential curve represented by the equation  $Y = Ae^{BX}$  is fitted to the occurrence cost and occurrence frequency data. The parameters A and B are calculated constants; x is the unit of time; e is the natural logarithm base with a numerical value of 2.7182818...; and Y is the fitted value on the curve. The occurrence cost and occurrence frequency curves are determined from the latest 10 year-ended experience periods. The historical data and the selected internal annual rates of change are shown in **Exhibits C4-1** through **C4-7**.

The method used to determine internal trend is applied to all property losses.

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### BUSINESSOWNERS

#### CALCULATION OF ADJUSTED PROPERTY LOSSES

##### PROPERTY LARGE LOSS AND EXCESS PROCEDURES

###### LARGE LOSS SMOOTHING PROCEDURE

If left untreated, the presence or absence of large losses during the review period can produce significant fluctuations in loss cost levels. Consequently, to develop a more stable body of experience, the property loss experience has been smoothed. The smoothing procedure differs based on type of loss group.

###### FIRE LARGE LOSS PROCEDURE

For the fire type of loss group, this smoothing is accomplished by removing the excess portion of every loss occurrence from the unadjusted experience and applying multistate excess loss factors to the resultant aggregate state normal losses. The adjusted incurred losses developed in this manner replace the unadjusted incurred losses in the loss cost level evaluation.

The first step in the smoothing procedure is the extraction of the large fire loss experience from the trended loss experience. Individual occurrence amounts that result from the same occurrence are grouped together, and when the sum of these occurrences exceeds \$50,000 at average 1985 cost levels, the total loss is identified as a large loss. Each large loss is then split into its normal and excess portions based on a variable normal loss cutoff; that is, the procedure employs a minimum normal breakpoint of \$50,000, which increases, with the size of loss (for losses greater than \$50,000) up to a maximum normal amount (approached asymptotically) of \$250,000.

Specifically, the formula used to calculate the normal losses is:

$$y = b[1 - [(b-c)^2/b] / [x - (2c-b)]]$$

where:      b = the maximum normal amount = \$250,000  
              c = the normal break point = \$50,000  
              y = normal loss  
              x = total loss

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BUSINESSOWNERS

CALCULATION OF ADJUSTED PROPERTY LOSSES

PROPERTY LARGE LOSS AND EXCESS PROCEDURES (cont'd)

FIRE LARGE LOSS  
PROCEDURE (cont'd)

As noted above, the excess loss procedure is performed on trended loss experience (i.e., loss experience adjusted to prospective cost levels by the CCFs, LPFs and severity LTAs). Since the normal breakpoint of \$50,000 and the other parameters in the normal loss formula are at 2008 cost levels, they have been similarly adjusted to prospective cost levels.

For each adjusted large loss, the portion exceeding the cutoff is considered excess and the portion up to the cutoff is considered normal.

Each individual normal loss is adjusted by a multistate excess loss factor, which is equal to the ratio of multistate 5-year trended incurred losses to multistate 5-year trended normal losses. Multiplying the normal losses by the excess loss factor yields smoothed incurred losses (actual normal losses plus expected excess losses). The formula for trended incurred losses adjusted for large losses is thus:

$$SL = (TL - E) \times F$$

where: SL = trended incurred losses smoothed for excess occurrences  
TL = trended incurred losses  
E = trended excess losses  
F = multistate excess loss factor

In this analysis, F is calculated to be 1.374.

BURGLARY AND THEFT  
LARGE LOSS  
PROCEDURE

To stabilize the burglary and theft experience, large loss factors have been applied to normal losses. In the large loss procedure, the portion of a loss over \$20,000 at the 1989 cost level is defined as an excess loss, and the portion of a loss under \$20,000 at the 1989 cost level is defined as a normal loss. The state's loss amounts adjusted for excess occurrences are derived by multiplying the normal losses by the multistate ratio of total losses to normal losses.

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BUSINESSOWNERS

CALCULATION OF ADJUSTED PROPERTY LOSSES

PROPERTY LARGE LOSS AND EXCESS PROCEDURES (cont'd)

EC EXCESS  
LOSS  
PROCEDURE

The EC data has been adjusted for abnormal frequencies and severities so that it reflects long term excess potential exhibited on a state and regional basis. Normal losses by state and year are defined to be equal to the total Businessowners EC losses multiplied by the ratio of normal losses to incurred losses calculated using the long term Businessowners experience database. The potential for catastrophes is recognized by applying the state excess multiplier to the normal losses. The calculation of the EC excess multiplier is shown in **Exhibit C5**.

ALL OTHER PROPERTY  
LARGE LOSS  
PROCEDURE

The AOP data has been adjusted for abnormal frequencies and severities so that it reflects long term excess potential exhibited on a statewide basis. Normal losses by state and year are defined to be equal to the total Businessowners AOP losses multiplied by the ratio of normal losses to incurred losses calculated using the long term Businessowners experience database. The potential for catastrophes is recognized by applying the state excess multiplier to the normal losses. The calculation of the AOP excess multiplier is shown in **Exhibit C6**.

Explanatory notes For **Exhibits C5** and **C6** follow below.

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BUSINESSOWNERS  
CALCULATION OF ADJUSTED PROPERTY LOSSES  
PROPERTY LARGE LOSS AND EXCESS PROCEDURES

DEVELOPMENT OF EXTENDED COVERAGE EXCESS MULTIPLIER

Exhibit C5

Development of the Extended Coverage Excess Multiplier

Please refer to **Exhibit C5** for the development of the excess multiplier for the Extended Coverage type of loss group.

OBJECTIVE

Due to the absence or presence of catastrophic wind losses, EC experience can be extremely volatile; in recognition of this, an excess loss procedure is used to smooth the losses incurred during the experience period. Under this approach a given year's aggregate losses are split into normal and excess components (defined below). The excess loss experience of the long-term review period (1991-present) is used to develop a state excess multiplier which is applied to the normal losses for each accident year. The state excess multiplier is derived in such a manner as to provide an estimate, based on the long-term experience, of the expected volume of excess loss dollars per normal loss dollar in the review period. Therefore, by applying the state excess multiplier to each year's normal incurred losses, a normal review period ratemaking database is generated which reflects both normal loss experience and the expected, average annual excess loss experience (averaged over the long-term review period). The calculation of the state excess multiplier gives consideration to three layers of losses: normal, state excess, and regional excess.

COLUMN (1)

EARNED PREMIUMS

The earned premiums for EC are a portion of the total earned premium obtained by multiplying each individual year's statewide unadjusted earned premium by its long-term ratio of unadjusted EC losses to total losses.

COLUMN (2)

INCURRED LOSSES

The unadjusted incurred losses are shown for each year.

COLUMN (3)

NORMAL INCURRED LOSSES

Normal losses are defined as that portion of each month's losses which does not exceed the normal loss ratio cutoff, aggregated by fiscal year.

Note: 2.5 times the monthly earned premiums are defined to be the normal loss ratio cutoff.

COLUMN (4)

NORMAL LOSS RATIO

Normal loss ratios (NLR) are calculated by dividing the normal losses in Column (3) by the earned premiums in Column (1).

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CALCULATION OF ADJUSTED PROPERTY LOSSES  
PROPERTY LARGE LOSS AND EXCESS PROCEDURES

DEVELOPMENT OF EXTENDED COVERAGE EXCESS MULTIPLIER (cont'd)

COLUMN (5)

STATE EXCESS LOSS RATIO

Excess losses are the portion of incurred losses exceeding the normal. Excess losses allocated to the state are determined on a monthly basis by the following formula:

Excess Loss = Excess Loss Ratio x Earned Premium, where

$$\text{Excess Loss Ratio} = \frac{20(\text{LR}-2.5)}{(\text{LR}-2.5)+20} \quad (\text{if LR} > 2.5), \text{ and}$$

LR = the monthly loss ratio.

State excess losses are the sum of the monthly excess losses calculated above, aggregated by fiscal year. The state excess loss ratio (SELR) is simply the state excess losses divided by the earned premiums in Column (1).

COLUMN (6)

REGIONAL EXCESS LOSS RATIO

If the unadjusted loss ratio (ULR) is greater than the normal loss ratio (NLR) then the regional excess loss ratio is:

$$\text{Regional Excess Loss Ratio} = \text{ULR} - \text{SELR} - \text{NLR}$$

where SELR = the State Excess Loss Ratio, Column (5),

NLR = the Normal Loss Ratio, Column (4), and

ULR = the Unadjusted Loss Ratio, Column(2) / Column(1).

LINE (7)

STATE EXCESS COMPONENT

The State Excess Component is determined by dividing the sum of all state excess loss ratios by the sum of all normal loss ratios (where the sum is taken across all accident years).

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CALCULATION OF ADJUSTED PROPERTY LOSSES  
PROPERTY LARGE LOSS AND EXCESS PROCEDURES

DEVELOPMENT OF EXTENDED COVERAGE EXCESS MULTIPLIER (cont'd)

LINE (8)

REGIONAL EXCESS COMPONENT

The Regional Excess component is determined by dividing the weighted average (determined, in each case, against the latest year unadjusted earned premium distribution) of the sum of Regional Excess Loss Ratios of all the states in the region by the weighted average of the sum of all loss ratio points retained by a state (Normal and State Excess Loss Ratios) of all the states in the region.

LINE (9)

STATE EXCESS MULTIPLIER

The State Excess Multiplier is derived by taking the product of the State Excess Component and the Regional Excess Component.

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BUSINESSOWNERS

CALCULATION OF ADJUSTED PROPERTY LOSSES  
PROPERTY LARGE LOSS AND EXCESS PROCEDURES

DEVELOPMENT OF ALL OTHER PROPERTY EXCESS MULTIPLIER

Exhibit C6	<p><u>Development of All Other Property Excess Multiplier</u> Please refer to <b>Exhibit C6</b> for the development of the excess multiplier for the All Other Property type of loss group.</p>
OBJECTIVE	<p>Similar to Extended Coverage, the All Other Property smoothing procedure uses a loss ratio approach to reflect both the frequency and severity of unusual loss events. The excess procedure uses longer term statewide AOP experience (1991 - present) to account for the volatile nature of weather related losses (water damage from bursting pipes, or the weight of ice, sleet or snow) which are the predominant causes of large AOP losses in a given experience period. A monthly normal loss ratio cutoff of 2.0 is used to define normal and excess losses. The resulting ratio of excess to normal losses over the long-term experience period is then applied to the normal losses used in the loss cost level review.</p>
COLUMN (1)	<p><u>EARNED PREMIUMS</u></p> <p>The unadjusted earned premiums for AOP each year and are a portion of the total earned premium obtained by multiplying each individual state's ratio of AOP losses to total losses.</p>
COLUMN (2)	<p><u>INCURRED LOSSES</u></p> <p>These are the unadjusted incurred losses for each year.</p>
COLUMN (3)	<p><u>NORMAL INCURRED LOSSES</u></p> <p>The normal incurred losses are shown for each year and are defined to be that portion of each month's losses which does not exceed 2.0 times the monthly earned premiums.</p>
COLUMN (4)	<p><u>NORMAL LOSS RATIO</u></p> <p>The normal loss ratio for each year is the ratio of the normal incurred losses for each year divided by the earned premiums for the year. Column (4) = Column (3) ÷ Column (1)</p>
COLUMN (5)	<p><u>EXCESS LOSS RATIO</u></p> <p>The excess loss ratio for each year is the ratio of the excess losses to the earned premium for the year. The excess losses are calculated as the incurred losses minus the normal incurred losses for each year.</p>

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CALCULATION OF ADJUSTED PROPERTY LOSSES  
PROPERTY LARGE LOSS AND EXCESS PROCEDURES

DEVELOPMENT OF ALL OTHER PROPERTY EXCESS MULTIPLIER (cont'd)

LINE (6)

EXCESS COMPONENT

The excess component is determined by dividing the sum of all excess loss ratios by the sum of all normal loss ratios where the sum is taken across all years in the excess review period.

LINE (7)

EXCESS MULTIPLIER

The excess multiplier is derived by adding unity to the excess component.

## MISSOURI

### BUSINESSOWNERS

#### CALCULATION OF ADJUSTED LIABILITY LOSSES

##### DEFINITION OF LIABILITY TYPE OF LOSS GROUP

Liability losses and allocated loss adjustment expenses include the data reported as premises/operations liability, products liability, medical payments and all other liability.

##### EXCESS LOSS PROCEDURE

The liability coverage included with the basic Businessowners coverage is subject to a limit on loss payments equal to \$300,000. This limit is applied to all indemnity losses resulting from an occurrence. When the total of indemnity losses on an occurrence exceeds \$300,000, the portion over \$300,000 has been excluded from this review.

For smoothing purposes, we considered the impact of all losses from an occurrence. This was accomplished by combining the capped indemnity losses and defense costs. The procedure sums losses by occurrence, calculates the normal portion of the occurrence (defined as that part of loss and ALAE less than \$50,000), and replaces the actual excess with an expected excess amount based on the yearly multistate experience. This excess loss factor is equal to the ratio of the total multistate capped indemnity losses plus all allocated loss adjustment expense to the total multistate normal losses.

##### CALCULATION OF LOSS TREND FACTORS

The method used to determine internal property trend is also applied to liability losses.

Loss Trend Factors for Businessowners liability lessors, liability occupants, and liability sales and payroll losses are based on \$300,000 limit Businessowners occurrence cost and frequency rates of change.

These combined rates of change are projected to an assumed average loss date of December 1, 2022 based on an assumed effective date for trending of December 1, 2021.

The historical data underlying the selected annual rates of change are shown in **Exhibits C7-1** through **C7-4** for liability lessors, liability occupants, liability sales, and liability payroll risks.

In this review, multistate dollars of losses and number of occurrences contained in the trend exhibits are based on reported paid amounts developed to ultimate using paid development factors. This has been done in the interest of stability of ultimate loss and occurrence estimates from one review to another.

MISSOURI

BUSINESSOWNERS

CALCULATION OF ADJUSTED LIABILITY LOSSES (cont'd)

LOSS  
DEVELOPMENT  
PROCEDURE

Loss development factors are applied to recognize the important ratemaking concept that not all of the liability losses for a particular accident year have been finally determined at the time the experience is compiled.

The incurred losses and loss adjustment expenses underlying the statewide loss cost level indications were evaluated as of September 30, 2020.

Fiscal accident year ending June 30, 2020 includes all losses and loss adjustment expenses paid on accidents from July 1, 2019 to June 30, 2020 and all losses and loss adjustment expenses outstanding on those accidents as of September 30, 2020, 15 months after the inception of the accident year.

Similarly, fiscal accident years ending June 30, 2019, 2018, 2017, and 2016 include all losses paid and outstanding as of 27, 39, 51 and 63 months, respectively, after the inception of the accident year.

Thus, the immature experience reported as of 15, 27, 39, 51 or 63 months must be adjusted to an ultimate settlement basis. For liability sales and liability payroll, this adjustment is accomplished through the use of multistate loss development factors. For liability lessors/occupants, statewide loss development factors are credibility weighted with multistate factors. A Bayesian credibility study was done on multistate 15 to 27 and 27 to 39 months link ratios. The study concluded that there is significant statewide variation through 39 months. For these two link ratios, statewide credibility is determined by the formula  $Z=L/(L+K)$ , where Z is the credibility, and L is the 3-year total losses for the particular state (at the earliest of the two evaluations). K is a constant that varies as follows:

15 to 27 Months	27 to 39 Months
\$ 5,000,000	\$ 65,000,000

The complement of credibility is assigned to multistate link ratios. Three-year averages are calculated for each link ratio using a “best three of five” approach. Specifically, for the latest five years, the highest and lowest factors were removed from the calculations and the three-year average was calculated using the remaining factors. Development after 123 months is assumed to be unity.

Loss development factors and their derivation are shown on **Exhibits C8-1** through **C8-4**.

UNALLOCATED  
LOSS ADJUSTMENT  
EXPENSE

The final adjustment to the liability losses is to include unallocated loss adjustment expenses using the factor selected based on the data displayed in **Exhibit C11-3**.

MISSOURI  
BUSINESSOWNERS  
EXPOSURE TREND

OBJECTIVE

Cost changes over time to both real and personal property result in insureds purchasing increased amounts of insurance. In addition, certain Businessowners classes have sales and payroll exposure bases for liability, which are inflation sensitive. To reflect the impact of this phenomenon, exposure trend factors are applied to reported sales and payroll amounts of insurance to bring them to prospective exposure levels. The development of exposure trend factors is shown in **Exhibit C9**. In this analysis, exposure trend factors for Businessowners data with amount of insurance exposure bases have been developed from Commercial Property data for buildings and contents (see columns 1 through 10). Exposure trend factors for Businessowners data with sales and payroll exposure bases have been developed from General Liability data (see columns 11 through 14).

Explanatory notes to **Exhibit C9** follow.

DEVELOPMENT OF  
BUILDINGS AND  
CONTENTS  
EXPOSURE TREND  
FACTORS

ANNUAL WRITTEN INCREASE (COLUMNS 1 AND 6)

The annual written increases for 2015 through 2020 for buildings and contents amount of insurance were developed from the actual changes in amount of insurance from one year to the next for a sample of renewal policies (based on BGI building and contents experience). Specifically, the change in amount of insurance for each policy in the sample was weighted with its prior year's aggregate loss costs to obtain a weighted change for each year. A sample of renewal policies was used because not all companies code their data so that identification of renewal policies is possible.

CALENDAR YEAR WRITTEN FACTORS (COLUMNS 2 AND 7)

The written factors for a given year are the product of the written annual changes for all years subsequent to that year.

FISCAL YEAR WRITTEN FACTORS (COLUMNS 3 AND 8)

Fiscal year written factors are calculated using a weighted average of current and prior Calendar year written factors based on the following:

<u>Fiscal Year Ending</u>	<u>Current Year Weight</u>	<u>Prior Year Weight</u>
March 31st	25%	75%
June 30th	50%	50%
September 30th	75%	25%
December 31st	100%	0%

MISSOURI  
BUSINESSOWNERS  
EXPOSURE TREND

EXPLANATORY NOTES TO EXHIBIT C9 (Cont'd)

DEVELOPMENT OF  
BUILDINGS AND  
CONTENTS  
EXPOSURE TREND  
FACTORS (cont'd)

PROJECTION FACTORS (COLUMNS 4 AND 9)

The projection factors are used to bring the fiscal year written factors at a 1/1/2020 level to the 6/1/2022 level (a time period of 29 months). This date is the average date of writing for policies written at the revised loss costs (i.e., 6 months beyond an assumed revision date of 12/1/2021). Based on selected average annual changes of 2.4% for buildings and 2.1% for contents, the projection factors are calculated as follows:

$$\text{Buildings: } (1.024)^{29/12} = 1.059$$

$$\text{Contents: } (1.021)^{29/12} = 1.052$$

EXPOSURE TREND FACTORS (COLUMNS 5 AND 10)

The exposure trend factors are calculated as the product of the fiscal year written factors and the projection factors.

DEVELOPMENT  
OF SALES AND  
PAYROLL EXPOSURE  
TREND FACTORS

SELECTED AVERAGE ANNUAL TREND (COLUMNS 11 AND 13)

The selected average annual trend for sales was based upon the average annual growth rates in consumption components. The selected average annual trend for payroll was based on average hourly earnings of contracting workers. These econometric models were supplied by Moody's Analytics.

EXPOSURE TREND FACTORS (COLUMNS 12 AND 14)

The exposure trend factors were derived to project the reported sales and payroll exposures from the midpoint of each accident year to 6/1/2022, which is the average date of writing for policies written at the revised loss costs (i.e., 6 months beyond an assumed revision date of 12/1/2021). The trend factors for accident year ending 6/30/2020 were calculated as follows:

$$\text{Sales: } (1.021)^{29/12} = 1.052$$

$$\text{Payroll: } (1.016)^{29/12} = 1.039$$

where 29 is the number of months between the midpoint of accident year ending 6/30/2020 (1/1/2020) and the average date of writing (6/1/2022).

MISSOURI  
BUSINESSOWNERS  
CREDIBILITY

Exhibit C10

STATEWIDE CREDIBILITY CALCULATION

Credibility, Z, is a weight given to the most recent body of data. The complement of credibility, 1-Z, is the weight assigned to the expected experience ratio. The final estimate is a weighted average obtained by using the formula  $C = Z \times R + (1-Z) \times E$ , where:

C = final estimate  
Z = credibility  
R = estimate based on the most recent data  
E = expected experience ratio

Credibility may range from 0 to 1, where Z=1 is full credibility and Z=0 is no credibility. The actual numerical value of Z is calculated by considering how the state's volume of experience compares with an established full credibility standard. See **Exhibit C10** for the derivation of credibility standards. Explanations of the calculation components shown in the table are detailed below.

LINE (1)

FULL CREDIBILITY OCCURRENCE STANDARD FOR FREQUENCY

Based on a Poisson distribution, the expected number of occurrences is determined such that the probability that the actual number of occurrences will be within 5.0% of the expected number of occurrences is greater than 95%.

LINE (2)

SEVERITY MODIFICATION FACTOR

This factor, defined as  $(1 + S^2 / M^2)$ , is used to modify the frequency standard into a severity standard, where S is the standard deviation and M is the mean of the loss severity distribution (on a normal loss basis).

LINE (3)

FULL CREDIBILITY OCCURRENCE STANDARD ADJUSTED FOR SEVERITY

This standard is the product of the frequency standard in line (1) and the severity modification factor in line (2).

LINE (4)

SELECTED CREDIBILITY OCCURRENCE STANDARD ADJUSTED FOR SEVERITY

This standard is selected based on the calculated credibility occurrence standard in line (3).

MISSOURI

BUSINESSOWNERS

CREDIBILITY (cont'd)

LINE (5) MULTISTATE FIVE-YEAR RATIO OF EARNED RISKS TO OCCURRENCE

This ratio was determined based on Commercial Statistical Plan data.

LINE (6) FULL CREDIBILITY EARNED RISKS STANDARD

To translate the severity-adjusted occurrence standard to an equivalent standard based on earned risks the selected severity adjusted occurrence standard in line (4) is multiplied by the multistate five-year ratio of earned risks to occurrences in line (5).

LINE (7) FIVE-YEAR STATEWIDE EARNED RISKS

This is the number of earned risks in the state for the five-year period ending June 30, 2020.

LINE (8) CREDIBILITY

The state's credibility is calculated by using the square root credibility formula:

$$Z = (R/C)^{1/2}$$

where  $Z$  = Credibility  
 $R$  = Statewide earned risks (line (6))  
 $C$  = Full Credibility Earned Risks Standard (line (5))

MISSOURI

BUSINESSOWNERS

LOSS ADJUSTMENT EXPENSE FACTORS

Exhibit C11

DEVELOPMENT OF THE LOSS ADJUSTMENT EXPENSE FACTORS

The reported indemnity losses must be loaded for any loss adjustment expenses (LAE) that are not reported in statistical detail to ISO.

PROPERTY  
COVERAGES

For the property coverages, only the incurred indemnity losses are reported to ISO under the Commercial Statistical Plan. All loss adjustment expenses must be loaded in. A factor representing the ratio of incurred losses plus all LAE to incurred losses was selected based on multistate financial data (see **Exhibits C11-1** and **C11-2** for the underlying data).

LIABILITY  
COVERAGE

For liability coverage, allocated loss adjustment expenses are reported in detail to ISO under the Commercial Statistical Plan. Unallocated loss adjustment expenses must be loaded into the losses. A factor representing the ratio of the sum of the incurred indemnity losses plus all LAE to the sum of the incurred indemnity losses plus allocated LAE was selected based on multistate financial data (see **Exhibit C11-3** for the underlying data).

SELECTED  
FACTORS

The following factors have been used in this review to load incurred losses for all loss adjustment expenses:

Fire	1.090
Extended Coverage	1.110
All Other Property	1.110
Burglary and Theft	1.190
Liability	1.080

MISSOURI  
BUSINESSOWNERS

SECTION D: REVISED STATE LOSS COSTS

WINDSTORM OR HAIL EXCLUSION CREDITS

WINDSTORM OR HAIL  
EXCLUSION CREDITS

The windstorm or hail exclusion credits shown on Table 29.A.39.d.(LC) are calculated using losses for the five accident years ending June 30, 2020. The five-year losses attributable to the wind and hail causes of loss were compared to the five-year losses attributable to all causes of loss for property to determine the portion of the property base loss cost that covers wind and hail. This was done on a statewide basis, separately for building and business personal property (BPP). The resulting percentages were rounded to the nearest 5% and capped at a minimum of 10% and a maximum of 50% for buildings, and a minimum of 5% and a maximum of 50% for BPP. The calculations are shown on **Exhibit D1**.

The resulting percentages were applied to the proposed base building and BPP loss costs, respectively, to determine the loss cost credits (i.e., the loss costs to be subtracted from the base loss costs when the new Windstorm or Hail Exclusion endorsement is applicable.)

**COMMERCIAL LINES MANUAL  
DIVISION TEN  
BUSINESSOWNERS  
LOSS COST PAGES**

**LOSS COSTS**

Territory	BASE LOSS COSTS					
	PROPERTY		LIABILITY			
	Building Per \$100 Of Limit Of Ins.	Business Personal Property Per \$100 Of Limit Of Ins.	Occupant Liability Per \$100 Of Limit Of Ins.	Occupant Liability Per \$1,000 Of Annual Gross Sales	Occupant Liability Per \$1,000 Of Annual Payroll	Lessors Liability Per \$100 Of Limit Of Ins.
701	0.458	0.343	0.030	0.555	5.820	0.015
703	0.431	0.338	0.031	0.749	5.864	0.015
704	0.548	0.335	0.047	0.645	5.939	0.019
705	0.595	0.401	0.031	0.660	5.638	0.018

**Table #1(LC) Base Loss Costs – Property And Liability**

**SECTION III  
RATING AND ELIGIBILITY RULES**

**RULE 23.  
PREMIUM DEVELOPMENT – MANDATORY  
COVERAGES**

- C. Premium Determination
  - 6. Premium Determination
    - c. Additional Rating Considerations
      - (3) Permanent Yards – Maintenance Or Storage

Territory	Loss Cost Per \$100		
	Public Protection (Fire) Classification		
	01-04	05-08	09-10
701, 703-705	0.390	0.437	0.485

**Table 23.C.6.c.(3)(LC) Permanent Yards – Maintenance Or Storage Premium Determination**

**RULE 29.  
 ENDORSEMENTS**

**A. Property Endorsements**

**39. Windstorm Or Hail Exclusion**

**d. Rate Modification**

Territory	Coverage (Code)	Credit
701	Buildings (1)	0.229
	Business Personal Property (2)	0.017
703	Buildings (1)	0.216
	Business Personal Property (2)	0.017
704	Buildings (1)	0.274
	Business Personal Property (2)	0.017
705	Buildings (1)	0.298
	Business Personal Property (2)	0.020

**Table 29.A.39.d.(LC) Windstorm Or Hail Exclusion Credits**

**B. Liability Endorsements**

**7. Employment-Related Practices Liability**

**b. Employment-Related Practices Liability Coverage Endorsement**

**(5) Premium Determination**

Number Of Employees	Loss Cost Per Employee		
	Mercantile Restaurant	Wholesale	All Other
1-25	\$ 7.090	\$ 10.550	\$ 8.440
Each Additional Employee	4.960	7.390	5.910

**Table 29.B.7.b.(5)(LC) Employment-Related Practices Liability Premium Determination**

## MISSOURI

## BUSINESSOWNERS

## EXHIBIT A1

## LOSS COST LEVEL CHANGE SUMMARY

	Statewide Aggregate Loss Costs at Current Level	<u>Loss Cost Level Change</u>	
		Ind.	Filed
<u>Property Total</u>	\$ 35,833,171	+15.3%	+15.3%
Lessors/Occupants	\$ 2,905,437	-3.9%	-3.2%
Sales	1,267,571	-7.0%	-7.0%
Payroll	10,287	+4.9%	-1.2%
<u>Liability Total</u>	\$ 4,183,295	-4.8%	-4.3%
GRAND TOTAL	\$ 40,016,466	+13.2%	+13.3%

## MISSOURI

## BUSINESSOWNERS

## EXHIBIT A2-1

## LOSS COST LEVEL CHANGES

## PROPERTY

Buildings

<u>Territory</u>	<u>Aggregate Loss Costs at Current Level</u>	<u>Loss Cost Level Changes</u>
701	\$ 1,418,774	+14.2%
703	\$ 18,471,652	+18.1%
704	\$ 1,467,297	+13.7%
705	\$ 5,766,255	+11.4%
Statewide Total	\$ 27,123,978	+16.2%

Business Pers. Prop.

<u>Territory</u>	<u>Aggregate Loss Costs at Current Level</u>	<u>Loss Cost Level Changes</u>
701	\$ 653,315	+11.0%
703	\$ 5,014,387	+14.6%
704	\$ 448,463	+10.6%
705	\$ 2,593,028	+8.4%
Statewide Total	\$ 8,709,193	+12.3%

All Property

<u>Territory</u>	<u>Aggregate Loss Costs at Current Level</u>	<u>Loss Cost Level Changes</u>
701	\$ 2,072,089	+13.2%
703	\$ 23,486,039	+17.4%
704	\$ 1,915,760	+13.0%
705	\$ 8,359,283	+10.5%
Statewide Total	\$ 35,833,171	+15.3%

## MISSOURI

## BUSINESSOWNERS

## EXHIBIT A2-2

## LOSS COST LEVEL CHANGES

## LIABILITY

Lessors

<u>Territory</u>	<u>Aggregate Loss Costs at Current Level</u>	<u>Loss Cost Level Changes</u>
701	\$ 35,741	0.0%
703	\$ 394,650	-6.3%
704	\$ 35,873	0.0%
705	\$ 172,936	+5.9%
Statewide Total	\$ 639,200	-2.3%

Occupants

<u>Territory</u>	<u>Aggregate Loss Costs at Current Level</u>	<u>Loss Cost Level Changes</u>
701	\$ 111,026	0.0%
703	\$ 1,500,749	-6.1%
704	\$ 158,263	-2.1%
705	\$ 496,199	+3.3%
Statewide Total	\$ 2,266,237	-3.5%

Lessors/Occupants

<u>Territory</u>	<u>Aggregate Loss Costs at Current Level</u>	<u>Loss Cost Level Changes</u>
701	\$ 146,767	0.0%
703	\$ 1,895,399	-6.1%
704	\$ 194,136	-1.7%
705	\$ 669,135	+4.0%
Statewide Total	\$ 2,905,437	-3.2% #

# Due to rounding of the loss costs to three decimal places, this change varies from the overall statewide change on Exhibit B1-2.

MISSOURI

BUSINESSOWNERS

EXHIBIT A2-3

LOSS COST LEVEL CHANGES

LIABILITY-SALES

	Statewide Aggregate Loss Costs <u>at Current Level</u>	Loss Cost <u>Level Changes</u>
Statewide Total	\$ 1,267,571	-7.0%

LIABILITY-PAYROLL

	Statewide Aggregate Loss Costs <u>at Current Level</u>	Indicated Loss Cost <u>Level Changes</u>	Selected Loss Cost <u>Level Changes (a)</u>
Statewide Total	\$ 10,287	4.9%	-1.2%

(a) The Payroll Selected Loss Cost Level Change includes the 0.942 offset to introduce the change in payroll amount for executive officers, individual insureds or copartners on a revenue neutral basis.

## MISSOURI

## BUSINESSOWNERS

## EXHIBIT A3

## PRESENT AND REVISED LOSS COSTS

<u>PRESENT LOSS COSTS</u>			<u>REVISED LOSS COSTS</u>			
PROPERTY			PROPERTY			
<u>Territory</u>	<u>Buildings</u>	Business Personal <u>Property</u>	<u>Territory</u>	<u>Buildings</u>	Business Personal <u>Property</u>	
701	0.401	0.309	701	0.458	0.343	
703	0.365	0.295	703	0.431	0.338	
704	0.482	0.303	704	0.548	0.335	
705	0.534	0.370	705	0.595	0.401	
LIABILITY			LIABILITY			
<u>Territory</u>	<u>Lessors</u>	<u>Occupants</u>	<u>Territory</u>	<u>Lessors</u>	<u>Occupants</u>	
701	0.015	0.030	701	0.015	0.030	
703	0.016	0.033	703	0.015	0.031	
704	0.019	0.048	704	0.019	0.047	
705	0.017	0.030	705	0.018	0.031	
<u>Territory</u>	<u>Sales</u>	<u>Payroll</u>	<u>Territory</u>	<u>Sales</u>	<u>Payroll Indicated</u>	<u>Payroll Selected (a)</u>
701	0.597	5.890	701	0.555	6.179	5.820
703	0.805	5.934	703	0.749	6.225	5.864
704	0.694	6.010	704	0.645	6.304	5.939
705	0.710	5.706	705	0.660	5.986	5.638

(a) The offset factor of 0.942 has been applied to the selected Payroll revised loss costs to introduce the change in payroll amount for executive officers, individual insureds or copartners on a revenue neutral basis.

## MISSOURI

## BUSINESSOWNERS - PROPERTY

## EXHIBIT B1-1

## CALCULATION OF STATEWIDE ADVISORY LOSS COST LEVEL CHANGE

Fiscal Year Ending	(1) Aggregate Loss Costs at Current Level	(2) Incurred Losses and Loss Adjustment Expenses	(3) Experience Ratio	(3a) (3b) (3c) Partial Experience Ratios			(3d) AOP
				Fire	EC	Burg	
6/30/2016	\$ 38,773,006	\$ 34,096,705	0.879	0.256	0.442	0.010	0.171
6/30/2017	39,494,222	52,800,282	1.337	0.265	0.867	0.021	0.184
6/30/2018	38,994,928	37,208,917	0.954	0.186	0.531	0.018	0.219
6/30/2019	36,485,995	42,754,557	1.172	0.322	0.576	0.021	0.253
6/30/2020	35,833,171	54,504,854	1.521	0.440	0.840	0.025	0.216

(4) Weighted Experience Ratio = 1.229

(5) Credibility = 0.634

(6) Expected Experience Ratio = 1.021

(7) Credibility-Wtd. Experience Ratio = 1.153

(8) Indicated Loss Cost Level Change = 1.153 or +15.3%

(9) Selected Loss Cost Level Change = +15.3%

NOTE: The assumed effective date for trending is 12/1/2021.

## MISSOURI

## BUSINESSOWNERS - LIABILITY LESSORS &amp; OCCUPANTS

## EXHIBIT B1-2

## CALCULATION OF STATEWIDE ADVISORY LOSS COST LEVEL CHANGE

Fiscal Year Ending	(1) Aggregate Loss Costs at Current Level	(2) Incurred Losses and Loss Adjustment Expenses	(3) Experience Ratio
6/30/2016	\$ 2,847,726	\$ 2,003,837	0.704
6/30/2017	2,831,756	2,252,638	0.795
6/30/2018	2,840,002	2,150,760	0.757
6/30/2019	2,782,778	2,912,167	1.046
6/30/2020	2,905,436	3,069,710	1.057
(4) Weighted Experience Ratio		= 0.919	
(5) Credibility		= 0.338	
(6) Expected Experience Ratio		= 0.983	
(7) Credibility-Wtd. Experience Ratio		= 0.961	
(8) Indicated Loss Cost Level Change		= 0.961	or -3.9%
(9) Selected Loss Cost Level Change		= -3.9%	

NOTE: The assumed effective date for trending is 12/1/2021.

## MISSOURI

## BUSINESSOWNERS - LIABILITY SALES

## EXHIBIT B1-3

## CALCULATION OF STATEWIDE ADVISORY LOSS COST LEVEL CHANGE

Fiscal Year Ending	(1) Multistate Aggregate Loss Costs at <u>Current Level</u>	(2) Multistate Incurred Losses and Loss Adjustment <u>Expenses</u>	(3) Experience <u>Ratio</u>
6/30/2016	\$ 99,524,392	\$ 79,381,923	0.798
6/30/2017	106,306,811	87,480,463	0.823
6/30/2018	101,191,159	96,113,315	0.950
6/30/2019	89,147,549	93,542,422	1.049
6/30/2020	80,146,565	72,444,304	0.904
(4) Weighted Experience Ratio		= 0.930	
(5) Credibility		= 1.000	
(6) Expected Experience Ratio		= 1.023	
(7) Credibility-Wtd. Experience Ratio		= 0.930	
(8) Indicated Loss Cost Level Change		= 0.930	or -7.0%
(9) Selected Loss Cost Level Change		= -7.0%	

NOTE: The assumed effective date for trending is 12/1/2021.

## MISSOURI

## BUSINESSOWNERS - LIABILITY PAYROLL

## EXHIBIT B1-4

## CALCULATION OF STATEWIDE ADVISORY LOSS COST LEVEL CHANGE

Fiscal Year Ending	(1) Multistate Aggregate Loss Costs at <u>Current Level</u>	(2) Multistate Incurred Losses and Loss Adjustment <u>Expenses</u>	(3) Experience Ratio
6/30/2016	\$ 55,735,637	\$ 56,163,633	1.008
6/30/2017	58,089,122	57,825,380	0.995
6/30/2018	55,303,370	58,551,173	1.059
6/30/2019	52,097,539	54,814,373	1.052
6/30/2020	46,648,086	50,580,098	1.084
(4) Weighted Experience Ratio		= 1.049	
(5) Credibility		= 1.000	
(6) Expected Experience Ratio		= 0.999	
(7) Credibility-Wtd. Experience Ratio		= 1.049	
(8) Indicated Loss Cost Level Change		= 1.049	or +4.9%
(9) Selected Loss Cost Level Change		= -1.2%	

NOTE: The assumed effective date for trending is 12/1/2021.

## MISSOURI

## BUSINESSOWNERS - PROPERTY

## EXHIBIT B2-1

## CALCULATION OF RELATIVE CHANGES

<u>TERRITORY</u>	(1) 5-YEAR AGGREGATE LOSS COST AT CURRENT LEVEL	(2) 5-YEAR ADJUSTED LOSSES	(3) 5-YEAR EXPERIENCE RATIO (2) / (1)	(4) EXPERIENCE RELATIVITY (3) / ToT(3)	(5) BALANCED MINIMUM BIAS RELATIVE CHANGE	(6) EARNED RISKS	(7) CREDI- BILITY	(8) CREDI- BILITY WEIGHTED CHANGE	(9) BALANCED CHANGE	(10) FINAL BALANCED INDICATED CHANGE
701	\$10,386,472	\$11,374,154	1.095	0.938	0.944	10,027	0.148	0.992	0.984	0.984
703	\$128,153,767	\$156,786,820	1.223	1.047	1.046	126,931	0.528	1.024	1.016	1.016
704	\$9,922,984	\$10,526,229	1.061	0.908	0.909	8,799	0.139	0.987	0.979	0.979
705	\$41,118,100	\$42,678,111	1.038	0.889	0.893	37,449	0.287	0.968	0.960	0.960
TOTAL	189,581,323	221,365,314	1.168	1.000		183,206			1.000	1.000
Buildings	\$145,328,954	\$172,700,363	1.188	1.017	1.014	76,373	0.409	1.006	1.007	1.007
Bus. Pers. Prop.	44,252,369	48,664,951	1.100	0.942	0.955	106,832	0.484	0.978	0.979	0.979
TOTAL	189,581,323	221,365,314	1.168	1.000		183,206			1.000	1.000

MISSOURI  
BUSINESSOWNERS - LIABILITY

EXHIBIT B2-2

CALCULATION OF RELATIVE CHANGES

<u>TERRITORY</u>	(1) 5-YEAR AGGREGATE LOSS COST AT CURRENT LEVEL	(2) 5-YEAR ADJUSTED LOSSES	(3) 5-YEAR EXPERIENCE RATIO (2) / (1)	(4) EXPERIENCE RELATIVITY (3) / ToT(3)	(5) BALANCED MINIMUM BIAS RELATIVE CHANGE	(6) EARNED RISKS	(7) CREDI- BILITY	(8) CREDI- BILITY WEIGHTED CHANGE	(9) BALANCED CHANGE	(10) FINAL BALANCED INDICATED CHANGE
701	\$767,456	\$840,949	1.096	1.276	1.277	5,099	0.088	1.022	1.039	1.039
703	\$9,039,572	\$6,419,709	0.710	0.827	0.826	44,853	0.262	0.951	0.967	0.967
704	\$1,029,074	\$1,016,456	0.988	1.150	1.152	3,891	0.077	1.011	1.028	1.028
705	\$3,196,323	\$3,777,423	1.182	1.376	1.376	19,175	0.172	1.056	1.074	1.074
TOTAL	14,032,425	12,054,538	0.859	1.000		73,018			1.000	1.000
Lessors	\$3,002,563	\$2,654,064	0.884	1.029	1.007	14,023	0.147	1.001	1.002	1.002
Occupants	11,029,862	9,400,474	0.852	0.992	0.998	58,994	0.301	0.999	1.000	1.000
TOTAL	14,032,425	12,054,538	0.859	1.000		73,018			1.000	1.000

## BUSINESSOWNERS

## EXHIBIT B3

## CALCULATION OF EXPECTED EXPERIENCE RATIOS

LOSS TREND

PROPERTY	<u>Buildings Adjusted Losses</u>	<u>Trend Factor</u>	<u>Business Pers. Prop. Adjusted Losses</u>	<u>Trend Factor</u>	
Fire	36,610,598	1.002	18,546,869	0.981	
EC	113,833,615	1.081	9,369,725	1.045	
AOP	21,886,414	1.054	17,546,047	1.049	All Property
Burglary			3,572,044	1.024	<u>Trend Factor</u>
	172,330,627	1.061	49,034,685	1.021	1.052

## LIABILITY

	<u>Adjusted Losses</u>	<u>Trend Factor</u>
Lessors	2,654,065	1.005
Occupants	9,400,473	0.997
		<u>Trend Factor</u>
AOI Lessors & Occupants		0.999
Sales		1.053
Payroll		1.015

PREMIUM TREND

PROPERTY	<u>Buildings Adjusted Losses</u>	<u>Trend Factor</u>	<u>Business Pers. Prop. Adjusted Losses</u>	<u>Trend Factor</u>	<u>All Property Trend Factor</u>
	172,330,627	1.024	49,034,685	1.021	1.023
LIABILITY		<u>Trend Factor</u>			
AOI Lessors & Occupants		1.021			
Sales		1.021			
Payroll		1.016			

ANNUAL NET TRENDS (LOSS TREND/PREMIUM TREND)

	<u>Annual Net Trend Factor</u>	<u>Expected Experience Ratio (a)</u>
ALL PROPERTY	1.028	1.021
LIABILITY - AOI LESSORS AND OCCUPANTS	0.978	0.983
LIABILITY - SALES	1.031	1.023
LIABILITY - PAYROLL	0.999	0.999

(a) The projection period is from the date of the last approval, 3/1/2021, to the assumed effective trend date of 12/1/2021. For ALL PROPERTY,  $1.021 = 1.028^{(9/12)}$ .

## BUSINESSOWNERS

## EXHIBIT C1

SUMMARY OF LOSS TREND FACTORS  
FIRE, EXTENDED COVERAGE, AND ALL OTHER PROPERTY

<u>Year</u>	<u>Current Cost Factors *</u>	
	<u>Buildings</u>	<u>Contents</u>
6/30/2016	1.186	1.083
6/30/2017	1.162	1.073
6/30/2018	1.125	1.054
6/30/2019	1.094	1.032
6/30/2020	1.056	1.015
	<u>Loss Projection Factor**</u>	
	<u>Buildings</u>	<u>Contents</u>
	1.075	1.030
	<u>Annual Loss Trend Adjustments</u>	
	<u>Buildings</u>	<u>Contents</u>
Fire	-3.6%	-3.5%
Extended Coverage	+3.9%	+2.9%
All Other Property	+1.3%	+3.2%

\* Adjusts losses for inflationary changes which have taken place between the actual accident date and the midpoint of the latest period of external trend information.

\*\* Adjusts losses for the projected inflationary changes from the midpoint of the latest period of external trend information to the anticipated average accident date for policies written under the proposed loss costs.

## BUSINESSOWNERS

## EXHIBIT C2

DEVELOPMENT OF CURRENT COST FACTORS AND LOSS PROJECTION FACTORS

Period Ending March 31, 2021

**Part A: Quarterly Indices for Buildings and Contents**

Buildings - Xactware Commercial Index (XCI) (Base: 2008 = 100.0)  
 Contents - Producer Price Index (PPI) - U.S. Dept. of Labor,  
 (Finished Goods Less Energy) (Base: 2008 = 100.0)

Quarter Ending	<u>XCI</u>	<u>PPI</u>
6/30/2018	121.2	119.9
9/30/2018	122.1	120.1
12/31/2018	122.5	121.4
3/31/2019	123.5	122.2
6/30/2019	124.8	122.6
9/30/2019	125.7	122.6
12/31/2019	126.8	123.6
3/31/2020	128.5	123.7
6/30/2020	129.9	124.5
9/30/2020	132.4	123.9
12/31/2020	133.9	125.0
3/31/2021	134.8	125.8

**Part B: Calculation of Current Cost Factors (CCF)**

Fiscal Year Ending	Year Ending Averages		Current Cost Factors to Period Ending March 31, 2021	
	<u>XCI</u>	<u>PPI</u>	<u>Buildings*</u>	<u>Contents*</u>
6/30/2016	113.7	115.9	134.8/113.7= 1.186	125.5/115.9= 1.083
6/30/2017	116.0	117.0	134.8/116.0= 1.162	125.5/117.0= 1.073
6/30/2018	119.8	119.1	134.8/119.8= 1.125	125.5/119.1= 1.054
6/30/2019	123.2	121.6	134.8/123.2= 1.094	125.5/121.6= 1.032
6/30/2020	127.7	123.6	134.8/127.7= 1.056	125.5/123.6= 1.015

\*The CCF's for Buildings are calculated using the latest point. The CCF's for Contents are calculated using a 67% / 33% weighted average of the latest two quarter ending points.

**Part C: Computation of Loss Projection Factors**

	<u>Buildings</u>	<u>Contents</u>
Annual Rate of Change	+4.13%	+1.64%
Loss Projection Factor**	1.075	1.030

\*\*To project losses from the midpoint of the latest quarter, 2/14/2021, to the average accident date of 12/1/2022. (21.5/12)

## BUSINESSOWNERS

## EXHIBIT C3

DEVELOPMENT OF LOSS TREND ADJUSTMENT (LTA)  
BOP SEVERITY AND FREQUENCY USING EXPOSURES**I. EXTERNAL RATE OF CHANGE**

Year	(1) Fire, EC and AOP Weights	BUILDINGS	CONTENTS
		(2a) Current Cost Factors	(2b) Current Cost Factors
2016	0.10	1.183	1.077
2017	0.15	1.162	1.070
2018	0.20	1.126	1.051
2019	0.25	1.095	1.031
2020	0.30	1.058	1.013
(3) Average CCF for Fire, EC and AOP		1.109	1.040
(4a) Annual Rate of Change		0.039	0.0167
(4b) Projection Period (a)		21.50	21.50
(4c) Loss Projection Factor (LPF)		1.071	1.030
(1 + (4a)) ^ ((4b) / 12)			
(5a) Total Trend (3) x (4c)		1.188	1.071
(5b) Projection Period (b)		53.00	53.00
(5c) Annualized Total Trend for Fire, EC and AOP		1.040	1.016
(5a) ^ (12 / (5b))			

**II. INTERNAL ANNUAL RATE OF CHANGE**

	(6) Selected BOP	
	BUILDINGS	CONTENTS
Fire	1.080	1.090
EC	1.100	1.060
AOP	1.060	1.065

- (a) The number of months from the midpoint of the latest quarter of external trend used, 11/15/2020, to the assumed average accident date of 9/1/2022.
- (b) The number of months from the weighted midpoint of the experience period, 4/1/2018, to the assumed average accident date of 9/1/2022.

## BUSINESSOWNERS

## EXHIBIT C3 (Cont'd)

DEVELOPMENT OF LOSS TREND ADJUSTMENT (LTA)  
BOP SEVERITY AND FREQUENCY USING EXPOSURES**III. LTA CALCULATION**

	(7)	(8)	(9)	(10)	(11)	(12)
	Annual	Annual	Indicated	Formula	Frequency	Final
	<u>External</u>	<u>Internal</u>	Severity	Severity	<u>Effect</u>	LTA
			LTA	LTA (c)		(10) x (11)
			(8) / (7)			
<b>BUILDINGS</b>						
Fire	1.040	1.080	1.038	1.025	0.940	0.964
EC	1.040	1.100	1.058	1.039	1.000	1.039
AOP	1.040	1.060	1.019	1.013	1.000	1.013
<b>CONTENTS</b>						
Fire	1.016	1.090	1.073	1.049	0.920	0.965
EC	1.016	1.060	1.043	1.029	1.000	1.029
AOP	1.016	1.065	1.048	1.032	1.000	1.032

(c) The formula LTA is calculated as two-thirds of the indicated LTA. This is equivalent to calculating the overall severity trend giving 33% weight to the external trend and 67% weight to the selected internal trend.

## BUSINESSOWNERS

## EXHIBIT C4-1

## FIRE - BUILDINGS

## MULTISTATE SEVERITY AND FREQUENCY TREND

Accident Year	Trended Exposures	Total Losses	Normal Losses	Incurred Occurrences	Occurrence Cost (Total)	Occurrence Cost (Normal)	Occurrence Frequency*
2011	7,454,763,983	221,604,970	192,373,421	3,740	59,253	51,437	0.0502
2012	7,368,669,403	256,949,635	218,627,942	3,635	70,688	60,145	0.0493
2013	7,072,320,307	263,046,967	216,228,508	3,201	82,176	67,550	0.0453
2014	6,881,112,634	252,116,686	207,869,545	2,682	94,003	77,505	0.0390
2015	6,608,062,884	228,871,720	184,251,008	2,496	91,695	73,819	0.0378
2016	6,534,224,412	244,573,605	194,200,965	2,381	102,719	81,563	0.0364
2017	7,059,543,166	280,991,777	215,010,578	2,581	108,869	83,305	0.0366
2018	7,560,027,441	293,460,563	208,411,908	2,334	125,733	89,294	0.0309
2019	7,780,011,902	310,875,555	239,551,006	2,391	130,019	100,189	0.0307
2020	7,931,098,891	312,266,713	237,822,469	2,158	144,702	110,205	0.0272

Total Losses

	Severity	Frequency	R-Squared Severity	Frequency
Observed annual rate of change (10 years) =	9.5%	-6.4%	0.966	0.962
Observed annual rate of change (8 years) =	8.2%	-6.2%	0.970	0.932
Observed annual rate of change (6 years) =	9.4%	-6.4%	0.984	0.902

Normal Losses

	Severity	Frequency	R-Squared Severity	Frequency
Observed annual rate of change (10 years) =	7.6%	-6.4%	0.948	0.962
Observed annual rate of change (8 years) =	6.5%	-6.2%	0.930	0.932
Observed annual rate of change (6 years) =	8.0%	-6.4%	0.969	0.902
Selected annual rate of change =	8.0%	-6.0%		

\* in 100,000's

## MISSOURI

## BUSINESSOWNERS

## EXHIBIT C4-2

## FIRE - CONTENTS

## MULTISTATE SEVERITY AND FREQUENCY TREND

Accident Year	Trended Exposures	Total Losses	Normal Losses	Incurred Occurrences	Occurrence Cost (Total)	Occurrence Cost (Normal)	Occurrence Frequency*
2011	1,164,310,645	87,299,176	75,653,935	2,806	31,112	26,961	0.2410
2012	1,136,911,546	88,194,796	78,018,727	2,814	31,341	27,725	0.2475
2013	1,077,067,215	78,013,779	68,347,443	2,279	34,232	29,990	0.2116
2014	1,079,651,342	80,879,406	73,227,178	2,158	37,479	33,933	0.1999
2015	1,089,471,974	81,428,287	73,674,396	2,003	40,653	36,782	0.1839
2016	1,096,779,359	75,107,636	66,749,975	1,923	39,058	34,711	0.1753
2017	1,196,975,526	88,070,913	79,019,536	1,915	45,990	41,263	0.1600
2018	1,331,912,335	105,547,253	79,676,462	1,790	58,965	44,512	0.1344
2019	1,351,100,960	117,610,911	95,522,311	1,829	64,303	52,227	0.1354
2020	1,343,258,714	111,281,705	91,797,623	1,633	68,146	56,214	0.1216

Total Losses

	Severity	Frequency	R-Squared Severity	Frequency
Observed annual rate of change (10 years) =	9.8%	-7.8%	0.936	0.976
Observed annual rate of change (8 years) =	11.0%	-7.8%	0.930	0.974
Observed annual rate of change (6 years) =	13.2%	-8.3%	0.918	0.952

Normal Losses

	Severity	Frequency	R-Squared Severity	Frequency
Observed annual rate of change (10 years) =	8.6%	-7.8%	0.962	0.976
Observed annual rate of change (8 years) =	9.1%	-7.8%	0.944	0.974
Observed annual rate of change (6 years) =	10.3%	-8.3%	0.922	0.952
Selected annual rate of change =	9.0%	-8.0%		

\* in 100,000's

## MISSOURI

## BUSINESSOWNERS

## EXHIBIT C4-3

## EXTENDED COVERAGE - BUILDINGS

## MULTISTATE SEVERITY TREND

Accident <u>Year</u>	Total <u>Losses</u>	Normal <u>Losses</u>	Incurred <u>Occurrences</u>	Occurrence Cost <u>(Total)</u>	Occurrence Cost <u>(Normal)</u>
2011	293,887,454	130,025,641	12,516	23,481	10,389
2012	394,064,987	188,497,191	19,894	19,808	9,475
2013	256,875,357	135,310,402	13,758	18,671	9,835
2014	138,215,638	93,480,125	7,334	18,846	12,746
2015	188,963,997	108,737,651	8,257	22,885	13,169
2016	147,919,068	115,920,696	7,278	20,324	15,928
2017	240,548,718	146,020,500	8,474	28,387	17,232
2018	245,845,074	135,637,101	8,063	30,491	16,822
2019	243,340,906	154,723,177	7,170	33,939	21,579
2020	285,714,732	159,028,302	6,734	42,429	23,616

Total LossesR-squared

Observed annual rate of change (10 years) =	8.0%	0.691
Observed annual rate of change (8 years) =	12.5%	0.917
Observed annual rate of change (6 years) =	14.4%	0.888

Normal LossesR-squared

Observed annual rate of change (10 years) =	10.8%	0.939
Observed annual rate of change (8 years) =	12.1%	0.951
Observed annual rate of change (6 years) =	11.5%	0.923
Selected annual rate of change =	10.0%	

## MISSOURI

## BUSINESSOWNERS

## EXHIBIT C4-4

## EXTENDED COVERAGE - CONTENTS

## MULTISTATE SEVERITY TREND

Accident <u>Year</u>	Total <u>Losses</u>	Normal <u>Losses</u>	Incurred <u>Occurrences</u>	Occurrence Cost <u>(Total)</u>	Occurrence Cost <u>(Normal)</u>
2011	14,822,707	11,582,025	1,908	7,769	6,070
2012	46,464,242	20,208,614	3,325	13,974	6,078
2013	17,892,099	10,885,576	2,468	7,250	4,411
2014	12,601,915	9,295,732	1,566	8,047	5,936
2015	14,683,095	10,411,064	1,447	10,147	7,195
2016	11,892,600	9,501,211	1,482	8,025	6,411
2017	12,779,857	9,474,083	1,632	7,831	5,805
2018	16,087,149	10,534,376	1,628	9,882	6,471
2019	14,279,681	11,095,357	1,462	9,767	7,589
2020	26,454,907	17,355,646	1,524	17,359	11,388

Total LossesR-squared

Observed annual rate of change (10 years) =	3.7%	0.149
Observed annual rate of change (8 years) =	8.7%	0.541
Observed annual rate of change (6 years) =	10.5%	0.426

Normal LossesR-squared

Observed annual rate of change (10 years) =	5.6%	0.459
Observed annual rate of change (8 years) =	9.3%	0.642
Observed annual rate of change (6 years) =	8.7%	0.427
Selected annual rate of change =	6.0%	

## MISSOURI

## BUSINESSOWNERS

## EXHIBIT C4-5

## ALL OTHER PROPERTY - BUILDINGS

## MULTISTATE SEVERITY TREND

<u>Accident Year</u>	<u>Total Losses</u>	<u>Normal Losses</u>	<u>Incurred Occurrences</u>	<u>Occurrence Cost (Total)</u>	<u>Occurrence Cost (Normal)</u>
2011	240,187,363	192,899,642	17,660	13,601	10,923
2012	172,390,310	157,872,609	14,741	11,695	10,710
2013	160,381,696	150,639,164	13,126	12,219	11,476
2014	233,317,631	183,592,433	15,794	14,773	11,624
2015	253,885,731	183,742,467	15,764	16,105	11,656
2016	146,153,429	139,086,667	10,259	14,246	13,558
2017	151,751,539	142,493,921	10,073	15,065	14,146
2018	213,994,546	189,596,992	12,088	17,703	15,685
2019	247,475,330	229,267,678	12,144	20,378	18,879
2020	177,928,225	176,021,591	10,400	17,108	16,925

Total LossesR-squared

Observed annual rate of change (10 years) =	4.8%	0.699
Observed annual rate of change (8 years) =	5.3%	0.657
Observed annual rate of change (6 years) =	4.5%	0.418

Normal LossesR-squared

Observed annual rate of change (10 years) =	6.4%	0.890
Observed annual rate of change (8 years) =	7.5%	0.890
Observed annual rate of change (6 years) =	8.8%	0.854
Selected annual rate of change =	6.0%	

## MISSOURI

## BUSINESSOWNERS

## EXHIBIT C4-6

## ALL OTHER PROPERTY - CONTENTS

## MULTISTATE SEVERITY TREND

Accident <u>Year</u>	Total <u>Losses</u>	Normal <u>Losses</u>	Incurred <u>Occurrences</u>	Occurrence Cost <u>(Total)</u>	Occurrence Cost <u>(Normal)</u>
2011	107,927,842	96,190,648	10,177	10,605	9,452
2012	103,537,534	97,526,892	11,068	9,355	8,812
2013	106,035,660	100,236,696	9,927	10,682	10,097
2014	116,352,953	93,969,413	9,710	11,983	9,678
2015	101,167,038	89,273,725	8,214	12,316	10,868
2016	96,068,403	90,558,117	7,644	12,568	11,847
2017	105,814,735	101,150,579	7,583	13,954	13,339
2018	133,892,398	117,171,872	8,763	15,279	13,371
2019	141,674,700	133,832,914	8,434	16,798	15,868
2020	126,486,235	125,496,150	8,111	15,594	15,472

Total LossesR-squared

Observed annual rate of change (10 years) =	6.1%	0.905
Observed annual rate of change (8 years) =	6.2%	0.920
Observed annual rate of change (6 years) =	6.3%	0.846

Normal LossesR-squared

Observed annual rate of change (10 years) =	6.9%	0.929
Observed annual rate of change (8 years) =	7.7%	0.938
Observed annual rate of change (6 years) =	7.9%	0.924
Selected annual rate of change =	6.5%	

## MISSOURI

## BUSINESSOWNERS

## EXHIBIT C4-7

## BURGLARY

## MULTISTATE SEVERITY AND FREQUENCY TREND

Accident Year	Trended Exposures	Total Losses	Normal Losses	Incurred Occurrences	Occurrence Cost (Total)	Occurrence Cost (Normal)	Occurrence Frequency*
2011	8,619,074,628	17,228,304	16,786,112	3,101	5,556	5,413	0.0360
2012	8,505,580,949	17,942,967	16,939,705	3,026	5,930	5,598	0.0356
2013	8,149,387,523	15,843,237	15,273,165	2,551	6,211	5,987	0.0313
2014	7,960,763,977	18,339,711	17,496,852	2,708	6,772	6,461	0.0340
2015	7,697,534,858	19,479,068	18,221,457	2,662	7,317	6,845	0.0346
2016	7,631,003,772	19,072,594	18,359,883	2,712	7,033	6,770	0.0355
2017	8,256,518,692	22,620,857	21,471,547	3,018	7,495	7,114	0.0366
2018	8,891,939,776	24,995,150	22,744,122	3,036	8,233	7,491	0.0341
2019	9,131,112,862	22,753,143	21,959,824	2,870	7,928	7,652	0.0314
2020	9,274,357,605	24,829,335	22,885,183	2,938	8,451	7,789	0.0317

Total Losses

	Severity	Frequency	R-Squared Severity	Frequency
Observed annual rate of change (10 years) =	4.6%	-0.8%	0.942	0.176
Observed annual rate of change (8 years) =	4.1%	-0.4%	0.894	0.025
Observed annual rate of change (6 years) =	3.4%	-2.5%	0.773	0.586

Normal Losses

	Severity	Frequency	R-Squared Severity	Frequency
Observed annual rate of change (10 years) =	4.2%	-0.8%	0.961	0.176
Observed annual rate of change (8 years) =	3.6%	-0.4%	0.951	0.025
Observed annual rate of change (6 years) =	3.1%	-2.5%	0.929	0.586
Selected annual rate of change =	4.0%	-1.5%		

\* in 100,000's

MISSOURI  
BUSINESSOWNERS  
EXHIBIT C5

DEVELOPMENT OF EXTENDED COVERAGE EXCESS MULTIPLIER

YEAR ENDING	(1) EARNED PREMIUMS	(2) INCURRED LOSSES	(3) NORMAL INCURRED LOSSES	(4) NORMAL LOSS RATIO	(5) STATE EXCESS LOSS RATIO	(6) REGIONAL EXCESS LOSS RATIO
6/30/1991	4,121,054	989,690	989,684	0.240		
6/30/1992	4,243,701	494,858	494,859	0.117		
6/30/1993	4,147,922	599,931	599,931	0.145		
6/30/1994	4,166,743	890,120	890,120	0.214		
6/30/1995	4,899,054	2,522,459	2,522,451	0.515		
6/30/1996	5,483,686	2,034,679	1,980,534	0.361	0.010	
6/30/1997	5,714,191	1,298,297	1,298,301	0.227		
6/30/1998	5,930,301	1,420,561	1,420,561	0.240		
6/30/1999	5,999,846	1,915,370	1,915,365	0.319		
6/30/2000	6,179,821	779,438	779,434	0.126		
6/30/2001	7,590,477	8,179,141	3,474,403	0.458	0.455	0.165
6/30/2002	8,590,818	3,969,532	3,609,642	0.420	0.041	0.001
6/30/2003	9,355,165	8,242,597	3,312,826	0.354	0.402	0.125
6/30/2004	10,091,801	5,428,386	4,263,331	0.422	0.108	0.007
6/30/2005	10,717,536	2,333,405	2,333,418	0.218		
6/30/2006	11,013,128	10,883,475	5,710,238	0.518	0.365	0.104
6/30/2007	11,180,961	1,921,417	1,921,423	0.172		
6/30/2008	11,517,402	4,640,810	4,640,799	0.403		
6/30/2009	11,348,225	6,103,446	4,940,219	0.435	0.097	0.006
6/30/2010	11,796,083	2,188,800	2,188,779	0.186		
6/30/2011	11,951,924	55,906,522	10,355,861	0.866	1.557	2.254
6/30/2012	12,018,553	31,997,670	9,733,633	0.810	1.026	0.826
6/30/2013	12,691,414	6,096,950	6,096,960	0.480		
6/30/2014	13,822,500	3,783,296	3,783,285	0.274		
6/30/2015	14,483,014	10,765,889	8,313,150	0.574	0.154	0.016
6/30/2016	14,945,171	6,589,886	5,345,575	0.358	0.079	0.004
6/30/2017	15,021,469	12,814,064	11,453,363	0.762	0.086	0.005
6/30/2018	15,297,059	7,577,672	7,519,651	0.492	0.004	
6/30/2019	14,928,511	15,605,596	8,190,126	0.549	0.380	0.117
6/30/2020	15,304,753	15,271,102	12,633,082	0.825	0.157	0.016
TOTALS				12.080	4.920	3.646
(7) STATE EXCESS COMPONENT = ( TOTAL (5) / TOTAL (4) )					0.407	
(8) REGIONAL EXCESS COMPONENT					0.189	
(9) STATE EXCESS MULTIPLIER = ( 1 + (7) ) x ( 1 + (8) )					1.673	

MISSOURI  
BUSINESSOWNERS  
EXHIBIT C6

DEVELOPMENT OF ALL OTHER PROPERTY EXCESS MULTIPLIER

YEAR ENDING	(1) EARNED PREMIUMS	(2) INCURRED LOSSES	(3) NORMAL INCURRED LOSSES	(4) NORMAL LOSS RATIO	(5) STATE EXCESS LOSS RATIO
6/30/1991	2,253,461	1,868,172	1,541,652	0.684	0.145
6/30/1992	2,320,526	758,828	758,829	0.327	
6/30/1993	2,268,153	1,179,239	1,179,239	0.520	
6/30/1994	2,278,444	1,783,110	1,683,674	0.739	0.044
6/30/1995	2,678,884	3,218,645	2,471,488	0.923	0.279
6/30/1996	2,998,570	1,604,845	1,604,849	0.535	
6/30/1997	3,124,614	1,636,773	1,636,775	0.524	
6/30/1998	3,242,787	1,728,799	1,451,367	0.448	0.086
6/30/1999	3,280,815	2,851,116	2,745,557	0.837	0.032
6/30/2000	3,379,229	2,475,394	2,475,389	0.733	
6/30/2001	4,150,599	7,700,669	4,432,384	1.068	0.787
6/30/2002	4,697,601	3,704,097	3,575,323	0.761	0.027
6/30/2003	5,115,559	5,215,497	4,457,083	0.871	0.148
6/30/2004	5,518,364	2,403,396	2,403,390	0.436	
6/30/2005	5,860,526	2,225,374	2,225,375	0.380	
6/30/2006	6,022,161	1,668,506	1,668,502	0.277	
6/30/2007	6,113,934	6,264,442	5,347,850	0.875	0.150
6/30/2008	6,297,906	6,001,412	5,443,602	0.864	0.089
6/30/2009	6,205,397	6,830,231	5,551,896	0.895	0.206
6/30/2010	6,450,293	4,346,810	4,061,870	0.630	0.044
6/30/2011	6,535,510	16,894,522	5,189,595	0.794	1.791
6/30/2012	6,571,944	6,117,605	5,142,012	0.782	0.148
6/30/2013	6,939,875	6,753,211	6,244,065	0.900	0.073
6/30/2014	7,558,372	5,426,662	4,747,181	0.628	0.090
6/30/2015	7,919,552	3,911,621	3,911,626	0.494	
6/30/2016	8,172,267	3,457,709	3,457,723	0.423	
6/30/2017	8,213,988	3,817,131	3,817,124	0.465	
6/30/2018	8,364,685	5,114,735	4,953,692	0.592	0.019
6/30/2019	8,163,157	5,372,559	5,372,553	0.658	
6/30/2020	8,368,892	5,211,176	4,779,437	0.571	0.052
TOTALS				19.632	4.210
(6) STATE EXCESS COMPONENT = ( TOTAL (5) / TOTAL (4) )					0.214
(7) STATE EXCESS MULTIPLIER = ( 1 + (6) )					1.214

MISSOURI  
BUSINESSOWNERS

EXHIBIT C7-1

LIABILITY - LESSORS  
MULTISTATE SEVERITY AND FREQUENCY TREND

Accident Year	Trended Exposures	Paid Total Losses	Paid Normal Losses*	Paid Occurrences**	Occurrence Cost (Total)	Occurrence Cost (Normal)	Occurrence Frequency***
2011	4,099,794,321	124,892,081	57,893,480	5,109	24,446	11,332	0.1246
2012	4,506,624,976	103,722,592	45,571,826	3,804	27,268	11,981	0.0844
2013	4,437,805,156	116,920,217	52,042,231	3,761	31,092	13,839	0.0847
2014	4,368,966,708	193,128,898	84,306,880	5,366	35,989	15,710	0.1228
2015	4,070,042,018	176,848,250	73,654,744	4,584	38,581	16,068	0.1126
2016	3,958,126,587	143,301,005	62,315,580	3,793	37,784	16,431	0.0958
2017	4,376,700,914	143,257,458	69,924,051	3,811	37,593	18,349	0.0871
2018	4,625,505,126	142,574,249	79,745,376	4,123	34,581	19,342	0.0891
2019	4,740,842,412	127,118,294	79,532,344	3,253	39,081	24,452	0.0686
2020	4,804,788,607	105,804,440	76,934,890	2,475	42,758	31,091	0.0515

Total Losses

				Severity	Frequency	R-Squared Severity	R-Squared Frequency
Observed annual rate of change (10 years)	=			5.1%	-6.1%	0.736	0.498
Observed annual rate of change (8 years)	=			2.8%	-8.2%	0.512	0.585
Observed annual rate of change (6 years)	=			1.5%	-13.0%	0.172	0.891

Normal Losses

				Severity	Frequency	R-Squared Severity	R-Squared Frequency
Observed annual rate of change (10 years)	=			10.3%	-6.1%	0.931	0.498
Observed annual rate of change (8 years)	=			10.7%	-8.2%	0.883	0.585
Observed annual rate of change (6 years)	=			13.9%	-13.0%	0.899	0.891
Selected annual rate of change	=			7.5%	-6.5%		

\* Includes basic indemnity and allocated loss adjustment expense developed separately to an ultimate settlement basis.

\*\* Developed to an ultimate settlement basis.

\*\*\* in 100,000's

MISSOURI  
BUSINESSOWNERS

EXHIBIT C7-2

LIABILITY - OCCUPANTS  
MULTISTATE SEVERITY AND FREQUENCY TREND

Accident Year	Trended Exposures	Paid Total Losses	Paid Normal Losses*	Paid Occurrences**	Occurrence Cost (Total)	Occurrence Cost (Normal)	Occurrence Frequency***
2011	808,888,069	178,628,268	81,607,771	10,033	17,804	8,134	1.2403
2012	765,226,618	141,368,056	58,844,959	7,335	19,272	8,022	0.9586
2013	724,221,217	118,874,162	54,331,006	5,512	21,566	9,857	0.7611
2014	954,264,275	167,076,982	71,332,518	6,892	24,241	10,349	0.7223
2015	1,084,900,161	167,584,245	67,914,138	6,135	27,318	11,071	0.5655
2016	977,910,040	137,724,980	60,943,124	5,192	26,528	11,739	0.5309
2017	1,020,093,607	139,285,721	66,364,449	4,742	29,372	13,995	0.4649
2018	1,131,890,294	165,408,298	79,639,576	4,570	36,198	17,428	0.4037
2019	1,129,662,148	159,230,472	98,616,638	4,373	36,408	22,549	0.3871
2020	1,222,619,419	179,796,393	128,197,150	4,132	43,516	31,027	0.3379

Total Losses

		Severity	Frequency	R-Squared	
				Severity	Frequency
Observed annual rate of change (10 years)	=	9.9%	-12.8%	0.975	0.971
Observed annual rate of change (8 years)	=	9.9%	-11.2%	0.952	0.981
Observed annual rate of change (6 years)	=	10.5%	-9.9%	0.909	0.984

Normal Losses

		Severity	Frequency	R-Squared	
				Severity	Frequency
Observed annual rate of change (10 years)	=	15.0%	-12.8%	0.914	0.971
Observed annual rate of change (8 years)	=	17.4%	-11.2%	0.909	0.981
Observed annual rate of change (6 years)	=	23.3%	-9.9%	0.959	0.984
Selected annual rate of change	=	12.0%	-11.0%		

\* Includes basic indemnity and allocated loss adjustment expense developed separately to an ultimate settlement basis.

\*\* Developed to an ultimate settlement basis.

\*\*\* in 100,000's

MISSOURI  
BUSINESSOWNERS

EXHIBIT C7-3

LIABILITY - SALES  
MULTISTATE SEVERITY AND FREQUENCY TREND

Accident Year	Trended Exposures	Paid Total Losses	Paid Normal Losses*	Paid Occurrences**	Occurrence Cost (Total)	Occurrence Cost (Normal)	Occurrence Frequency***
2011	17,130,241	20,561,171	11,053,861	2,597	7,917	4,256	0.0152
2012	17,358,237	25,340,867	12,217,629	2,398	10,568	5,095	0.0138
2013	19,347,775	31,077,870	14,880,156	2,393	12,987	6,218	0.0124
2014	27,778,148	40,127,801	20,654,559	3,165	12,679	6,526	0.0114
2015	34,037,483	53,670,423	25,749,704	3,983	13,475	6,465	0.0117
2016	38,535,232	61,713,141	29,345,530	4,090	15,088	7,175	0.0106
2017	41,260,041	64,922,148	36,175,307	3,746	17,333	9,658	0.0091
2018	39,408,425	79,973,701	47,355,821	3,480	22,979	13,607	0.0088
2019	34,616,329	86,779,419	50,752,807	2,801	30,981	18,119	0.0081
2020	31,317,631	77,166,136	55,353,384	2,250	34,291	24,598	0.0072

Total Losses

				Severity	Frequency	R-Squared Severity	R-Squared Frequency
Observed annual rate of change (10 years)	=			16.1%	-7.5%	0.941	0.977
Observed annual rate of change (8 years)	=			16.7%	-7.5%	0.909	0.956
Observed annual rate of change (6 years)	=			22.5%	-8.9%	0.972	0.977

Normal Losses

				Severity	Frequency	R-Squared Severity	R-Squared Frequency
Observed annual rate of change (10 years)	=			19.8%	-7.5%	0.917	0.977
Observed annual rate of change (8 years)	=			22.8%	-7.5%	0.902	0.956
Observed annual rate of change (6 years)	=			32.3%	-8.9%	0.985	0.977
Selected annual rate of change	=			14.5%	-8.0%		

\* Includes basic indemnity and allocated loss adjustment expense developed separately to an ultimate settlement basis.

\*\* Developed to an ultimate settlement basis.

\*\*\* in 100,000's

MISSOURI  
BUSINESSOWNERS

EXHIBIT C7-4

LIABILITY - PAYROLL  
MULTISTATE SEVERITY AND FREQUENCY TREND

Accident Year	Trended Exposures	Paid Total Losses	Paid Normal Losses*	Paid Occurrences**	Occurrence Cost (Total)	Occurrence Cost (Normal)	Occurrence Frequency***
2011	3,316,098	53,443,553	23,396,498	2,360	22,646	9,914	0.0712
2012	3,220,962	51,373,011	22,051,311	2,867	17,918	7,691	0.0890
2013	3,412,145	68,346,622	25,611,171	2,705	25,266	9,468	0.0793
2014	3,515,181	68,275,285	26,537,619	2,804	24,352	9,465	0.0798
2015	3,643,374	61,992,512	27,844,575	2,484	24,957	11,210	0.0682
2016	3,884,502	75,094,069	26,859,621	2,290	32,792	11,729	0.0590
2017	4,036,209	73,384,015	27,491,149	2,319	31,647	11,856	0.0575
2018	3,829,030	60,683,138	30,452,057	2,292	26,479	13,288	0.0599
2019	3,617,819	54,000,727	33,802,707	2,032	26,573	16,634	0.0562
2020	3,281,915	45,479,237	32,527,175	1,577	28,836	20,624	0.0481

Total Losses

				Severity	Frequency	R-Squared Severity	R-Squared Frequency
Observed annual rate of change (10 years)	=			3.8%	-5.5%	0.439	0.784
Observed annual rate of change (8 years)	=			1.8%	-6.5%	0.155	0.886
Observed annual rate of change (6 years)	=			-0.2%	-5.2%	0.002	0.769

Normal Losses

				Severity	Frequency	R-Squared Severity	R-Squared Frequency
Observed annual rate of change (10 years)	=			9.1%	-5.5%	0.832	0.784
Observed annual rate of change (8 years)	=			11.0%	-6.5%	0.904	0.886
Observed annual rate of change (6 years)	=			12.8%	-5.2%	0.872	0.769
Selected annual rate of change	=			8.0%	-6.0%		

\* Includes basic indemnity and allocated loss adjustment expense developed separately to an ultimate settlement basis.

\*\* Developed to an ultimate settlement basis.

\*\*\* in 100,000's

MISSOURI  
 BUSINESSOWNERS  
 EXHIBIT C8-1  
 LOSS DEVELOPMENT  
 LIABILITY - LESSORS/OCCUPANTS

\$ 300,000 LIMIT INCURRED LOSSES AS OF:

YEAR	15 MONTHS	27 MONTHS	39 MONTHS	LINK RATIOS		
				27:15	39:27	
2006	1,696,711	2,607,269	2,998,582	1.537	1.150	
2007	3,035,250	2,982,701	3,267,909	0.983	1.096	
2008	3,749,666	4,073,503	4,738,471	1.086	1.163	
2009	2,940,247	3,388,943	4,123,007	1.153	1.217	
2010	2,681,335	3,039,094	4,344,122	1.133	1.429	
2011	2,216,980	3,483,267	4,821,300	1.571	1.384	
2012	2,224,645	2,259,552	2,983,418	1.016	1.320	
2013	1,994,685	2,150,908	2,177,039	1.078	1.012	
2014	1,491,952	2,936,721	3,495,454	1.968	1.190	
2015	1,884,189	2,963,725	3,029,167	1.573	1.022	
2016	2,014,751	2,222,516	2,416,139	1.103	1.087	
2017	1,219,160	1,872,714	2,592,637	1.536	1.384	
2018	1,600,202	2,719,720	2,848,473	1.700	1.047	
2019	3,073,427	3,617,166		1.177		
2020	2,192,362					
(1) Average Best 3 of 5				(A) Statewide	1.429	1.108
				(B) Multistate	1.557	1.291
(2) Credibility					0.541	0.095
(3) Credibility Weighted Average					1.488	1.274

Summary of Factors

	Factor
63 to Ultimate**	1.023
51 to Ultimate**	1.057
39 to Ultimate**	1.174
27 to Ultimate	1.496
15 to Ultimate	2.226

\*\*Multistate

BUSINESSOWNERS  
EXHIBIT C8-2  
MULTISTATE LOSS DEVELOPMENT  
LIABILITY - LESSORS/OCCUPANTS  
\$ 300,000 LIMIT INCURRED LOSSES AS OF:

<u>YEAR</u>	<u>15 MONTHS</u>	<u>27 MONTHS</u>	<u>39 MONTHS</u>	<u>51 MONTHS</u>	<u>63 MONTHS</u>	<u>75 MONTHS</u>	<u>87 MONTHS</u>	<u>99 MONTHS</u>	<u>111 MONTHS</u>	<u>123 MONTHS</u>
2006	156,493,652	215,821,796	265,778,814	278,298,748	278,110,638	279,862,195	280,375,620	280,678,897	281,043,734	283,474,796
2007	159,777,772	228,428,382	270,704,456	284,244,740	288,193,733	288,912,142	290,574,063	293,075,059	293,618,123	292,270,130
2008	184,242,112	249,716,348	291,074,891	313,100,503	316,685,033	315,488,435	316,087,705	316,947,279	317,145,960	317,184,220
2009	177,855,314	247,220,527	299,426,913	317,340,402	324,437,532	325,409,245	320,238,829	321,617,084	321,834,000	321,446,832
2010	177,239,382	248,811,756	303,056,849	326,354,888	330,504,910	329,835,937	331,311,486	331,300,953	332,168,069	333,184,013
2011	182,665,953	262,060,822	328,585,620	357,515,821	366,449,217	370,785,321	372,284,067	377,564,487	379,296,571	379,807,058
2012	155,805,978	219,496,982	266,876,625	287,536,419	295,101,441	295,253,711	296,543,454	297,235,080	298,189,782	
2013	139,090,719	204,280,434	246,272,365	266,344,748	276,061,081	277,880,672	280,464,188	281,465,559		
2014	159,641,004	239,439,463	314,100,429	354,075,687	364,564,904	370,274,830	373,800,102			
2015	153,595,792	246,589,790	323,915,048	358,577,375	370,159,136	378,839,055				
2016	152,694,024	232,987,592	297,590,431	327,107,895	347,478,654					
2017	163,713,717	239,240,809	307,165,347	349,125,927						
2018	164,480,028	263,743,757	335,946,779							
2019	165,845,224	255,470,695								
2020	149,284,248									

LINKRATIOS

<u>YEAR</u>	<u>27:15</u>	<u>39:27</u>	<u>51:39</u>	<u>63:51</u>	<u>75:63</u>	<u>87:75</u>	<u>99:87</u>	<u>111:99</u>	<u>123:111</u>
2006	1.379	1.231	1.047	0.999	1.006	1.002	1.001	1.001	1.009
2007	1.430	1.185	1.050	1.014	1.002	1.006	1.009	1.002	0.995
2008	1.355	1.166	1.076	1.011	0.996	1.002	1.003	1.001	1.000
2009	1.390	1.211	1.060	1.022	1.003	0.984	1.004	1.001	0.999
2010	1.404	1.218	1.077	1.013	0.998	1.004	1.000	1.003	1.003
2011	1.435	1.254	1.088	1.025	1.012	1.004	1.014	1.005	1.001
2012	1.409	1.216	1.077	1.026	1.001	1.004	1.002	1.003	
2013	1.469	1.206	1.082	1.036	1.007	1.009	1.004		
2014	1.500	1.312	1.127	1.030	1.016	1.010			
2015	1.605	1.314	1.107	1.032	1.023				
2016	1.526	1.277	1.099	1.062					
2017	1.461	1.284	1.137						
2018	1.604	1.274							
2019	1.540								
BEST 3 OF 5	1.557	1.291	1.111	1.033	1.012	1.006	1.003	1.002	1.000
FACTORS	<u>15 to Ult.</u> 2.360	<u>27 to Ult.</u> 1.516	<u>39 to Ult.</u> 1.174	<u>51 to Ult.</u> 1.057	<u>63 to Ult.</u> 1.023	<u>75 to Ult.</u> 1.011	<u>87 to Ult.</u> 1.005	<u>99 to Ult.</u> 1.002	<u>111 to Ult.</u> 1.000

BUSINESSOWNERS  
EXHIBIT C8-3  
MULTISTATE LOSS DEVELOPMENT  
LIABILITY - SALES  
\$ 300,000 LIMIT INCURRED LOSSES AS OF:

<u>YEAR</u>	<u>15 MONTHS</u>	<u>27 MONTHS</u>	<u>39 MONTHS</u>	<u>51 MONTHS</u>	<u>63 MONTHS</u>	<u>75 MONTHS</u>	<u>87 MONTHS</u>	<u>99 MONTHS</u>	<u>111 MONTHS</u>	<u>123 MONTHS</u>
2006	9,825,211	12,112,047	14,510,360	15,142,943	15,204,537	15,261,037	15,314,336	15,317,803	15,333,983	15,478,899
2007	12,208,163	15,787,970	18,131,628	19,034,084	19,033,260	19,032,626	18,847,957	18,930,128	18,895,879	18,907,156
2008	17,388,392	20,199,168	21,684,846	23,118,897	23,960,971	24,155,678	24,107,288	24,183,355	24,207,016	24,256,084
2009	19,299,158	22,792,205	26,823,870	28,817,741	28,967,666	29,107,425	29,016,159	28,974,948	28,975,272	29,007,242
2010	21,260,562	24,693,815	27,098,887	27,732,178	28,338,335	28,507,692	28,956,486	28,568,031	28,705,873	28,620,972
2011	18,408,319	22,202,974	25,012,094	26,464,426	26,219,728	26,033,924	25,740,428	25,684,882	25,788,800	25,742,233
2012	22,781,000	27,438,764	32,905,182	36,397,604	37,046,240	36,306,016	36,026,495	36,247,445	35,626,400	
2013	27,937,480	37,726,118	42,709,702	45,254,163	46,980,802	46,359,840	45,970,073	45,890,830		
2014	43,251,127	58,921,610	70,429,519	77,578,405	77,837,915	78,342,716	79,199,113			
2015	61,210,970	81,200,424	96,825,065	104,186,494	107,254,195	109,149,247				
2016	68,630,544	91,002,332	109,922,526	116,311,906	117,685,082					
2017	73,065,025	91,216,743	113,506,789	124,088,940						
2018	71,656,653	95,593,632	113,035,021							
2019	67,070,400	94,855,714								
2020	60,591,139									

LINKRATIOS

<u>YEAR</u>	<u>27:15</u>	<u>39:27</u>	<u>51:39</u>	<u>63:51</u>	<u>75:63</u>	<u>87:75</u>	<u>99:87</u>	<u>111:99</u>	<u>123:111</u>
2006	1.233	1.198	1.044	1.004	1.004	1.003	1.000	1.001	1.009
2007	1.293	1.148	1.050	1.000	1.000	0.990	1.004	0.998	1.001
2008	1.162	1.074	1.066	1.036	1.008	0.998	1.003	1.001	1.002
2009	1.181	1.177	1.074	1.005	1.005	0.997	0.999	1.000	1.001
2010	1.161	1.097	1.023	1.022	1.006	1.016	0.987	1.005	0.997
2011	1.206	1.127	1.058	0.991	0.993	0.989	0.998	1.004	0.998
2012	1.204	1.199	1.106	1.018	0.980	0.992	1.006	0.983	
2013	1.350	1.132	1.060	1.038	0.987	0.992	0.998		
2014	1.362	1.195	1.102	1.003	1.006	1.011			
2015	1.327	1.192	1.076	1.029	1.018				
2016	1.326	1.208	1.058	1.012					
2017	1.248	1.244	1.093						
2018	1.334	1.182							
2019	1.414								
BEST 3 OF 5	1.329	1.198	1.076	1.020	0.995	0.998	0.998	1.002	1.000
FACTORS	<u>15 to Ult.</u> 1.736	<u>27 to Ult.</u> 1.306	<u>39 to Ult.</u> 1.090	<u>51 to Ult.</u> 1.013	<u>63 to Ult.</u> 0.993	<u>75 to Ult.</u> 0.998	<u>87 to Ult.</u> 1.000	<u>99 to Ult.</u> 1.002	<u>111 to Ult.</u> 1.000

BUSINESSOWNERS  
EXHIBIT C8-4  
MULTISTATE LOSS DEVELOPMENT  
LIABILITY - PAYROLL  
\$ 300,000 LIMIT INCURRED LOSSES AS OF:

<u>YEAR</u>	<u>15 MONTHS</u>	<u>27 MONTHS</u>	<u>39 MONTHS</u>	<u>51 MONTHS</u>	<u>63 MONTHS</u>	<u>75 MONTHS</u>	<u>87 MONTHS</u>	<u>99 MONTHS</u>	<u>111 MONTHS</u>	<u>123 MONTHS</u>
2006	31,563,414	39,411,191	43,806,704	45,685,698	47,281,813	48,682,130	50,406,909	51,760,459	51,725,804	50,690,804
2007	37,704,265	47,045,520	53,192,200	57,136,446	58,814,276	60,811,929	61,576,456	62,364,883	61,938,580	62,049,589
2008	40,664,922	50,442,234	57,752,932	64,348,328	68,724,715	70,049,529	71,221,728	69,992,725	71,885,094	72,632,895
2009	45,554,382	53,863,403	63,777,822	65,938,084	69,613,126	69,929,578	69,940,665	72,084,009	74,040,873	74,974,704
2010	45,126,344	57,956,830	65,292,591	71,385,500	73,398,669	73,619,283	74,261,210	75,699,460	76,836,519	77,340,329
2011	47,520,057	61,846,141	71,771,868	77,755,891	79,639,537	81,255,973	81,254,657	83,292,600	83,879,390	85,725,370
2012	41,909,210	53,987,517	63,416,262	70,340,624	74,819,293	75,760,084	76,476,512	77,055,079	79,152,214	
2013	47,813,081	63,771,727	76,252,862	83,032,715	89,496,419	93,311,074	95,646,819	99,499,888		
2014	52,077,607	73,128,079	90,002,587	100,323,249	105,118,797	109,322,453	113,444,933			
2015	54,344,904	74,775,557	92,973,948	101,922,980	107,388,038	112,215,214				
2016	58,200,058	78,866,651	94,883,253	103,036,053	108,311,943					
2017	60,811,291	80,225,605	97,024,385	108,335,859						
2018	58,716,301	81,405,790	104,708,819							
2019	64,960,421	92,273,514								
2020	69,439,287									

LINKRATIOS

<u>YEAR</u>	<u>27:15</u>	<u>39:27</u>	<u>51:39</u>	<u>63:51</u>	<u>75:63</u>	<u>87:75</u>	<u>99:87</u>	<u>111:99</u>	<u>123:111</u>
2006	1.249	1.112	1.043	1.035	1.030	1.035	1.027	0.999	0.980
2007	1.248	1.131	1.074	1.029	1.034	1.013	1.013	0.993	1.002
2008	1.240	1.145	1.114	1.068	1.019	1.017	0.983	1.027	1.010
2009	1.182	1.184	1.034	1.056	1.005	1.000	1.031	1.027	1.013
2010	1.284	1.127	1.093	1.028	1.003	1.009	1.019	1.015	1.007
2011	1.301	1.160	1.083	1.024	1.020	1.000	1.025	1.007	1.022
2012	1.288	1.175	1.109	1.064	1.013	1.009	1.008	1.027	
2013	1.334	1.196	1.089	1.078	1.043	1.025	1.040		
2014	1.404	1.231	1.115	1.048	1.040	1.038			
2015	1.376	1.243	1.096	1.054	1.045				
2016	1.355	1.203	1.086	1.051					
2017	1.319	1.209	1.117						
2018	1.386	1.286							
2019	1.420								
BEST 3 OF 5	1.372	1.228	1.100	1.056	1.034	1.014	1.025	1.023	1.010
FACTORS	<u>15 to Ult.</u> 2.173	<u>27 to Ult.</u> 1.584	<u>39 to Ult.</u> 1.290	<u>51 to Ult.</u> 1.173	<u>63 to Ult.</u> 1.111	<u>75 to Ult.</u> 1.074	<u>87 to Ult.</u> 1.059	<u>99 to Ult.</u> 1.033	<u>111 to Ult.</u> 1.010

## MISSOURI

## BUSINESSOWNERS

## EXHIBIT C9

DEVELOPMENT OF EXPOSURE TREND FACTORSBuildings

<u>Year</u>	(1) Annual Written Increase	(2) Calendar Yr. Written Factors	(3) Fiscal Yr. Written Factors(a)	(4) Projection Factor	(5) Exposure Trend Factors(a)
2015	2.3%	1.128			
2016	2.1%	1.105	1.117	1.059	1.183
2017	2.1%	1.082	1.094	1.059	1.159
2018	2.7%	1.054	1.068	1.059	1.131
2019	2.9%	1.024	1.039	1.059	1.100
2020	2.4%	1.000	1.012	1.059	1.072

Contents

<u>Year</u>	(6) Annual Written Increase	(7) Calendar Yr. Written Factors	(8) Fiscal Yr. Written Factors(a)	(9) Projection Factor	(10) Exposure Trend Factors(a)
2015	1.9%	1.101			
2016	1.8%	1.082	1.092	1.052	1.149
2017	1.8%	1.063	1.073	1.052	1.129
2018	1.9%	1.043	1.053	1.052	1.108
2019	2.2%	1.021	1.032	1.052	1.086
2020	2.1%	1.000	1.011	1.052	1.064

SalesPayroll

<u>Year</u>	(11) Selected Average Annual Trend(b)	(12) Exposure Trend Factors(a)	<u>Year</u>	(13) Selected Average Annual Trend(b)	(14) Exposure Trend Factors(a)
2016	2.1%	1.143	2016	1.6%	1.107
2017	2.1%	1.119	2017	1.6%	1.090
2018	2.1%	1.096	2018	1.6%	1.073
2019	2.1%	1.074	2019	1.6%	1.056
2020	2.1%	1.052	2020	1.6%	1.039

(a) Fiscal Year Ending June 30.

(b) Derived from data supplied by Moody's Analytics.

## MISSOURI

## BUSINESSOWNERS

## EXHIBIT C10

## STATEWIDE CREDIBILITY CALCULATION

	Statewide <u>Property</u>	Statewide <u>Liability</u> L/O	Multistate <u>Sales</u>	Multistate <u>Payroll</u>
(1) Full credibility occurrence standard for frequency with (P, K) = (95%, 5%)	1,537	1,537	1,537	1,537
(2) Severity modification factor	5.600	3.047	3.750	2.810
(3) Full credibility occurrence standard adjusted for severity ((1) X (2))	8,607	4,683	5,764	4,319
(4) Selected credibility occurrence standard adjusted for severity	8,600	4,700	5,800	4,300
(5) Multistate five year ratio of earned risks to occurrences	53.0	138.7	15.0	52.0
(6) Full credibility earned risks standard ((4) X (5))	455,800	651,890	87,000	223,600
(7) Five year earned risks	183,205	74,487	247,061	415,979
(8) Statewide credibility [(7)/(6)] <sup>1/2</sup>	0.634	0.338	1.000	1.000

## MISSOURI

## BUSINESSOWNERS

## EXHIBIT C11-1

Fire and Allied Lines Insurance  
Multistate Expense Experience  
Loss Adjustment Expense-IEE \*

		<u>2015</u>	<u>2016</u>	<u>2017</u>	<u>2018</u>	<u>2019</u>	
(1) Fire							
(a) Direct Losses Incurred	Agency	4,300,636	4,583,779	6,300,103	6,871,205	6,067,394	
	Direct	1,153,010	1,067,719	1,443,709	1,643,916	1,355,525	
	Combined	5,453,646	5,651,498	7,743,812	8,515,121	7,422,919	
(b) Direct Loss Adjustment Expenses Incurred	Agency	441,650	474,067	588,172	598,498	576,226	
	Direct	79,987	68,922	103,251	69,374	103,689	
	Combined	521,637	542,989	691,423	667,872	679,915	
(2) Allied Lines**							
(a) Direct Losses Incurred	Agency	3,556,298	5,009,396	14,673,977	8,395,461	6,259,321	
	Direct	1,223,360	1,407,474	3,267,136	1,949,407	1,358,205	
	Combined	4,779,658	6,416,870	17,941,113	10,344,868	7,617,526	
(b) Direct Loss Adjustment Expenses Incurred	Agency	530,894	578,534	896,226	856,743	861,978	
	Direct	144,966	160,799	260,163	140,190	111,438	
	Combined	675,860	739,333	1,156,389	996,933	973,416	
		Incurred Percentages**					
(3) Loss Adjustment Expense as Ratio to Losses Incurred		<u>2015</u>	<u>2016</u>	<u>2017</u>	<u>2018</u>	<u>2019</u>	<u>Selected Factor</u>
(a) Fire (1b)/(1a)	Combined	9.6%	9.6%	8.9%	7.8%	9.2%	9.0%
(b) Allied Lines (2b)/(2a)	Combined	14.1%	11.5%	6.4%	9.6%	12.8%	11.0%

NOTE: All dollar amounts displayed in thousands.

\* Items (1)&(2) are from the Insurance Exhibit Information compiled by A.M. Best.

\*\* Incurred percentages have been calculated on a direct basis, rather than net of reinsurance.

## MISSOURI

## BUSINESSOWNERS

## EXHIBIT C11-2

Burglary  
Multistate Expense Experience  
Loss Adjustment Expense-IEE  
Agency and Direct Writers Combined\*

	<u>2010</u>	<u>2011</u>	<u>2012</u>	<u>2013</u>	<u>2014</u>	
(1) Direct Losses Incurred	38,206	40,299	46,002	22,915	29,232	
(2) Direct Loss Adjustment Expense Incurred	9,327	4,868	8,641	6,259	8,760	
	<u>2015</u>	<u>2016</u>	<u>2017</u>	<u>2018</u>	<u>2019</u>	
(1) Direct Losses Incurred	59,447	50,793	30,546	89,367	159,131	
(2) Direct Loss Adjustment Expense Incurred	7,371	7,482	12,323	16,940	13,033	
	Incurred Percentages**					
	<u>2010</u>	<u>2011</u>	<u>2012</u>	<u>2013</u>	<u>2014</u>	
(3) Loss Adj. Expenses Incurred as a ratio to Losses Incurred [(2)/(1)]	24.4%	12.1%	18.8%	27.3%	30.0%	
	<u>2015</u>	<u>2016</u>	<u>2017</u>	<u>2018</u>	<u>2019</u>	<u>Selected Factor</u>
(3) Loss Adj. Expenses Incurred as a ratio to Losses Incurred [(2)/(1)]	12.4%	14.7%	40.3%	19.0%	8.2%	19.0%

NOTE: All dollar amounts displayed in thousands.

\* Items (1) & (2) are from the Insurance Exhibit Information compiled by A.M Best.

\*\* Incurred percentages have been calculated on a direct basis, rather than net of reinsurance.

## MISSOURI

## BUSINESSOWNERS

## EXHIBIT C11-3

General Liability Excluding Medical Professional Liability  
Multistate Expense Experience  
Loss Adjustment Expense Special Call\*

	<u>2015</u>	<u>2016</u>	<u>2017</u>	<u>2018</u>	<u>2019</u>
(1) Direct Losses Incurred	20,556,499	21,171,688	18,094,487	21,524,983	23,372,674
Allocated Loss					
(2) Adjustment Expenses Incurred	3,997,361	2,809,998	3,939,087	3,848,988	3,725,515
Unallocated Loss					
(3) Adjustment Expenses Incurred	1,816,188	1,878,159	1,740,789	1,624,707	2,118,209

Incurred Percentages\*\*

	<u>2015</u>	<u>2016</u>	<u>2017</u>	<u>2018</u>	<u>2019</u>	<u>Selected Factor</u>
(4) Unallocated Loss Adjustment Expenses as Ratio to Losses + Allocated Loss Adjustment Expense (3)/[(1)+(2)]	7.4%	7.8%	7.9%	6.4%	7.8%	8.0%

Ten Years of Historical Multistate Expense Experience  
Unallocated Loss Adjustment Expense Factor  
Incurred Percentages\*\*

2010	8.6%
2011	7.9%
2012	7.6%
2013	8.6%
2014	8.8%
2015	7.4%
2016	7.8%
2017	7.9%
2018	6.4%
2019	7.8%

NOTE: All dollar amounts displayed in thousands.

\* Items (1), (2), and (3) are based in available ISO Special Call submissions.

\*\* Incurred percentages have been calculated on a direct basis, rather than net of reinsurance.

MISSOURI

BUSINESSOWNERS

EXHIBIT D1

WINDSTORM OR HAIL EXCLUSION CREDITS

<u>Territory</u>	<u>Coverage</u>	(1) <u>Total Losses</u>	(2) <u>Wind and Hail Losses</u>	(3) <u>Percent (2)/(1)</u>
All	Buildings	172,700,363	111,662,844	50%
	BPP	48,664,951	3,303,282	5%

MISSOURI

BUSINESSOWNERS

SUPPLEMENTARY INFORMATION

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PURPOSE

This document provides additional information on the attached loss costs level experience review including:

- A summary of significant factors used in the development of loss cost indications that underlie the loss costs in the current 2021 filing and prior 2020 filing.
- A five-year analysis of loss experience by type of loss
- A discussion of the experience underlying the current loss cost level indications and how it compares to the prior filing
- A distribution of property losses by type of loss

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UNALLOCATED  
LOSS  
ADJUSTMENT  
EXPENSE

	<u>Current</u>	<u>Prior</u>
Liability	8.0%	8.5%
Fire	9.0%	9.5%
Extended Coverage	11.0%	11.5%
All Other Property	11.0%	11.5%
Burglary/Theft	19.0%	21.0%

---

LOSS  
DEVELOPMENT  
FACTORS

For Lessors/Occupants this review continues to incorporate credibility-weighted statewide and multistate development for the 15 and 27 to ultimate factors and multistate only for all other ultimate factors.

	<u>Current</u>	<u>Prior</u>
63 to ultimate	1.023	1.015
51 to ultimate	1.057	1.042
39 to ultimate	1.174	1.139
27 to ultimate	1.496	1.451
15 to ultimate	2.226	2.282

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MISSOURI

BUSINESSOWNERS

SUPPLEMENTARY INFORMATION

LOSS TREND  
FACTORS

External Trend

The annual rates of change are based on external Xactware indices for Buildings and external PPI indices for Contents. The annual external loss trend factors are:

<u>Coverage</u>	<u>Current Review</u>	<u>Prior Review</u>
Buildings	+4.0%	+3.1%
Contents	+1.6%	+1.7%

Loss Trend Adjustments (LTA's)

The annual loss trend adjustment factors are:

<u>Type of Loss</u>	<u>Current Review</u>		<u>Prior Review</u>	
	<u>Bldg.</u>	<u>Cnts.</u>	<u>Bldg.</u>	<u>Cnts.</u>
Fire	-3.6%	-3.5%	-3.1%	-2.7%
Extended Coverage	+3.9%	+2.9%	+3.5%	+1.2%
All Other Property	+1.3%	+3.2%	+1.9%	+3.1%
Burglary	+2.4%		+3.0%	
Liability Lessors	+0.5%		+1.3%	
Liability Occupants	-0.3%		-0.9%	

PREMIUM TREND  
FACTORS

Premium trend factors are based on annual changes in amounts of insurance written. The annual premium trend factors are:

<u>Coverage</u>	<u>Current Review</u>	<u>Prior Review</u>
Buildings	+2.4%	+3.1%
Contents	+2.1%	+2.2%

NET TREND

Beginning in 2016, loss trend for All Property was calculated using statewide instead of multistate weights by type of loss. The resulting annual net trend factors are:

<u>Coverage</u>	<u>Current Review</u>	<u>Prior Review</u>
All Property	+2.8%	+1.4%
Liability Lessors/Occupants	-2.2%	-2.5%
Liability Sales	+3.1%	+2.9%
Liability Payroll	-0.1%	+0.9%

MISSOURI

BUSINESSOWNERS

SUPPLEMENTARY INFORMATION

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TYPE OF LOSS  
ANALYSIS

A brief description of loss patterns for the five years of the current review are shown below.

---

Fire                      The relatively high Fire partial experience ratio in 2020 was caused by several high-valued claims and unfavorable experience across companies.

---

Extended Coverage      The high Extended Coverage partial experience ratios in 2017 and 2020 were due to unfavorable experience across several companies caused by severe weather events.

---

Burglary                      Burglary losses were consistent over the five-year experience period.

---

All Other Property        All Other Property losses were consistent over the five-year experience period.

---

Liability                      The high Liability experience ratios in 2019 and 2020 were due to unfavorable experience across several companies.

---

EXPLANATION  
OF CHANGES

The information below is provided to explain large statewide loss cost level indicated changes.

Property                      The +15.3% indication is mainly due to unfavorable experience in three out of five years in the experience period, particularly in the latest year of the experience period.

---

Liability Lessors/Occ        No large indicated change.

---

Liability Sales              No large indicated change.

---

Liability Payroll            No large indicated change.

MISSOURI

BUSINESSOWNERS

SUPPLEMENTARY INFORMATION

PERCENTAGES OF ADJUSTED PROPERTY LOSSES BY TYPE OF LOSS\*

Property losses for Fire, EC, Burglary and AOP can result from property damage or time element losses. For Buildings, time element losses refer to loss of rental value while Contents time element losses refer to business interruption. The statewide percentage breakdown by coverage and peril, based on adjusted losses, for each type of loss is shown below:

BUILDINGS

	<u>Fire</u>	<u>EC</u>	<u>Burglary</u>	<u>AOP</u>
Property Damage	96.0%	99.4%	100.0%	96.4%
Time Element	4.0%	0.6%	0.0%	3.6%

CONTENTS

	<u>Fire</u>	<u>EC</u>	<u>Burglary</u>	<u>AOP</u>
Property Damage	74.6%	91.1%	98.4%	86.7%
Time Element	25.4%	8.9%	1.6%	13.3%

\* Data from Accident Year ending 6/30/2016 through Accident Year ending 6/30/2020.