

LOSS COSTS – FILED

JANUARY 8, 2019

BUSINESSOWNERS

LI-BP-2019-002

## WEST VIRGINIA BUSINESSOWNERS ADVISORY PROSPECTIVE LOSS COST REVISION FILED

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### KEY MESSAGE

Revised loss costs representing a combined -4.3% statewide change have been filed.

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### BACKGROUND

In circular [LI-BP-2018-079](#), we provided you with information about the Businessowners loss cost level experience review.

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### ISO ACTION

We filed BP-2018-RLA1, which presents a review of Businessowners loss cost experience. Refer to the attachment(s) for complete details.

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### SUPPLEMENTARY INFORMATION

We are including the following supplementary information:

- A West Virginia Supplement, which provides additional information on the loss cost level experience review.
- The loss cost exhibits contained in this filing in a Microsoft® Excel workbook.

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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### PROPOSED EFFECTIVE DATE

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

These changes are applicable to all policies written on or after April 1, 2019.

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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### RATING SOFTWARE IMPACT

No new attributes are being introduced with this revision.

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### CAUTION

This filing has not yet been implemented. You should not submit any filing referencing this material until we inform you in a subsequent circular that this revision has been implemented.

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## REFERENCE(S)

[LI-BP-2018-079](#) (09/21/2018) Businessowners Policy Experience Reviewed By Staff

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## ATTACHMENT(S)

- Filing [BP-2018-RLA1](#)
  - West Virginia Supplement
  - Excel Workbook
- 

## 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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## 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 review a Statement of Actuarial Opinion; therefore we are including the following acknowledgment:

I, David Terné, am a Managing Director of Strategic Actuarial Operations for ISO and I, Erin Davidson, am an Actuarial Product Director for Businessowners 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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# WEST VIRGINIA

## ADVISORY LOSS COST LEVEL REVIEW - BUSINESSOWNERS

FILING BP-2018-RLA1

### EXECUTIVE SUMMARY

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#### PURPOSE

This document:

- revises advisory prospective loss costs for the major Businessowners coverages. These loss costs represent a combined -4.3% 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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#### LOSS COST LEVEL CHANGES

The statewide indicated and filed loss cost level changes are:

|                     | <u>Indicated</u> | <u>Filed</u> |
|---------------------|------------------|--------------|
| Lessors/Occupants   | -9.3%            | -9.7%        |
| Sales               | +2.4%            | +2.4%        |
| Payroll             | -4.5%            | -4.5%        |
| Liability Sub-Total | -6.3%            | -6.6%        |
| Property Sub-Total  | -3.7%            | -3.7%        |
| TOTAL               | -4.3%            | -4.3%        |

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.

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#### HISTORICAL SOURCE DATA

The data used in this review is based on accident year experience through 9/30/2017 (evaluated as of 12/31/2017) of ISO reporting companies.

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# WEST VIRGINIA

## ADVISORY LOSS COST LEVEL REVIEW - BUSINESSOWNERS

### FILING BP-2018-RLA1

#### EXECUTIVE SUMMARY

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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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##### PRIOR ISO REVISIONS

The latest loss cost revisions in this state are:

| <u>Filing</u>  | BP-2017-RLA1 | BP-2016-RLA2 | BP-2016-RLA1 |
|----------------|--------------|--------------|--------------|
| <u>Dates</u>   |              |              |              |
| Effective      | 04/01/2018   | 04/01/2017   | 09/01/2016   |
| <u>Changes</u> |              |              |              |
| Indicated      | -5.8%        | -0.9%        | -2.9%        |
| Filed          | -5.8%        | -0.8%        | -2.8%        |
| Implemented    | -5.8%        | -0.8%        | -2.8%        |

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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 March 1, 2019.

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## WEST VIRGINIA

### ADVISORY LOSS COST LEVEL REVIEW - BUSINESSOWNERS

FILING BP-2018-RLA1

#### EXECUTIVE SUMMARY

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##### 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 2016 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 Tables B1-1 and B1-2.

1. Travelers Insurance
2. Westfield Companies
3. The Allied Group
4. State Auto Property & Casualty Insurance Company
5. Nationwide Insurance Company
6. The Hartford
7. Motorists Mutual Insurance Company
8. Liberty Mutual (CSP)
9. Federated Mutual Insurance Company
10. CNA Insurance Companies

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##### SIZE OF ISO DATABASE

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 12/31/2016 is:

Businessowners: 52.1%

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WEST VIRGINIA

ADVISORY LOSS COST LEVEL REVIEW - BUSINESSOWNERS

FILING BP-2018-RLA1

EXECUTIVE SUMMARY

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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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WEST VIRGINIA

BUSINESSOWNERS

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WEST VIRGINIA  
BUSINESSOWNERS

SECTION A – SCOPE OF REVISION

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WEST VIRGINIA

BUSINESSOWNERS

TABLE A1

LOSS COST LEVEL CHANGE SUMMARY

|                        | Statewide<br>Aggregate Loss Costs<br><u>at Current Level</u> | <u>Loss Cost Level Change</u> |       |
|------------------------|--|-------------------------------|-------|
|                        |  | Ind.                          | Filed |
| <u>Property Total</u>  | \$ 8,509,659   | -3.7%                         | -3.7% |
| Lessors/Occupants      | \$ 1,697,657   | -9.3%                         | -9.7% |
| Sales                  | 590,101  | +2.4%                         | +2.4% |
| Payroll                | 2,956  | -4.5%                         | -4.5% |
| <u>Liability Total</u> | \$ 2,290,714   | -6.3%                         | -6.6% |
| GRAND TOTAL            | \$ 10,800,373  | -4.3%                         | -4.3% |

WEST VIRGINIA

BUSINESSOWNERS

TABLE A2-1

LOSS COST LEVEL CHANGES

PROPERTY

Buildings

| <u>Territory</u> | <u>Aggregate Loss Costs<br/>at Current Level</u> | <u>Loss Cost<br/>Level Changes</u> |
|------------------|--|------------------------------------|
| 701              | \$ 6,120,029                                     | -2.3%                              |
| Statewide Total  | \$ 6,120,029                                     | -2.3%                              |

Business Pers. Prop.

| <u>Territory</u> | <u>Aggregate Loss Costs<br/>at Current Level</u> | <u>Loss Cost<br/>Level Changes</u> |
|------------------|--|------------------------------------|
| 701              | \$ 2,389,630                                     | -7.3%                              |
| Statewide Total  | \$ 2,389,630                                     | -7.3%                              |

All Property

| <u>Territory</u> | <u>Aggregate Loss Costs<br/>at Current Level</u> | <u>Loss Cost<br/>Level Changes</u> |
|------------------|--|------------------------------------|
| 701              | \$ 8,509,659                                     | -3.7%                              |
| Statewide Total  | \$ 8,509,659                                     | -3.7%                              |

WEST VIRGINIA  
BUSINESSOWNERS

TABLE A2-2

LOSS COST LEVEL CHANGES

LIABILITY

Lessors

| <u>Territory</u> | <u>Aggregate Loss Costs<br/>at Current Level</u> | <u>Loss Cost<br/>Level Changes</u> |
|------------------|--|------------------------------------|
| 701              | \$ 487,084                                       | -3.4%                              |
| Statewide Total  | \$ 487,084                                       | -3.4%                              |

Occupants

| <u>Territory</u> | <u>Aggregate Loss Costs<br/>at Current Level</u> | <u>Loss Cost<br/>Level Changes</u> |
|------------------|--|------------------------------------|
| 701              | \$ 1,210,573                                     | -12.3%                             |
| Statewide Total  | \$ 1,210,573                                     | -12.3%                             |

Lessors/Occupants

| <u>Territory</u> | <u>Aggregate Loss Costs<br/>at Current Level</u> | <u>Loss Cost<br/>Level Changes</u> |
|------------------|--|------------------------------------|
| 701              | \$ 1,697,657                                     | -9.7%                              |
| Statewide Total  | \$ 1,697,657                                     | -9.7% #                            |

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

WEST VIRGINIA

BUSINESSOWNERS

TABLE A2-3

LOSS COST LEVEL CHANGES

LIABILITY-SALES

|                 | Statewide<br>Aggregate Loss Costs<br><u>at Current Level</u> | Loss Cost<br><u>Level Changes</u> |
|-----------------|--|-----------------------------------|
| Statewide Total | \$ 590,101   | +2.4%                             |

LIABILITY-PAYROLL

|                 | Statewide<br>Aggregate Loss Costs<br><u>at Current Level</u> | Loss Cost<br><u>Level Changes</u> |
|-----------------|--|-----------------------------------|
| Statewide Total | \$ 2,956   | -4.5%                             |

WEST VIRGINIA

BUSINESSOWNERS

TABLE 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<br>Personal<br><u>Property</u> | <u>Territory</u>          | <u>Buildings</u> | Business<br>Personal<br><u>Property</u> |
| 701                       | 0.213            | 0.357                                   | 701                       | 0.208            | 0.331                                   |
| LIABILITY                 |                  |   | LIABILITY                 |                  |   |
| <u>Territory</u>          | <u>Lessors</u>   | <u>Occupants</u>                        | <u>Territory</u>          | <u>Lessors</u>   | <u>Occupants</u>                        |
| 701                       | 0.029            | 0.106                                   | 701                       | 0.028            | 0.093                                   |
| <u>Territory</u>          | <u>Sales</u>     | <u>Payroll</u>                          | <u>Territory</u>          | <u>Sales</u>     | <u>Payroll</u>                          |
| 701                       | 2.303            | 10.952                                  | 701                       | 2.358            | 10.459                                  |

WEST VIRGINIA  
BUSINESSOWNERS

SECTION B – CALCULATION OF CHANGES

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## WEST VIRGINIA

### BUSINESSOWNERS

#### 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 change is presented on the table labeled "Calculation of Statewide Advisory Loss Cost Level Change." 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 Table 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.



## WEST VIRGINIA

### BUSINESSOWNERS

#### 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 September 30, 2017 evaluated as of December 31, 2017.   |
| 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.   |

WEST VIRGINIA  
BUSINESSOWNERS - PROPERTY

TABLE B1-1

CALCULATION OF STATEWIDE ADVISORY LOSS COST LEVEL CHANGE

|                                       | (1)  | (2)   | (3)                        | (3a)                             | (3b)      | (3c)        | (3d)       |
|---------------------------------------|--|---|----------------------------|----------------------------------|-----------|-------------|------------|
| Fiscal<br>Year<br><u>Ending</u>       | Aggregate<br>Loss Costs at<br><u>Current Level</u> | Incurring<br>Losses and<br>Loss Adjustment<br><u>Expenses</u> | Experience<br><u>Ratio</u> | <u>Partial Experience Ratios</u> |           |             |            |
|                                       |  |   |                            | <u>Fire</u>                      | <u>EC</u> | <u>Burg</u> | <u>AOP</u> |
| 9/30/2013                             | \$ 8,672,514                                       | \$ 7,482,765  | 0.863                      | 0.346                            | 0.148     | 0.016       | 0.352      |
| 9/30/2014                             | 8,227,264  | 9,399,997   | 1.143                      | 0.589                            | 0.188     | 0.023       | 0.342      |
| 9/30/2015                             | 8,039,633  | 9,304,285   | 1.157                      | 0.548                            | 0.165     | 0.017       | 0.427      |
| 9/30/2016                             | 7,857,757  | 6,651,223   | 0.846                      | 0.408                            | 0.176     | 0.008       | 0.256      |
| 9/30/2017                             | 8,509,659  | 6,238,320   | 0.733                      | 0.375                            | 0.172     | 0.005       | 0.181      |
| (4) Weighted Experience Ratio         |  |   |                            | =                                | 0.921     |             |            |
| (5) Credibility                       |  |   |                            | =                                | 0.504     |             |            |
| (6) Expected Experience Ratio         |  |   |                            | =                                | 1.006     |             |            |
| (7) Credibility-Wtd. Experience Ratio |  |   |                            | =                                | 0.963     |             |            |
| (8) Indicated Loss Cost Level Change  |  |   |                            | =                                | 0.963     | or          | -3.7%      |
| (9) Selected Loss Cost Level Change   |  |   |                            | =                                | -3.7%     |             |            |

NOTE: The assumed effective date for trending is 3/1/2019.

WEST VIRGINIA

BUSINESSOWNERS - LIABILITY LESSORS & OCCUPANTS

TABLE B1-2

CALCULATION OF STATEWIDE ADVISORY LOSS COST LEVEL CHANGE

| Fiscal<br>Year<br><u>Ending</u>       | (1)<br>Aggregate<br>Loss Costs at<br><u>Current Level</u> | (2)<br>Incurred<br>Losses and<br>Loss Adjustment<br><u>Expenses</u> | (3)<br>Experience<br><u>Ratio</u> |
|---------------------------------------|---|---|-----------------------------------|
| 9/30/2013                             | \$ 2,075,882  | \$ 1,346,842  | 0.649                             |
| 9/30/2014                             | 2,028,063   | 1,378,964   | 0.680                             |
| 9/30/2015                             | 1,886,203   | 1,364,056   | 0.723                             |
| 9/30/2016                             | 1,767,276   | 991,631   | 0.561                             |
| 9/30/2017                             | 1,697,657   | 929,326   | 0.547                             |
|                                       |   |   |                                   |
| (4) Weighted Experience Ratio         |   | = 0.616   |                                   |
| (5) Credibility                       |   | = 0.260   |                                   |
| (6) Expected Experience Ratio         |   | = 1.009   |                                   |
| (7) Credibility-Wtd. Experience Ratio |   | = 0.907   |                                   |
| (8) Indicated Loss Cost Level Change  |   | = 0.907   | or -9.3%                          |
| (9) Selected Loss Cost Level Change   |   | = -9.3%   |                                   |

NOTE: The assumed effective date for trending is 3/1/2019.

WEST VIRGINIA

BUSINESSOWNERS - LIABILITY SALES

TABLE B1-3

CALCULATION OF STATEWIDE ADVISORY LOSS COST LEVEL CHANGE

| Fiscal<br>Year<br><u>Ending</u>       | (1)<br>Multistate<br>Aggregate<br>Loss Costs at<br><u>Current Level</u> | (2)<br>Multistate<br>Incurred<br>Losses and<br>Loss Adjustment<br><u>Expenses</u> | (3)<br>Experience<br><u>Ratio</u> |
|---------------------------------------|---|---|-----------------------------------|
| 9/30/2013                             | \$ 36,003,473   | \$ 42,040,275   | 1.168                             |
| 9/30/2014                             | 57,556,690  | 58,690,781  | 1.020                             |
| 9/30/2015                             | 73,407,216  | 76,648,396  | 1.044                             |
| 9/30/2016                             | 86,849,794  | 85,407,871  | 0.983                             |
| 9/30/2017                             | 100,771,852   | 100,658,225   | 0.999                             |
|                                       |   |   |                                   |
| (4) Weighted Experience Ratio         |   | = 1.024   |                                   |
| (5) Credibility                       |   | = 1.000   |                                   |
| (6) Expected Experience Ratio         |   | = 1.037   |                                   |
| (7) Credibility-Wtd. Experience Ratio |   | = 1.024   |                                   |
| (8) Indicated Loss Cost Level Change  |   | = 1.024   | or +2.4%                          |
| (9) Selected Loss Cost Level Change   |   | = +2.4%   |                                   |

NOTE: The assumed effective date for trending is 3/1/2019.

WEST VIRGINIA

BUSINESSOWNERS - LIABILITY PAYROLL

TABLE B1-4

CALCULATION OF STATEWIDE ADVISORY LOSS COST LEVEL CHANGE

| Fiscal<br>Year<br><u>Ending</u>       | (1)<br>Multistate<br>Aggregate<br>Loss Costs at<br><u>Current Level</u> | (2)<br>Multistate<br>Incurred<br>Losses and<br>Loss Adjustment<br><u>Expenses</u> | (3)<br>Experience<br><u>Ratio</u> |
|---------------------------------------|---|---|-----------------------------------|
| 9/30/2013                             | \$ 57,530,920   | \$ 59,250,912   | 1.030                             |
| 9/30/2014                             | 57,932,673  | 58,531,788  | 1.010                             |
| 9/30/2015                             | 58,954,879  | 60,436,779  | 1.025                             |
| 9/30/2016                             | 62,777,030  | 58,130,524  | 0.926                             |
| 9/30/2017                             | 64,602,682  | 56,814,923  | 0.879                             |
|                                       |   |   |                                   |
| (4) Weighted Experience Ratio         |   | = 0.955   |                                   |
| (5) Credibility                       |   | = 1.000   |                                   |
| (6) Expected Experience Ratio         |   | = 1.023   |                                   |
| (7) Credibility-Wtd. Experience Ratio |   | = 0.955   |                                   |
| (8) Indicated Loss Cost Level Change  |   | = 0.955   | or -4.5%                          |
| (9) Selected Loss Cost Level Change   |   | = -4.5%   |                                   |

NOTE: The assumed effective date for trending is 3/1/2019.

WEST VIRGINIA

BUSINESSOWNERS

EXPLANATORY NOTES TO TABLE B1

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 March 1, 2019.

Businessowners losses are adjusted separately by type of loss. Each Businessowners loss is assigned to one of the following type of loss groups: fire, extended coverage (wind, hail, explosion, vandalism and malicious mischief, and riot), all other property, burglary and theft, or liability. Adjustment procedures by type of loss group are summarized below and detailed in Section C.

Adjustment of Fire Losses

Fire losses are trended and loaded for all loss adjustment expenses. Large fire losses have been smoothed by calculating the normal portion of each loss and replacing the actual excess portion with an expected excess amount.

WEST VIRGINIA

BUSINESSOWNERS

EXPLANATORY NOTES TO TABLE B1 (Cont'd)

COLUMN (2)  
(Cont'd)

Adjustment of Extended Coverage Losses

Extended coverage losses are trended and loaded for all loss adjustment expenses. Abnormal extended coverage losses have been smoothed by calculating normal losses and accounting for excess losses by applying a state excess multiplier to the normal losses.

Adjustment of All Other Property Losses

All other property losses are trended and loaded for all loss adjustment expenses. Large all other property losses have been smoothed by calculating normal losses and accounting for excess losses by applying a state excess multiplier to the normal losses.

Adjustment of Burglary and Theft Losses

Burglary and theft losses are trended and loaded for all loss adjustment expenses. Large burglary and theft losses have been smoothed by calculating the normal portion of each loss and replacing the actual excess portion with an expected excess amount.

Adjustment of Liability Losses

Liability losses are trended and loaded for unallocated loss adjustment expenses. Liability losses are also 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.

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).

WEST VIRGINIA

BUSINESSOWNERS

EXPLANATORY NOTES TO TABLE B1 (Cont'd)

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

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.

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 Table B3.

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



WEST VIRGINIA

BUSINESSOWNERS

EXPLANATORY NOTES TO TABLE B1 (Cont'd)

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.

## WEST VIRGINIA

### BUSINESSOWNERS

#### OVERVIEW OF ACTUARIAL PROCEDURES

##### STEP 2 - EXPLANATORY NOTES TO 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 9/30/2017. 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  | <p>The rating variables used in the relative change analysis are as follows:</p> <p>Property - territory and coverage<br/>Liability - territory and lessors/occupant</p>   |
| ITERATIVE PROCEDURE  | <p>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:</p>   |

For Property:

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

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

WEST VIRGINIA

BUSINESSOWNERS

OVERVIEW OF ACTUARIAL PROCEDURES

STEP 2 - EXPLANATORY NOTES TO RELATIVE CHANGE ANALYSIS (Cont'd)

ITERATIVE  
PROCEDURE (Cont'd)

Where:

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

$TERR_i$  = the relative change for the  $i^{th}$  territory,

$COV_j$  = the relative change for the  $j^{th}$  coverage,  
where  $j=1$  is buildings and  $j=2$  is contents.

$W_{ij}$  = the aggregate loss cost at current level (ALCCL),

$R_{ij}$  = the loss ratio relativities for the  $i^{th}$  territory and  
 $j^{th}$  coverage,  
 $m$  = the number of territories in the analysis.

For Liability:

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

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

Where:

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

$TERR_i$  = the relative change for the  $i^{th}$  territory,

$EIND_j$  = the relative change for the  $j^{th}$  exposure indicator,  
where  $j=1$  is lessors and  $j=2$  is occupant.

$W_{ij}$  = the aggregate loss cost at current level (ALCCL),

$R_{ij}$  = the loss ratio relativities for the  $i^{th}$  territory and  $j^{th}$   
exposure indicator,  
 $m$  = the number of territories in the analysis.

## WEST VIRGINIA

### BUSINESSOWNERS

#### OVERVIEW OF ACTUARIAL PROCEDURES

##### STEP 2 - EXPLANATORY NOTES TO 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:

$$Z = \sqrt{P/312,080} \quad \& \quad Z = \sqrt{P/447,720}$$

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.

## WEST VIRGINIA

## BUSINESSOWNERS - PROPERTY

TABLE B2-1

## CALCULATION OF RELATIVE CHANGES

|                  | (1)          | (2)           | (3)              | (4)                 | (5)           | (6)    | (7)                | (8)         | (9)      | (10)          |
|------------------|--------------|---------------|------------------|---------------------|---------------|--------|--------------------|-------------|----------|---------------|
|                  | 5-YEAR       |               | 5-YEAR           |                     | BALANCED      |        |                    |             |          |               |
|                  | AGGREGATE    |               | EXPERIENCE       | EXPERIENCE          | MINIMUM       |        |                    | CREDIBILITY |          | FINAL         |
|                  | LOSS COST    | 5-YEAR        | RATIO            | RELATIVITY          | BIAS          | EARNED |                    | WEIGHTED    | BALANCED | BALANCED      |
|                  | AT CURRENT   | ADJUSTED      |                  |                     | RELATIVE      | RISKS  |                    | CHANGE      | CHANGE   | INDICATED     |
| <u>TERRITORY</u> | <u>LEVEL</u> | <u>LOSSES</u> | <u>(2) / (1)</u> | <u>(3) / ToT(3)</u> | <u>CHANGE</u> |        | <u>CREDIBILITY</u> |             |          | <u>CHANGE</u> |
| 701              | \$41,306,827 | \$39,076,590  | 0.946            | 1.000               | 1.000         | 79,380 | 0.504              | 1.000       | 1.000    | 1.000         |
| TOTAL            | 41,306,827   | 39,076,590    | 0.946            | 1.000               |               | 79,380 |                    |             | 1.000    | 1.000         |
|                  |              |               |                  |                     |               |        |                    |             |          |               |
| Buildings        | \$29,896,275 | \$29,354,416  | 0.982            | 1.038               | 1.038         | 38,930 | 0.353              | 1.013       | 1.014    | 1.014         |
| Bus. Pers. Prop. | 11,410,552   | 9,722,174     | 0.852            | 0.901               | 0.901         | 40,450 | 0.360              | 0.963       | 0.964    | 0.964         |
| TOTAL            | 41,306,827   | 39,076,590    | 0.946            | 1.000               |               | 79,380 |                    |             | 1.000    | 1.000         |

WEST VIRGINIA

BUSINESSOWNERS - LIABILITY

TABLE B2-2

CALCULATION OF RELATIVE CHANGES

| <u>TERRITORY</u> | (1)<br>5-YEAR<br>AGGREGATE<br>LOSS COST<br>AT CURRENT<br>LEVEL | (2)<br>5-YEAR<br>ADJUSTED<br>LOSSES | (3)<br>5-YEAR<br>EXPERIENCE<br>RATIO<br>(2) / (1) | (4)<br>EXPERIENCE<br>RELATIVITY<br>(3) / ToT(3) | (5)<br>BALANCED<br>MINIMUM<br>BIAS<br>RELATIVE<br>CHANGE | (6)<br>EARNED<br>RISKS | (7)<br>CREDIBILITY | (8)<br>CREDIBILITY<br>WEIGHTED<br>CHANGE | (9)<br>BALANCED<br>CHANGE | (10)<br>FINAL<br>BALANCED<br>INDICATED<br>CHANGE |
|------------------|--|-------------------------------------|---|---|--|------------------------|--------------------|--|---------------------------|--|
| 701              | \$9,455,081  | \$6,010,819                         | 0.636   | 1.000   | 1.000  | 30,284                 | 0.260              | 1.000                                    | 1.000                     | 1.000  |
| TOTAL            | 9,455,081  | 6,010,819                           | 0.636   | 1.000   |  | 30,284                 |                    |  | 1.000                     | 1.000  |
| Lessors          | \$2,631,037  | \$2,477,057                         | 0.941   | 1.480   | 1.481  | 10,889                 | 0.156              | 1.063                                    | 1.077                     | 1.077  |
| Occupants        | 6,824,044  | 3,533,762                           | 0.518   | 0.814   | 0.815  | 19,395                 | 0.208              | 0.958                                    | 0.970                     | 0.970  |
| TOTAL            | 9,455,081  | 6,010,819                           | 0.636   | 1.000   |  | 30,284                 |                    |  | 1.000                     | 1.000  |

## WEST VIRGINIA

### BUSINESSOWNERS

#### EXPLANATORY NOTES TO TABLE B2

##### 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). 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 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 March 1, 2019.

Businessowners losses are adjusted separately by type of loss. Each Businessowners loss is assigned to one of the following type of loss groups: fire, extended coverage (wind, hail, explosion, vandalism and malicious mischief, and riot), all other property, burglary and theft, or liability. Adjustment procedures by type of loss group are summarized below and detailed in Section C.

##### Adjustment of Fire Losses

Fire losses are trended and loaded for all loss adjustment expenses. Large fire losses have been smoothed by calculating the normal portion of each loss and replacing the actual excess portion with an expected excess amount.

##### Adjustment of Extended Coverage Losses

Extended coverage losses are trended and loaded for all loss adjustment expenses. Abnormal extended coverage losses have been smoothed by calculating normal losses and accounting for excess losses by applying a state excess multiplier to the normal losses.

## WEST VIRGINIA

### BUSINESSOWNERS

#### EXPLANATORY NOTES TO TABLE B2 (Cont'd)

COLUMN (2)  
(Cont'd)

##### Adjustment of All Other Property Losses

All other property losses are trended and loaded for all loss adjustment expenses. Large all other property losses have been smoothed by calculating normal losses and accounting for excess losses by applying a state excess multiplier to the normal losses.

##### Adjustment of Burglary and Theft Losses

Burglary and theft losses are trended and loaded for all loss adjustment expenses. Large burglary and theft losses have been smoothed by calculating the normal portion of each loss and replacing the actual excess portion with an expected excess amount.

##### Adjustment of Liability Losses

Liability losses are trended and loaded for unallocated loss adjustment expenses. Liability losses are also 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.

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 September 30, 2017.



WEST VIRGINIA

BUSINESSOWNERS

EXPLANATORY NOTES TO TABLE B2 (Cont'd)

COLUMNS (7)

CREDIBILITY

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

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.

## WEST VIRGINIA

## BUSINESSOWNERS

TABLE B3

## CALCULATION OF EXPECTED EXPERIENCE RATIOS

LOSS TREND

| PROPERTY                | Buildings<br><u>Adjusted Losses</u> | Trend<br><u>Factor</u> | Business Pers. Prop.<br><u>Adjusted Losses</u> | Trend<br><u>Factor</u> |                     |
|-------------------------|-------------------------------------|------------------------|--|------------------------|---------------------|
| Fire                    | 12,834,080                          | 1.007                  | 5,813,405                                      | 1.018                  |                     |
| EC                      | 6,765,051                           | 1.052                  | 231,718  | 1.024                  |                     |
| AOP                     | 9,676,811                           | 1.035                  | 3,179,201                                      | 1.034                  | All Property        |
| Burglary                |                                     |                        | 576,324  | 0.998                  | <u>Trend Factor</u> |
|                         | 29,275,942                          | 1.027                  | 9,800,648                                      | 1.022                  | 1.026               |
| LIABILITY               |                                     | Trend<br><u>Factor</u> |  |                        |                     |
| AOI Lessors & Occupants |                                     | 1.027                  |  |                        |                     |
| Sales                   |                                     | 1.058                  |  |                        |                     |
| Payroll                 |                                     | 1.054                  |  |                        |                     |

PREMIUM TREND

| PROPERTY                | Buildings<br><u>Adjusted Losses</u> | Trend<br><u>Factor</u> | Business Pers. Prop.<br><u>Adjusted Losses</u> | Trend<br><u>Factor</u> | All Property<br><u>Trend Factor</u> |
|-------------------------|-------------------------------------|------------------------|--|------------------------|-------------------------------------|
|                         | 29,275,942                          | 1.020                  | 9,800,648                                      | 1.017                  | 1.019                               |
| LIABILITY               |                                     | Trend<br><u>Factor</u> |  |                        |                                     |
| AOI Lessors & Occupants |                                     | 1.017                  |  |                        |                                     |
| Sales                   |                                     | 1.017                  |  |                        |                                     |
| Payroll                 |                                     | 1.028                  |  |                        |                                     |

ANNUAL NET TRENDS (LOSS TREND/PREMIUM TREND)

|                                       | Annual Net<br><u>Trend Factor</u> | Expected<br>Experience<br><u>Ratio (a)</u> |
|---------------------------------------|-----------------------------------|--|
| ALL PROPERTY                          | 1.007                             | 1.006                                      |
| LIABILITY - AOI LESSORS AND OCCUPANTS | 1.010                             | 1.009                                      |
| LIABILITY - SALES                     | 1.040                             | 1.037                                      |
| LIABILITY - PAYROLL                   | 1.025                             | 1.023                                      |

(a) The projection period is from the date of the last approval, 4/1/2018, to the assumed effective trend date of 3/1/2019. For ALL PROPERTY,  $1.006 = 1.007^{(11/12)}$ .

WEST VIRGINIA  
BUSINESSOWNERS

SECTION C - SUPPORTING MATERIAL

|   |         |
|---|---------|
| Calculation of Adjusted Fire Losses .....               | C-2-7   |
| Calculation of Adjusted Extended Coverage Losses .....  | C-8-15  |
| Calculation of Adjusted All Other Property Losses ..... | C-16-22 |
| Current Cost Factors and Loss Projection Factors .....  | C-23-24 |
| Loss Trend Adjustments .....                            | C-25-28 |
| Calculation of Adjusted Burglary and Theft Losses ..... | C-29-30 |
| Calculation of Adjusted Liability Losses .....          | C-31-39 |
| Exposure Trend .....                                    | C-40-42 |
| Credibility .....                                       | C-43-45 |
| Loss Adjustment Expenses .....                          | C-46-49 |

## WEST VIRGINIA

### BUSINESSOWNERS

#### CALCULATION OF ADJUSTED FIRE LOSSES

##### DEFINITION OF FIRE TYPE OF LOSS GROUP

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.

##### CALCULATION OF LOSS TREND FACTORS

For fire, the loss trend factors are referred to as Current Cost Factors (CCFs) and Loss Projection Factors (LPFs). Both of 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 Table C5 are calculated annually to correspond with other components of the external trend that are calculated annually.

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.

The most recent CCFs and LPFs are calculated in Table C4. Due to the historical volatility of the PPI index, the CCFs for contents were calculated as ratios of 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.

## WEST VIRGINIA

### BUSINESSOWNERS

#### CALCULATION OF ADJUSTED FIRE LOSSES (Cont'd)

##### 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 Table C5 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 Tables C1-2 and C1-3.

##### CALCULATION OF TRENDED INCURRED LOSSES

Building and contents losses are trended separately using the Current Cost Factors, Loss Projection Factors and Loss Trend Adjustments. These factors are summarized in Table C1-1. 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.

##### FIRE LARGE LOSS PROCEDURE

If left untreated, the presence or absence of large fire losses during the review period can produce significant fluctuations in loss cost levels. Consequently, in order to develop a more stable body of experience, the fire loss experience has been smoothed. 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.

## WEST VIRGINIA

### BUSINESSOWNERS

#### CALCULATION OF ADJUSTED FIRE LOSSES (Cont'd)

##### FIRE LARGE LOSS PROCEDURE (Cont'd)

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

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 1.425.

##### LOSS ADJUSTMENT EXPENSE

Trended and smoothed losses are loaded for all loss adjustment expenses using the factor selected based on the data displayed in Table C11-1.

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TABLE C1-1

SUMMARY OF FIRE LOSS TREND

| <u>Year</u>                      | <u>Buildings<br/>Current<br/>Cost Factors*</u> | <u>Contents<br/>Current<br/>Cost Factors*</u> |
|----------------------------------|--|---|
| 9/30/2013                        | 1.148  | 1.077   |
| 9/30/2014                        | 1.134  | 1.055   |
| 9/30/2015                        | 1.084  | 1.036   |
| 9/30/2016                        | 1.062  | 1.032   |
| 9/30/2017                        | 1.036  | 1.019   |
| Loss Projection Factor**         | 1.048  | 1.025   |
| Annual Loss Trend<br>Adjustments | -1.9%  | +0.5%   |

\* 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.

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TABLE C1-2  
FIRE  
BUILDINGS  
MULTISTATE  
SEVERITY AND FREQUENCY TREND

| Accident<br><u>Year</u> | Trended<br><u>Exposures</u> | Total<br><u>Losses</u> | Normal<br><u>Losses</u> | Incurred<br><u>Occurrences</u> | Average<br>Occurrence<br><u>Cost (Total)</u> | Average<br>Occurrence<br><u>Cost (Normal)</u> | Average<br>Occurrence<br><u>Frequency*</u> |
|-------------------------|-----------------------------|------------------------|-------------------------|--------------------------------|--|---|--|
| 2008                    | 6,282,651,462               | 227,421,785            | 186,029,781             | 3,390                          | 67,086                                       | 54,876  | 0.0540                                     |
| 2009                    | 6,276,401,933               | 258,366,894            | 197,378,505             | 3,360                          | 76,895                                       | 58,744  | 0.0535                                     |
| 2010                    | 6,659,354,673               | 243,068,185            | 189,201,080             | 3,394                          | 71,617                                       | 55,746  | 0.0510                                     |
| 2011                    | 6,727,564,157               | 214,735,914            | 176,398,701             | 3,545                          | 60,574                                       | 49,760  | 0.0527                                     |
| 2012                    | 6,653,000,840               | 253,433,601            | 202,410,619             | 3,471                          | 73,015                                       | 58,315  | 0.0522                                     |
| 2013                    | 6,382,287,931               | 265,450,581            | 205,214,083             | 3,126                          | 84,917                                       | 65,647  | 0.0490                                     |
| 2014                    | 6,186,160,266               | 264,652,388            | 205,891,657             | 2,733                          | 96,836                                       | 75,335  | 0.0442                                     |
| 2015                    | 5,949,579,558               | 241,072,234            | 184,980,671             | 2,589                          | 93,114                                       | 71,449  | 0.0435                                     |
| 2016                    | 5,955,657,106               | 255,778,330            | 190,747,956             | 2,404                          | 106,397                                      | 79,346  | 0.0404                                     |
| 2017                    | 6,346,235,469               | 282,630,641            | 206,982,318             | 2,602                          | 108,621                                      | 79,547  | 0.0410                                     |

Total Losses

|   |   | <u>Severity</u> | <u>Frequency</u> | <u>R-Squared</u><br><u>Severity</u> | <u>Frequency</u> |
|---|---|-----------------|------------------|-------------------------------------|------------------|
| Observed annual rate of change (10 years) | = | +5.9%           | -3.5%            | 0.757                               | 0.884            |
| Observed annual rate of change (8 years)  | = | +8.2%           | -4.1%            | 0.854                               | 0.881            |
| Observed annual rate of change (6 years)  | = | +7.8%           | -5.0%            | 0.888                               | 0.909            |

Normal Losses

|   |   | <u>Severity</u> | <u>Frequency</u> | <u>R-Squared</u><br><u>Severity</u> | <u>Frequency</u> |
|---|---|-----------------|------------------|-------------------------------------|------------------|
| Observed annual rate of change (10 years) | = | +5.0%           | -3.5%            | 0.770                               | 0.884            |
| Observed annual rate of change (8 years)  | = | +6.9%           | -4.1%            | 0.854                               | 0.881            |
| Observed annual rate of change (6 years)  | = | +6.1%           | -5.0%            | 0.829                               | 0.909            |
| Selected annual rate of change            | = | +6.0%           | -4.0%            |                                     |                  |

\* in 100,000's



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TABLE C1-3

FIRE  
CONTENTS  
MULTISTATE  
SEVERITY AND FREQUENCY TREND

| Accident<br>Year | Trended<br>Exposures | Total<br>Losses | Normal<br>Losses | Incurred<br>Occurrences | Average<br>Occurrence<br>Cost (Total) | Average<br>Occurrence<br>Cost (Normal) | Average<br>Occurrence<br>Frequency* |
|------------------|----------------------|-----------------|------------------|-------------------------|---------------------------------------|--|-------------------------------------|
| 2008             | 1,114,582,203        | 54,825,493      | 48,589,504       | 2,240                   | 24,476                                | 21,692                                 | 0.2010                              |
| 2009             | 1,123,280,245        | 75,453,049      | 62,030,539       | 2,402                   | 31,413                                | 25,825                                 | 0.2138                              |
| 2010             | 1,120,331,497        | 94,817,827      | 75,594,456       | 2,645                   | 35,848                                | 28,580                                 | 0.2361                              |
| 2011             | 1,105,877,115        | 88,390,544      | 73,238,806       | 2,816                   | 31,389                                | 26,008                                 | 0.2546                              |
| 2012             | 1,080,001,171        | 88,378,554      | 74,035,560       | 2,821                   | 31,329                                | 26,244                                 | 0.2612                              |
| 2013             | 1,021,330,801        | 78,876,763      | 66,032,023       | 2,289                   | 34,459                                | 28,848                                 | 0.2241                              |
| 2014             | 1,015,837,910        | 80,801,926      | 70,275,864       | 2,142                   | 37,723                                | 32,809                                 | 0.2109                              |
| 2015             | 1,031,096,366        | 83,285,946      | 70,193,331       | 1,967                   | 42,342                                | 35,685                                 | 0.1908                              |
| 2016             | 1,041,079,238        | 77,755,996      | 65,601,979       | 1,898                   | 40,967                                | 34,564                                 | 0.1823                              |
| 2017             | 1,114,861,662        | 89,203,226      | 75,604,946       | 1,875                   | 47,575                                | 40,323                                 | 0.1682                              |

Total Losses

|   |   | <u>Severity</u> | <u>Frequency</u> | <u>R-Squared</u><br><u>Severity</u> | <u>R-Squared</u><br><u>Frequency</u> |
|---|---|-----------------|------------------|-------------------------------------|--------------------------------------|
| Observed annual rate of change (10 years) | = | +5.8%           | -2.7%            | 0.809                               | 0.337                                |
| Observed annual rate of change (8 years)  | = | +5.3%           | -5.8%            | 0.725                               | 0.848                                |
| Observed annual rate of change (6 years)  | = | +8.1%           | -8.0%            | 0.940                               | 0.971                                |

Normal Losses

|   |   | <u>Severity</u> | <u>Frequency</u> | <u>R-Squared</u><br><u>Severity</u> | <u>R-Squared</u><br><u>Frequency</u> |
|---|---|-----------------|------------------|-------------------------------------|--------------------------------------|
| Observed annual rate of change (10 years) | = | +5.9%           | -2.7%            | 0.876                               | 0.337                                |
| Observed annual rate of change (8 years)  | = | +6.0%           | -5.8%            | 0.817                               | 0.848                                |
| Observed annual rate of change (6 years)  | = | +8.2%           | -8.0%            | 0.926                               | 0.971                                |
| Selected annual rate of change            | = | +6.0%           | -2.5%            |                                     |                                      |

\* in 100,000's

## WEST VIRGINIA

### BUSINESSOWNERS

#### CALCULATION OF ADJUSTED EXTENDED COVERAGE LOSSES

##### DEFINITION OF EXTENDED COVERAGE TYPE OF LOSS GROUP

Extended coverage losses are defined as 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.

##### CALCULATION OF LOSS TREND FACTORS

The Current Cost Factors and Loss Projection Factors for fire losses are also applied to extended coverage losses. The Loss Trend Adjustments applied to extended coverage losses are summarized in Table C2-1, along with the annual CCFs and LPFs from Table C4.

The method used to determine fire trend is also applied to extended coverage losses. The historical data and the selected internal annual rates of change are shown in Tables C2-2 and C2-3.

Because the Businessowners deductible applies to all property losses, the same deductible trending procedure used with the fire losses is used with the extended coverage losses.

##### EC EXCESS LOSS PROCEDURE

In analyzing the Businessowners EC losses, we have adjusted the data 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 Table C2-4.

##### LOSS ADJUSTMENT EXPENSE

Trended and smoothed losses are loaded for all loss adjustment expenses using the factor selected based on the data displayed in Table C11-1.

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TABLE C2-1

SUMMARY OF EXTENDED COVERAGE LOSS TREND

| <u>Year</u>                   | <u>Buildings<br/>Current<br/>Cost Factors*</u> | <u>Contents<br/>Current<br/>Cost Factors*</u> |
|-------------------------------|--|---|
| 9/30/2013                     | 1.148  | 1.077   |
| 9/30/2014                     | 1.134  | 1.055   |
| 9/30/2015                     | 1.084  | 1.036   |
| 9/30/2016                     | 1.062  | 1.032   |
| 9/30/2017                     | 1.036  | 1.019   |
| Loss Projection Factor**      | 1.048  | 1.025   |
| Annual Loss Trend Adjustments | +2.5%  | +1.1%   |

\* 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.

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TABLE C2-2

EXTENDED COVERAGE  
BUILDINGS  
MULTISTATE  
SEVERITY TREND

| Accident<br><u>Year</u> | Total<br><u>Losses</u> | Normal<br><u>Losses</u> | Incurred<br><u>Occurrences</u> | Average<br>Occurrence<br><u>Cost (Total)</u> | Average<br>Occurrence<br><u>Cost (Normal)</u> |
|-------------------------|------------------------|-------------------------|--------------------------------|--|---|
| 2008                    | 103,053,327            | 86,350,518              | 8,920                          | 11,553                                       | 9,681   |
| 2009                    | 154,607,082            | 106,608,825             | 12,043                         | 12,838                                       | 8,852   |
| 2010                    | 194,315,655            | 115,525,160             | 11,242                         | 17,285                                       | 10,276  |
| 2011                    | 291,008,077            | 125,659,944             | 11,810                         | 24,641                                       | 10,640  |
| 2012                    | 381,076,560            | 171,567,671             | 17,823                         | 21,381                                       | 9,626   |
| 2013                    | 244,151,663            | 124,275,065             | 12,019                         | 20,314                                       | 10,340  |
| 2014                    | 135,217,740            | 87,274,961              | 6,863                          | 19,702                                       | 12,717  |
| 2015                    | 182,132,369            | 103,022,933             | 7,507                          | 24,262                                       | 13,724  |
| 2016                    | 134,228,195            | 102,970,546             | 6,599                          | 20,341                                       | 15,604  |
| 2017                    | 178,502,841            | 118,175,808             | 7,229                          | 24,693                                       | 16,347  |

Total Losses

R-squared

|   |   |       |       |
|---|---|-------|-------|
| Observed annual rate of change (10 years) | = | +6.9% | 0.585 |
| Observed annual rate of change (8 years)  | = | +2.3% | 0.186 |
| Observed annual rate of change (6 years)  | = | +2.7% | 0.263 |

Normal Losses

R-squared

|   |   |        |       |
|---|---|--------|-------|
| Observed annual rate of change (10 years) | = | +6.7%  | 0.836 |
| Observed annual rate of change (8 years)  | = | +8.0%  | 0.840 |
| Observed annual rate of change (6 years)  | = | +12.0% | 0.970 |
| Selected annual rate of change            | = | +6.5%  |       |

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TABLE C2-3

EXTENDED COVERAGE  
CONTENTS  
MULTISTATE  
SEVERITY TREND

| Accident<br>Year | Total<br>Losses | Normal<br>Losses | Incurred<br>Occurrences | Average<br>Occurrence<br>Cost (Total) | Average<br>Occurrence<br>Cost (Normal) |
|------------------|-----------------|------------------|-------------------------|---------------------------------------|--|
| 2008             | 7,623,457       | 6,825,510        | 1,258                   | 6,060                                 | 5,426                                  |
| 2009             | 14,885,765      | 11,455,083       | 2,025                   | 7,351                                 | 5,657                                  |
| 2010             | 13,740,708      | 10,876,182       | 2,057                   | 6,680                                 | 5,287                                  |
| 2011             | 14,840,649      | 11,367,500       | 1,918                   | 7,738                                 | 5,927                                  |
| 2012             | 47,679,265      | 19,381,517       | 3,347                   | 14,245                                | 5,791                                  |
| 2013             | 18,965,601      | 11,209,627       | 2,481                   | 7,644                                 | 4,518                                  |
| 2014             | 12,569,741      | 9,064,971        | 1,571                   | 8,001                                 | 5,770                                  |
| 2015             | 14,519,675      | 10,302,698       | 1,461                   | 9,938                                 | 7,052                                  |
| 2016             | 12,979,245      | 10,560,573       | 1,503                   | 8,636                                 | 7,026                                  |
| 2017             | 12,583,249      | 9,544,395        | 1,585                   | 7,939                                 | 6,022                                  |

Total Losses R-squared

|   |   |       |       |
|---|---|-------|-------|
| Observed annual rate of change (10 years) | = | +3.1% | 0.153 |
| Observed annual rate of change (8 years)  | = | +0.9% | 0.008 |
| Observed annual rate of change (6 years)  | = | -6.5% | 0.283 |

Normal Losses R-squared

|   |   |       |       |
|---|---|-------|-------|
| Observed annual rate of change (10 years) | = | +2.2% | 0.252 |
| Observed annual rate of change (8 years)  | = | +3.1% | 0.274 |
| Observed annual rate of change (6 years)  | = | +5.0% | 0.316 |
| Selected annual rate of change            | = | +3.0% |       |

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TABLE C2-4

DEVELOPMENT OF EXTENDED COVERAGE EXCESS MULTIPLIER

|   | (1)                | (2)                | (3)                          | (4)                     | (5)                              | (6)                                 |
|---|--------------------|--------------------|------------------------------|-------------------------|----------------------------------|-------------------------------------|
| YEAR<br>ENDING  | EARNED<br>PREMIUMS | INCURRED<br>LOSSES | NORMAL<br>INCURRED<br>LOSSES | NORMAL<br>LOSS<br>RATIO | STATE<br>EXCESS<br>LOSS<br>RATIO | REGIONAL<br>EXCESS<br>LOSS<br>RATIO |
| 9/30/1988   | 258,459            | 56,441             | 56,441                       | 0.218                   |                                  |                                     |
| 9/30/1989   | 429,869            | 243,905            | 243,905                      | 0.567                   |                                  |                                     |
| 9/30/1990   | 696,246            | 316,203            | 316,203                      | 0.454                   |                                  |                                     |
| 9/30/1991   | 734,363            | 896,565            | 331,318                      | 0.451                   | 0.524                            | 0.245                               |
| 9/30/1992   | 736,930            | 149,228            | 149,228                      | 0.202                   |                                  |                                     |
| 9/30/1993   | 722,667            | 237,958            | 237,958                      | 0.329                   |                                  |                                     |
| 9/30/1994   | 732,168            | 974,249            | 566,579                      | 0.774                   | 0.417                            | 0.140                               |
| 9/30/1995   | 767,472            | 205,995            | 205,995                      | 0.268                   |                                  |                                     |
| 9/30/1996   | 750,070            | 477,465            | 477,465                      | 0.637                   |                                  |                                     |
| 9/30/1997   | 654,218            | 230,133            | 230,133                      | 0.352                   |                                  |                                     |
| 9/30/1998   | 669,176            | 995,560            | 355,086                      | 0.531                   | 0.611                            | 0.346                               |
| 9/30/1999   | 767,545            | 311,133            | 311,133                      | 0.405                   |                                  |                                     |
| 9/30/2000   | 818,566            | 206,145            | 206,145                      | 0.252                   |                                  |                                     |
| 9/30/2001   | 861,369            | 418,931            | 418,931                      | 0.486                   |                                  |                                     |
| 9/30/2002   | 886,916            | 1,146,442          | 679,205                      | 0.766                   | 0.399                            | 0.128                               |
| 9/30/2003   | 1,000,078          | 378,755            | 378,755                      | 0.379                   |                                  |                                     |
| 9/30/2004   | 1,111,115          | 835,296            | 694,525                      | 0.625                   | 0.118                            | 0.009                               |
| 9/30/2005   | 1,186,121          | 180,331            | 180,331                      | 0.152                   |                                  |                                     |
| 9/30/2006   | 1,295,010          | 625,549            | 625,549                      | 0.483                   |                                  |                                     |
| 9/30/2007   | 1,420,820          | 340,335            | 340,335                      | 0.240                   |                                  |                                     |
| 9/30/2008   | 1,492,739          | 442,471            | 442,471                      | 0.296                   |                                  |                                     |
| 9/30/2009   | 1,514,285          | 947,034            | 802,151                      | 0.530                   | 0.090                            | 0.005                               |
| 9/30/2010   | 1,562,602          | 701,707            | 701,707                      | 0.449                   |                                  |                                     |
| 9/30/2011   | 1,551,211          | 1,554,556          | 1,313,019                    | 0.846                   | 0.142                            | 0.013                               |
| 9/30/2012   | 1,554,143          | 2,971,414          | 663,677                      | 0.427                   | 0.780                            | 0.704                               |
| 9/30/2013   | 1,607,636          | 566,261            | 566,261                      | 0.352                   |                                  |                                     |
| 9/30/2014   | 1,649,738          | 705,583            | 705,583                      | 0.428                   |                                  |                                     |
| 9/30/2015   | 1,656,500          | 640,770            | 640,770                      | 0.387                   |                                  |                                     |
| 9/30/2016   | 1,644,696          | 872,045            | 711,005                      | 0.432                   | 0.092                            | 0.005                               |
| 9/30/2017   | 1,643,099          | 805,410            | 805,410                      | 0.490                   |                                  |                                     |
| TOTALS  |                    |                    |                              | 13.208                  | 3.173                            | 1.595                               |
| (7) STATE EXCESS COMPONENT = ( TOTAL (5) / TOTAL (4) )  |                    |                    |                              |                         | 0.240                            |                                     |
| (8) REGIONAL EXCESS COMPONENT                           |                    |                    |                              |                         | 0.121                            |                                     |
| (9) STATE EXCESS MULTIPLIER = ( 1 + (7) ) x ( 1 + (8) ) |                    |                    |                              |                         | 1.390                            |                                     |

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EXPLANATORY NOTES TO TABLE C2-4

OBJECTIVE

Due to the absence or presence of catastrophic wind losses, Extended Coverage (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 (1988-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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EXPLANATORY NOTES TO TABLE C2-4 (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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EXPLANATORY NOTES TO TABLE C2-4 (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.

## WEST VIRGINIA

### BUSINESSOWNERS

#### CALCULATION OF ADJUSTED ALL OTHER PROPERTY LOSSES

##### DEFINITION OF ALL OTHER PROPERTY TYPE OF LOSS GROUP

All other property losses are defined as 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.

##### CALCULATION OF LOSS TREND FACTORS

The Current Cost Factors and Loss Projection Factors for fire losses are also applied to all other property losses. The Loss Trend Adjustments applied to all other property losses are summarized in Table C3-1, along with the annual CCFs and LPFs from Table C4.

The method used to determine fire trend is also applied to all other property losses. The historical data and the selected internal annual rates of change are shown in Tables C3-2 and C3-3.

Because the Businessowners deductible applies to all property losses, the same deductible trending procedure used with the fire losses is used with the all other property losses.

##### ALL OTHER PROPERTY LARGE LOSS PROCEDURE

In analyzing the Businessowners AOP losses, we have adjusted the data 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 Table C3-4.

##### LOSS ADJUSTMENT EXPENSE

Trended and smoothed losses are loaded for all loss adjustment expenses using the factor selected based on the data displayed in Table C11-1.

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BUSINESSOWNERS

TABLE C3-1

SUMMARY OF ALL OTHER PROPERTY LOSS TREND

| <u>Year</u>                   | <u>Buildings<br/>Current<br/>Cost Factors*</u> | <u>Contents<br/>Current<br/>Cost Factors*</u> |
|-------------------------------|--|---|
| 9/30/2013                     | 1.148  | 1.077   |
| 9/30/2014                     | 1.134  | 1.055   |
| 9/30/2015                     | 1.084  | 1.036   |
| 9/30/2016                     | 1.062  | 1.032   |
| 9/30/2017                     | 1.036  | 1.019   |
| Loss Projection Factor**      | 1.048  | 1.025   |
| Annual Loss Trend Adjustments | +0.9%  | +2.1%   |

\* 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.

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## BUSINESSOWNERS

TABLE C3-2

ALL OTHER PROPERTY  
BUILDINGS  
MULTISTATE  
SEVERITY TREND

| Accident<br>Year | Total<br>Losses | Normal<br>Losses | Incurred<br>Occurrences | Average<br>Occurrence<br>Cost (Total) | Average<br>Occurrence<br>Cost (Normal) |
|------------------|-----------------|------------------|-------------------------|---------------------------------------|--|
| 2008             | 122,864,792     | 113,510,179      | 12,035                  | 10,209                                | 9,432                                  |
| 2009             | 179,356,505     | 151,466,742      | 15,656                  | 11,456                                | 9,675                                  |
| 2010             | 187,972,805     | 165,460,538      | 15,794                  | 11,902                                | 10,476                                 |
| 2011             | 237,339,496     | 191,942,715      | 16,972                  | 13,984                                | 11,309                                 |
| 2012             | 172,154,782     | 154,914,334      | 14,210                  | 12,115                                | 10,902                                 |
| 2013             | 161,517,368     | 148,633,513      | 12,629                  | 12,789                                | 11,769                                 |
| 2014             | 233,118,275     | 180,870,766      | 15,137                  | 15,401                                | 11,949                                 |
| 2015             | 253,228,835     | 181,607,571      | 15,310                  | 16,540                                | 11,862                                 |
| 2016             | 149,219,040     | 138,196,121      | 9,918                   | 15,045                                | 13,934                                 |
| 2017             | 145,864,395     | 137,734,833      | 9,603                   | 15,189                                | 14,343                                 |

Total LossesR-squared

|   |   |       |       |
|---|---|-------|-------|
| Observed annual rate of change (10 years) | = | +4.6% | 0.772 |
| Observed annual rate of change (8 years)  | = | +3.9% | 0.583 |
| Observed annual rate of change (6 years)  | = | +4.9% | 0.563 |

Normal LossesR-squared

|   |   |       |       |
|---|---|-------|-------|
| Observed annual rate of change (10 years) | = | +4.5% | 0.924 |
| Observed annual rate of change (8 years)  | = | +4.3% | 0.855 |
| Observed annual rate of change (6 years)  | = | +5.5% | 0.871 |
| Selected annual rate of change            | = | +4.0% |       |

## WEST VIRGINIA

## BUSINESSOWNERS

TABLE C3-3

ALL OTHER PROPERTY  
CONTENTS  
MULTISTATE  
SEVERITY TREND

| Accident<br>Year | Total<br>Losses | Normal<br>Losses | Incurred<br>Occurrences | Average<br>Occurrence<br>Cost (Total) | Average<br>Occurrence<br>Cost (Normal) |
|------------------|-----------------|------------------|-------------------------|---------------------------------------|--|
| 2008             | 56,851,447      | 54,271,560       | 6,697                   | 8,489                                 | 8,104                                  |
| 2009             | 92,449,851      | 80,443,069       | 9,441                   | 9,792                                 | 8,521                                  |
| 2010             | 98,284,474      | 88,713,782       | 10,186                  | 9,649                                 | 8,709                                  |
| 2011             | 108,718,356     | 96,825,077       | 10,051                  | 10,817                                | 9,633                                  |
| 2012             | 104,134,314     | 96,586,717       | 10,997                  | 9,469                                 | 8,783                                  |
| 2013             | 107,459,272     | 100,174,733      | 9,813                   | 10,951                                | 10,208                                 |
| 2014             | 116,483,034     | 94,507,258       | 9,561                   | 12,183                                | 9,885                                  |
| 2015             | 102,961,314     | 89,344,049       | 8,182                   | 12,584                                | 10,920                                 |
| 2016             | 100,105,377     | 92,668,957       | 7,644                   | 13,096                                | 12,123                                 |
| 2017             | 100,195,281     | 95,203,424       | 7,455                   | 13,440                                | 12,770                                 |

Total LossesR-squared

|   |   |       |       |
|---|---|-------|-------|
| Observed annual rate of change (10 years) | = | +5.0% | 0.885 |
| Observed annual rate of change (8 years)  | = | +5.2% | 0.840 |
| Observed annual rate of change (6 years)  | = | +6.9% | 0.886 |

Normal LossesR-squared

|   |   |       |       |
|---|---|-------|-------|
| Observed annual rate of change (10 years) | = | +4.9% | 0.904 |
| Observed annual rate of change (8 years)  | = | +5.4% | 0.867 |
| Observed annual rate of change (6 years)  | = | +7.4% | 0.932 |
| Selected annual rate of change            | = | +4.5% |       |

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TABLE C3-4

DEVELOPMENT OF ALL OTHER PROPERTY EXCESS MULTIPLIER

|  | (1)                              | (2)                              | (3)   | (4)  | (5)  |
|--|----------------------------------|----------------------------------|---|--|--|
| <u>YEAR</u><br><u>ENDING</u>                           | <u>EARNED</u><br><u>PREMIUMS</u> | <u>INCURRED</u><br><u>LOSSES</u> | <u>NORMAL</u><br><u>INCURRED</u><br><u>LOSSES</u> | <u>NORMAL</u><br><u>LOSS</u><br><u>RATIO</u> | <u>STATE</u><br><u>EXCESS</u><br><u>LOSS</u><br><u>RATIO</u> |
| 9/30/1988  | 516,946                          | 124,423                          | 124,423   | 0.241  |  |
| 9/30/1989  | 859,785                          | 417,612                          | 405,991   | 0.472  | 0.014  |
| 9/30/1990  | 1,392,568                        | 653,729                          | 612,318   | 0.440  | 0.030  |
| 9/30/1991  | 1,468,805                        | 408,004                          | 408,004   | 0.278  |  |
| 9/30/1992  | 1,473,940                        | 427,387                          | 427,387   | 0.290  |  |
| 9/30/1993  | 1,445,412                        | 810,152                          | 680,531   | 0.471  | 0.090  |
| 9/30/1994  | 1,464,415                        | 1,556,230                        | 838,299   | 0.572  | 0.490  |
| 9/30/1995  | 1,535,028                        | 594,887                          | 594,887   | 0.388  |  |
| 9/30/1996  | 1,500,222                        | 1,282,015                        | 987,261   | 0.658  | 0.196  |
| 9/30/1997  | 1,308,507                        | 458,716                          | 458,716   | 0.351  |  |
| 9/30/1998  | 1,338,424                        | 1,691,025                        | 716,282   | 0.535  | 0.728  |
| 9/30/1999  | 1,535,173                        | 678,186                          | 678,186   | 0.442  |  |
| 9/30/2000  | 1,637,220                        | 1,027,046                        | 1,027,046   | 0.627  |  |
| 9/30/2001  | 1,722,832                        | 1,081,991                        | 1,081,991   | 0.628  |  |
| 9/30/2002  | 1,773,927                        | 1,066,146                        | 1,024,144   | 0.577  | 0.024  |
| 9/30/2003  | 2,000,264                        | 2,065,220                        | 1,951,618   | 0.976  | 0.057  |
| 9/30/2004  | 2,222,350                        | 1,357,345                        | 1,208,985   | 0.544  | 0.067  |
| 9/30/2005  | 2,372,370                        | 1,042,711                        | 1,042,711   | 0.440  |  |
| 9/30/2006  | 2,590,159                        | 701,968                          | 701,968   | 0.271  |  |
| 9/30/2007  | 2,841,794                        | 1,983,034                        | 1,875,933   | 0.660  | 0.038  |
| 9/30/2008  | 2,985,639                        | 1,552,989                        | 1,552,989   | 0.520  |  |
| 9/30/2009  | 3,028,734                        | 2,218,618                        | 1,846,847   | 0.610  | 0.123  |
| 9/30/2010  | 3,125,374                        | 2,722,973                        | 2,602,238   | 0.833  | 0.039  |
| 9/30/2011  | 3,102,590                        | 1,724,474                        | 1,724,474   | 0.556  |  |
| 9/30/2012  | 3,108,455                        | 1,542,726                        | 1,539,606   | 0.495  | 0.001  |
| 9/30/2013  | 3,215,446                        | 2,182,792                        | 1,803,828   | 0.561  | 0.118  |
| 9/30/2014  | 3,299,655                        | 2,646,632                        | 1,717,793   | 0.521  | 0.281  |
| 9/30/2015  | 3,313,180                        | 2,440,117                        | 2,211,937   | 0.668  | 0.069  |
| 9/30/2016  | 3,289,570                        | 1,330,287                        | 1,330,287   | 0.404  |  |
| 9/30/2017  | 3,286,376                        | 1,078,397                        | 1,078,397   | 0.328  |  |
| TOTALS   |                                  |                                  |   | 15.357                                       | 2.365  |
| (6) STATE EXCESS COMPONENT = ( TOTAL (5) / TOTAL (4) ) |                                  |                                  |   |  | 0.154  |
| (7) STATE EXCESS MULTIPLIER = ( 1 + (6) )              |                                  |                                  |   |  | 1.154  |

WEST VIRGINIA

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EXPLANATORY NOTES TO TABLE C3-4

|            |   |
|------------|---|
| OBJECTIVE  | Similar to Extended Coverage, the All Other Property (AOP) 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 (1988 - 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. |
| COLUMN (1) | <u>EARNED PREMIUMS</u><br><br>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.   |
| COLUMN (2) | <u>INCURRED LOSSES</u><br><br>These are the unadjusted incurred losses for each year.   |
| COLUMN (3) | <u>NORMAL INCURRED LOSSES</u><br><br>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.  |
| COLUMN (4) | <u>NORMAL LOSS RATIO</u><br><br>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.<br>Column (4) = Column (3) ÷ Column (1)   |
| COLUMN (5) | <u>EXCESS LOSS RATIO</u><br><br>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.   |

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EXPLANATORY NOTES TO TABLE C3-4 (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.



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TABLE C4

DEVELOPMENT OF CURRENT COST FACTORS AND LOSS PROJECTION FACTORS

Period Ending June 30, 2018

**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<br>Ending | XCI   | PPI   |
|-------------------|-------|-------|
| 9/30/2015         | 112.9 | 115.7 |
| 12/31/2015        | 113.5 | 115.7 |
| 3/31/2016         | 114.0 | 116.2 |
| 6/30/2016         | 114.2 | 116.1 |
| 9/30/2016         | 114.8 | 116.1 |
| 12/31/2016        | 115.5 | 116.4 |
| 3/31/2017         | 116.2 | 117.3 |
| 6/30/2017         | 117.5 | 118.3 |
| 9/30/2017         | 118.6 | 118.1 |
| 12/31/2017        | 119.1 | 118.9 |
| 3/31/2018         | 120.3 | 119.4 |
| 6/30/2018         | 121.2 | 119.9 |

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

| Fiscal<br>Year Ending | Year Ending Averages |       | Current Cost Factors to<br>Period Ending June 30, 2018 |                    |  |
|-----------------------|----------------------|-------|--|--------------------|--|
|                       | XCI                  | PPI   | Buildings*   | Contents*          |  |
| 9/30/2013             | 105.6                | 111.1 | 121.2/105.6= 1.148                                     | 119.7/111.1= 1.077 |  |
| 9/30/2014             | 106.9                | 113.5 | 121.2/106.9= 1.134                                     | 119.7/113.5= 1.055 |  |
| 9/30/2015             | 111.8                | 115.5 | 121.2/111.8= 1.084                                     | 119.7/115.5= 1.036 |  |
| 9/30/2016             | 114.1                | 116.0 | 121.2/114.1= 1.062                                     | 119.7/116.0= 1.032 |  |
| 9/30/2017             | 117.0                | 117.5 | 121.2/117.0= 1.036                                     | 119.7/117.5= 1.019 |  |

\*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**

|                          | Buildings | Contents |
|--------------------------|-----------|----------|
| Annual Rate of Change    | +2.66%    | +1.39%   |
| Loss Projection Factor** | 1.048     | 1.025    |

\*\*To project losses from the midpoint of the latest quarter, 5/15/2018, to the average accident date of 3/1/2020. (21.5/12)

## WEST VIRGINIA

### BUSINESSOWNERS

#### EXPLANATORY NOTES TO TABLE C4

##### 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 September 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.

##### PART C: COMPUTATION OF 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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TABLE C5

DEVELOPMENT OF LOSS TREND ADJUSTMENT (LTA)  
BOP SEVERITY AND FREQUENCY USING EXPOSURES

**I. EXTERNAL RATE OF CHANGE**

|      |   | BUILDINGS                       | CONTENTS                        |
|------|---|---------------------------------|---------------------------------|
| Year | (1)<br>Fire, EC and AOP<br>Weights                                  | (2a)<br>Current<br>Cost Factors | (2b)<br>Current<br>Cost Factors |
| 2013 | 0.10  | 1.138                           | 1.079                           |
| 2014 | 0.15  | 1.120                           | 1.063                           |
| 2015 | 0.20  | 1.091                           | 1.036                           |
| 2016 | 0.25  | 1.052                           | 1.027                           |
| 2017 | 0.30  | 1.034                           | 1.021                           |
| (3)  | Average CCF for Fire, EC and AOP                                    | 1.073                           | 1.038                           |
| (4a) | Annual Rate of Change   | 0.0236                          | 0.0116                          |
| (4b) | Projection Period (a)   | 21.50                           | 21.50                           |
| (4c) | Loss Projection Factor (LPF)<br>$(1 + (4a)) ^ ((4b) / 12)$          | 1.043                           | 1.021                           |
| (5a) | Total Trend (3) x (4c)  | 1.119                           | 1.060                           |
| (5b) | Projection Period (b)   | 53.00                           | 53.00                           |
| (5c) | Annualized Total Trend for Fire, EC and AOP<br>$(5a) ^ (12 / (5b))$ | 1.026                           | 1.013                           |

**II. INTERNAL ANNUAL RATE OF CHANGE**

| (6)<br>Selected BOP |           |          |
|---------------------|-----------|----------|
|                     | BUILDINGS | CONTENTS |
| Fire                | 1.060     | 1.060    |
| EC                  | 1.065     | 1.030    |
| AOP                 | 1.040     | 1.045    |

- (a) The number of months from the midpoint of the latest quarter of external trend used, 11/15/2017, to the assumed average accident date of 9/1/2019.
- (b) The number of months from the weighted midpoint of the experience period, 4/1/2015, to the assumed average accident date of 9/1/2019.

WEST VIRGINIA

BUSINESSOWNERS

TABLE C5 (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                |
|                  |                 |                 | <u>LTA</u>       | <u>LTA (c)</u> |               | <u>(10) x (11)</u> |
|                  |                 |                 | <u>(8) / (7)</u> |                |               |                    |
| <b>BUILDINGS</b> |                 |                 |                  |                |               |                    |
| Fire             | 1.026           | 1.060           | 1.033            | 1.022          | 0.960         | 0.981              |
| EC               | 1.026           | 1.065           | 1.038            | 1.025          | 1.000         | 1.025              |
| AOP              | 1.026           | 1.040           | 1.014            | 1.009          | 1.000         | 1.009              |
| <b>CONTENTS</b>  |                 |                 |                  |                |               |                    |
| Fire             | 1.013           | 1.060           | 1.046            | 1.031          | 0.975         | 1.005              |
| EC               | 1.013           | 1.030           | 1.017            | 1.011          | 1.000         | 1.011              |
| AOP              | 1.013           | 1.045           | 1.032            | 1.021          | 1.000         | 1.021              |

- (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.

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BUSINESSOWNERS

EXPLANATORY NOTES TO TABLE C5

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 4/1/2015. Accordingly, there are 53 months to the assumed average accident date of 9/1/2019.

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 Tables C1, C2 and C3 for the least squares exponential fits.

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BUSINESSOWNERS

EXPLANATORY NOTES TO TABLE C5 (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).

## WEST VIRGINIA

### BUSINESSOWNERS

#### CALCULATION OF ADJUSTED BURGLARY AND THEFT LOSSES

|   |  |
|---|--|
| DEFINITION OF BURGLARY AND THEFT TYPE OF LOSS GROUP | Burglary and theft losses are defined as 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.   |
| CALCULATION OF LOSS TREND FACTORS                   | <p>The method used to determine internal fire trend is also applied to burglary losses. The historical internal data and the selected annual rates of change are shown in Table C6.</p> <p>Because the Businessowners deductible applies to all property losses, the same deductible trending procedure used with the fire losses is used with the burglary and theft losses.</p>  |
| BURGLARY AND THEFT LARGE LOSS PROCEDURE             | The presence or absence of large losses during the review period can produce large fluctuations in loss cost levels if not appropriately treated. To stabilize the 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. |
| LOSS ADJUSTMENT EXPENSE                             | Trended and smoothed losses are loaded for all loss adjustment expenses using the factor selected based on the data displayed in Table C11-2.  |

WEST VIRGINIA  
BUSINESSOWNERS  
TABLE C6

BURGLARY  
MULTISTATE  
SEVERITY AND FREQUENCY TREND

| Accident<br>Year | Trended<br>Exposures | Total<br>Losses | Normal<br>Losses | Incurred<br>Occurrences | Average<br>Occurrence<br>Cost (Total) | Average<br>Occurrence<br>Cost Normal | Average<br>Occurrence<br>Frequency* |
|------------------|----------------------|-----------------|------------------|-------------------------|---------------------------------------|--------------------------------------|-------------------------------------|
| 2008             | 7,397,233,665        | 20,155,530      | 18,379,410       | 3,825                   | 5,269                                 | 4,805                                | 0.0517                              |
| 2009             | 7,399,682,178        | 20,493,157      | 19,468,087       | 3,845                   | 5,330                                 | 5,063                                | 0.0520                              |
| 2010             | 7,779,686,169        | 18,057,048      | 17,396,343       | 3,377                   | 5,347                                 | 5,151                                | 0.0434                              |
| 2011             | 7,833,441,271        | 17,432,490      | 16,879,125       | 3,135                   | 5,561                                 | 5,384                                | 0.0400                              |
| 2012             | 7,733,002,011        | 18,188,352      | 17,019,089       | 3,070                   | 5,925                                 | 5,544                                | 0.0397                              |
| 2013             | 7,403,618,732        | 16,126,215      | 15,448,132       | 2,593                   | 6,219                                 | 5,958                                | 0.0350                              |
| 2014             | 7,201,998,175        | 18,800,667      | 17,599,986       | 2,758                   | 6,817                                 | 6,381                                | 0.0383                              |
| 2015             | 6,980,675,924        | 19,901,162      | 18,309,637       | 2,709                   | 7,346                                 | 6,759                                | 0.0388                              |
| 2016             | 6,996,736,344        | 19,338,200      | 18,431,452       | 2,737                   | 7,065                                 | 6,734                                | 0.0391                              |
| 2017             | 7,461,097,131        | 22,610,998      | 21,138,156       | 2,996                   | 7,547                                 | 7,055                                | 0.0402                              |

Total Losses

|   |   | <u>Severity</u> | <u>Frequency</u> | <u>R-squared</u><br><u>Severity</u> | <u>Frequency</u> |
|---|---|-----------------|------------------|-------------------------------------|------------------|
| Observed annual rate of change (10 years) | = | +4.6%           | -3.0%            | 0.943                               | 0.527            |
| Observed annual rate of change (8 years)  | = | +5.3%           | -0.8%            | 0.948                               | 0.097            |
| Observed annual rate of change (6 years)  | = | +4.9%           | +1.2%            | 0.878                               | 0.192            |

Normal Losses

|   |   | <u>Severity</u> | <u>Frequency</u> | <u>R-squared</u><br><u>Severity</u> | <u>Frequency</u> |
|---|---|-----------------|------------------|-------------------------------------|------------------|
| Observed annual rate of change (10 years) | = | +4.6%           | -3.0%            | 0.979                               | 0.527            |
| Observed annual rate of change (8 years)  | = | +4.9%           | -0.8%            | 0.971                               | 0.097            |
| Observed annual rate of change (6 years)  | = | +4.8%           | +1.2%            | 0.931                               | 0.192            |
| Selected annual rate of change            | = | +4.0%           | -4.0%            |                                     |                  |

\* in 100,000's



## WEST VIRGINIA

### 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 fire trend is also applied to liability losses.

Loss Trend Factors for Businessowners liability lessors/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 March 1, 2020 based on an assumed effective date for trending of March 1, 2019.

The historical data underlying the selected annual rates of change are shown in Table C7 for liability lessors/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.

## WEST VIRGINIA

### BUSINESSOWNERS

#### CALCULATION OF ADJUSTED LIABILITY LOSSES (Cont'd)

##### LOSS DEVELOPMENT PROCEDURE

The application of loss development factors recognizes 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 December 31, 2017.

Fiscal accident year ending September 30, 2017 includes all losses and loss adjustment expenses paid on accidents from October 1, 2016 to September 30, 2017 and all losses and loss adjustment expenses outstanding on those accidents as of December 31, 2017, 15 months after the inception of the accident year.

Similarly, fiscal accident years ending September 30, 2016, 2015, 2014, and 2013 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:

|                        |                        |
|------------------------|------------------------|
| <u>15 to 27 Months</u> | <u>27 to 39 Months</u> |
| \$ 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.

##### 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 Table C11-3.

WEST VIRGINIA  
BUSINESSOWNERS  
TABLE C7-1  
LIABILITY- LESSORS/OCCUPANTS  
MULTISTATE  
SEVERITY AND FREQUENCY TREND

| (1)         | (2)              | (3)           | (4)            | (5)                  | (6)                 | (7)                  | (8)                 |
|-------------|------------------|---------------|----------------|----------------------|---------------------|----------------------|---------------------|
|             |                  |               |                |                      | (3)/(5)             | (4)/(5)              | (5)/(2)             |
|             |                  |               |                |                      | Average             | Average              | Average             |
| Accident    | Trended          | Paid Total    | Paid Normal    | Paid                 | Occurrence          | Occurrence           | Occurrence          |
| <u>Year</u> | <u>Exposures</u> | <u>Losses</u> | <u>Losses*</u> | <u>Occurrences**</u> | <u>Cost (Total)</u> | <u>Cost (Normal)</u> | <u>Frequency***</u> |
| 2008        | 4,428,765,982    | 268,620,255   | 132,536,081    | 14,846               | 18,094              | 8,927                | 0.3352              |
| 2009        | 4,210,613,086    | 257,257,183   | 135,555,211    | 14,958               | 17,199              | 9,062                | 0.3552              |
| 2010        | 4,507,447,079    | 274,644,498   | 135,348,800    | 14,896               | 18,437              | 9,086                | 0.3305              |
| 2011        | 4,581,765,981    | 302,202,613   | 141,409,824    | 15,208               | 19,872              | 9,299                | 0.3319              |
| 2012        | 4,919,250,752    | 244,095,247   | 107,678,184    | 11,215               | 21,765              | 9,601                | 0.2280              |
| 2013        | 4,846,529,051    | 221,286,335   | 108,957,852    | 9,199                | 24,056              | 11,845               | 0.1898              |
| 2014        | 4,961,361,400    | 326,370,124   | 163,498,097    | 12,209               | 26,733              | 13,392               | 0.2461              |
| 2015        | 4,813,457,294    | 318,188,286   | 158,464,785    | 10,486               | 30,343              | 15,112               | 0.2179              |
| 2016        | 4,621,249,567    | 248,489,741   | 158,152,795    | 8,587                | 28,938              | 18,418               | 0.1858              |
| 2017        | 5,026,484,497    | 239,254,303   | 193,855,700    | 7,938                | 30,140              | 24,421               | 0.1579              |

Total Losses

|   |   |  |  | <u>Severity</u> | <u>Frequency</u> | <u>R-Squared</u> | <u>Severity</u> | <u>Frequency</u> |
|---|---|--|--|-----------------|------------------|------------------|-----------------|------------------|
| Observed annual rate of change (10 years) | = |  |  | +7.4%           | -8.4%            | 0.940            |                 | 0.825            |
| Observed annual rate of change (8 years)  | = |  |  | +7.9%           | -9.0%            | 0.934            |                 | 0.756            |
| Observed annual rate of change (6 years)  | = |  |  | +6.8%           | -5.6%            | 0.845            |                 | 0.446            |

Normal Losses

|   |   |  |  | <u>Severity</u> | <u>Frequency</u> | <u>R-Squared</u> | <u>Severity</u> | <u>Frequency</u> |
|---|---|--|--|-----------------|------------------|------------------|-----------------|------------------|
| Observed annual rate of change (10 years) | = |  |  | +11.4%          | -8.4%            | 0.871            |                 | 0.825            |
| Observed annual rate of change (8 years)  | = |  |  | +15.1%          | -9.0%            | 0.942            |                 | 0.756            |
| Observed annual rate of change (6 years)  | = |  |  | +19.1%          | -5.6%            | 0.978            |                 | 0.446            |
| Selected annual rate of change            | = |  |  | +7.5%           | -4.5%            |                  |                 |                  |

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

\*\* Developed to an ultimate settlement basis.

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

WEST VIRGINIA  
BUSINESSOWNERS  
TABLE C7-2  
LIABILITY - SALES  
MULTISTATE SEVERITY AND FREQUENCY TREND

| Accident    | Trended          | Paid<br>Total | Paid<br>Normal | Paid<br>Occurrences** | Occurrence<br>Cost<br>(Total) | Occurrence<br>Cost<br>(Normal) | Occurrence<br>Frequency*** |
|-------------|------------------|---------------|----------------|-----------------------|-------------------------------|--------------------------------|----------------------------|
| <u>Year</u> | <u>Exposures</u> | <u>Losses</u> | <u>Losses*</u> |                       |                               |                                |                            |
| 2008        | 16,236,001       | 27,362,624    | 13,940,417     | 2,788                 | 9,814                         | 5,000                          | 0.0172                     |
| 2009        | 16,252,566       | 24,011,004    | 13,879,305     | 2,867                 | 8,375                         | 4,841                          | 0.0176                     |
| 2010        | 15,372,937       | 19,884,684    | 12,631,151     | 2,752                 | 7,226                         | 4,590                          | 0.0179                     |
| 2011        | 14,660,500       | 20,131,469    | 11,046,980     | 2,595                 | 7,758                         | 4,257                          | 0.0177                     |
| 2012        | 14,838,386       | 24,392,547    | 12,115,392     | 2,394                 | 10,189                        | 5,061                          | 0.0161                     |
| 2013        | 15,863,360       | 30,325,246    | 14,926,789     | 2,389                 | 12,692                        | 6,247                          | 0.0151                     |
| 2014        | 20,104,973       | 40,991,128    | 21,891,826     | 3,177                 | 12,903                        | 6,891                          | 0.0158                     |
| 2015        | 24,523,580       | 50,460,460    | 29,979,721     | 3,964                 | 12,731                        | 7,564                          | 0.0162                     |
| 2016        | 27,926,951       | 50,842,542    | 35,887,666     | 3,940                 | 12,905                        | 9,109                          | 0.0141                     |
| 2017        | 33,258,878       | 56,399,192    | 47,954,987     | 3,648                 | 15,462                        | 13,147                         | 0.0110                     |

Total Losses

|   |   |       | <u>Severity</u> | <u>Frequency</u> | <u>R-Squared</u><br><u>Severity</u> | <u>Frequency</u> |
|---|---|-------|-----------------|------------------|-------------------------------------|------------------|
| Observed annual rate of change (10 years) | = | 7.3%  | -3.9%           | 0.700            | 0.655                               |                  |
| Observed annual rate of change (8 years)  | = | 10.7% | -5.2%           | 0.851            | 0.711                               |                  |
| Observed annual rate of change (6 years)  | = | 6.3%  | -5.8%           | 0.733            | 0.572                               |                  |

Normal Losses

|   |   |       | <u>Severity</u> | <u>Frequency</u> | <u>R-Squared</u><br><u>Severity</u> | <u>Frequency</u> |
|---|---|-------|-----------------|------------------|-------------------------------------|------------------|
| Observed annual rate of change (10 years) | = | 11.0% | -3.9%           | 0.791            | 0.655                               |                  |
| Observed annual rate of change (8 years)  | = | 16.0% | -5.2%           | 0.930            | 0.711                               |                  |
| Observed annual rate of change (6 years)  | = | 18.7% | -5.8%           | 0.941            | 0.572                               |                  |
| Selected annual rate of change            | = | 8.5%  | -2.5%           |                  |                                     |                  |

\* 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

WEST VIRGINIA  
BUSINESSOWNERS  
TABLE C7-3  
LIABILITY - PAYROLL  
MULTISTATE SEVERITY AND FREQUENCY TREND

| Accident    | Trended          | Paid<br>Total | Paid<br>Normal | Paid<br>Occurrences** | Occurrence<br>Cost<br>(Total) | Occurrence<br>Cost<br>(Normal) | Occurrence<br>Frequency*** |
|-------------|------------------|---------------|----------------|-----------------------|-------------------------------|--------------------------------|----------------------------|
| <u>Year</u> | <u>Exposures</u> | <u>Losses</u> | <u>Losses*</u> |                       |                               |                                |                            |
| 2008        | 4,850,709        | 47,676,209    | 23,781,462     | 2,791                 | 17,082                        | 8,521                          | 0.0575                     |
| 2009        | 4,476,991        | 47,114,375    | 23,106,692     | 3,266                 | 14,427                        | 7,075                          | 0.0729                     |
| 2010        | 3,868,562        | 43,938,009    | 20,348,878     | 2,630                 | 16,707                        | 7,738                          | 0.0680                     |
| 2011        | 3,539,085        | 50,521,291    | 21,982,513     | 2,169                 | 23,289                        | 10,133                         | 0.0613                     |
| 2012        | 3,396,518        | 46,474,014    | 19,658,940     | 2,461                 | 18,887                        | 7,989                          | 0.0724                     |
| 2013        | 3,555,371        | 58,619,888    | 20,839,240     | 2,069                 | 28,337                        | 10,074                         | 0.0582                     |
| 2014        | 3,619,036        | 52,352,723    | 22,725,998     | 2,072                 | 25,265                        | 10,967                         | 0.0573                     |
| 2015        | 3,710,807        | 45,823,318    | 25,776,075     | 2,024                 | 22,636                        | 12,733                         | 0.0546                     |
| 2016        | 3,927,565        | 48,295,954    | 28,638,418     | 1,944                 | 24,838                        | 14,728                         | 0.0495                     |
| 2017        | 4,034,556        | 44,668,405    | 30,556,548     | 2,002                 | 22,313                        | 15,264                         | 0.0496                     |

Total Losses

|   |   |      | <u>Severity</u> | <u>Frequency</u> | <u>R-Squared</u><br><u>Severity</u> | <u>Frequency</u> |
|---|---|------|-----------------|------------------|-------------------------------------|------------------|
| Observed annual rate of change (10 years) | = | 5.2% | -3.3%           | 0.507            | 0.533                               |                  |
| Observed annual rate of change (8 years)  | = | 3.4% | -4.8%           | 0.233            | 0.780                               |                  |
| Observed annual rate of change (6 years)  | = | 0.9% | -6.7%           | 0.016            | 0.854                               |                  |

Normal Losses

|   |   |       | <u>Severity</u> | <u>Frequency</u> | <u>R-Squared</u><br><u>Severity</u> | <u>Frequency</u> |
|---|---|-------|-----------------|------------------|-------------------------------------|------------------|
| Observed annual rate of change (10 years) | = | 8.4%  | -3.3%           | 0.824            | 0.533                               |                  |
| Observed annual rate of change (8 years)  | = | 10.1% | -4.8%           | 0.863            | 0.780                               |                  |
| Observed annual rate of change (6 years)  | = | 13.8% | -6.7%           | 0.966            | 0.854                               |                  |
| Selected annual rate of change            | = | 8.0%  | -2.0%           |                  |                                     |                  |

\* 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

WEST VIRGINIA

BUSINESSOWNERS

TABLE C8-1

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>LINK RATIOS</u> |              |
|-------------|------------------|------------------|------------------|--------------------|--------------|
|             |                  |                  |                  | <u>27:15</u>       | <u>39:27</u> |
| 2003        | 1,041,032        | 1,081,609        | 1,651,597        | 1.039              | 1.527        |
| 2004        | 738,943          | 1,347,308        | 1,492,338        | 1.823              | 1.108        |
| 2005        | 591,140          | 1,289,563        | 2,024,139        | 2.181              | 1.570        |
| 2006        | 1,724,543        | 1,417,917        | 1,825,322        | 0.822              | 1.287        |
| 2007        | 778,620          | 1,161,611        | 1,323,185        | 1.492              | 1.139        |
| 2008        | 944,455          | 1,722,857        | 1,974,550        | 1.824              | 1.146        |
| 2009        | 1,622,621        | 2,399,665        | 2,711,298        | 1.479              | 1.130        |
| 2010        | 1,421,521        | 1,649,828        | 2,331,812        | 1.161              | 1.413        |
| 2011        | 1,247,455        | 1,937,511        | 2,984,578        | 1.553              | 1.540        |
| 2012        | 920,269          | 1,243,052        | 1,733,897        | 1.351              | 1.395        |
| 2013        | 1,077,388        | 1,350,938        | 1,722,283        | 1.254              | 1.275        |
| 2014        | 916,830          | 1,090,172        | 1,337,298        | 1.189              | 1.227        |
| 2015        | 859,651          | 1,573,318        | 1,899,815        | 1.830              | 1.208        |
| 2016        | 664,098          | 1,042,148        |                  | 1.569              |              |
| 2017        | 705,006          |                  |                  |                    |              |

|                                  |                |       |       |
|----------------------------------|----------------|-------|-------|
| (1) Average Best 3 of 5          | (A) Statewide  | 1.391 | 1.299 |
|                                  | (B) Multistate | 1.504 | 1.255 |
| (2) Credibility                  |                | 0.328 | 0.058 |
| (3) Credibility Weighted Average |                | 1.467 | 1.258 |

Summary of Factors

|                  | <u>Factor</u> |
|------------------|---------------|
| 63 to Ultimate** | 1.012         |
| 51 to Ultimate** | 1.032         |
| 39 to Ultimate** | 1.110         |
| 27 to Ultimate   | 1.396         |
| 15 to Ultimate   | 2.048         |

\*\*Multistate

WEST VIRGINIA  
BUSINESSOWNERS  
TABLE 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> |
|--------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|--------------------|-------------------|
| 2003               | 168,913,608       | 264,128,915       | 315,221,162       | 329,043,285       | 328,573,692       | 331,968,749       | 335,392,885       | 341,737,546       | 343,315,378        | 343,705,426       |
| 2004               | 168,558,546       | 248,352,758       | 300,439,433       | 323,892,353       | 328,534,459       | 324,888,506       | 322,942,516       | 322,480,603       | 322,594,586        | 323,653,719       |
| 2005               | 172,259,401       | 236,048,961       | 284,818,523       | 304,384,297       | 311,262,134       | 311,857,934       | 311,153,238       | 312,709,480       | 315,363,449        | 317,676,314       |
| 2006               | 170,626,963       | 240,374,515       | 294,605,222       | 309,019,265       | 307,556,807       | 307,781,536       | 309,450,243       | 310,958,093       | 311,855,616        | 314,509,442       |
| 2007               | 168,996,766       | 248,584,758       | 300,359,357       | 314,258,464       | 317,694,629       | 317,720,055       | 320,250,614       | 323,369,693       | 323,739,400        | 321,769,844       |
| 2008               | 195,267,130       | 272,962,521       | 325,573,538       | 348,409,778       | 351,931,774       | 348,982,552       | 350,434,500       | 350,583,276       | 350,666,186        | 348,742,217       |
| 2009               | 191,438,288       | 275,981,378       | 340,920,390       | 356,222,202       | 363,421,893       | 365,682,351       | 360,459,020       | 361,662,976       | 362,086,243        |                   |
| 2010               | 197,633,834       | 273,588,043       | 332,733,268       | 355,369,148       | 361,210,752       | 358,648,144       | 359,685,608       | 359,843,177       |                    |                   |
| 2011               | 195,894,645       | 284,137,813       | 351,602,187       | 381,599,761       | 389,816,168       | 391,750,295       | 395,196,762       |                   |                    |                   |
| 2012               | 171,940,662       | 246,446,296       | 298,214,820       | 320,419,011       | 325,715,697       | 326,315,718       |                   |                   |                    |                   |
| 2013               | 152,714,996       | 225,589,133       | 269,900,000       | 288,138,051       | 297,743,323       |                   |                   |                   |                    |                   |
| 2014               | 161,719,441       | 245,984,466       | 324,340,796       | 363,459,838       |                   |                   |                   |                   |                    |                   |
| 2015               | 154,612,316       | 247,132,950       | 326,144,270       |                   |                   |                   |                   |                   |                    |                   |
| 2016               | 151,565,899       | 229,257,588       |                   |                   |                   |                   |                   |                   |                    |                   |
| 2017               | 155,833,831       |                   |                   |                   |                   |                   |                   |                   |                    |                   |
| <u>LINK RATIOS</u> |                   |                   |                   |                   |                   |                   |                   |                   |                    |                   |
| <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>     |                   |
| 2003               | 1.564             | 1.193             | 1.044             | 0.999             | 1.010             | 1.010             | 1.019             | 1.005             | 1.001              |                   |
| 2004               | 1.473             | 1.210             | 1.078             | 1.014             | 0.989             | 0.994             | 0.999             | 1.000             | 1.003              |                   |
| 2005               | 1.370             | 1.207             | 1.069             | 1.023             | 1.002             | 0.998             | 1.005             | 1.008             | 1.007              |                   |
| 2006               | 1.409             | 1.226             | 1.049             | 0.995             | 1.001             | 1.005             | 1.005             | 1.003             | 1.009              |                   |
| 2007               | 1.471             | 1.208             | 1.046             | 1.011             | 1.000             | 1.008             | 1.010             | 1.001             | 0.994              |                   |
| 2008               | 1.398             | 1.193             | 1.070             | 1.010             | 0.992             | 1.004             | 1.000             | 1.000             | 0.995              |                   |
| 2009               | 1.442             | 1.235             | 1.045             | 1.020             | 1.006             | 0.986             | 1.003             | 1.001             |                    |                   |
| 2010               | 1.384             | 1.216             | 1.068             | 1.016             | 0.993             | 1.003             | 1.000             |                   |                    |                   |
| 2011               | 1.450             | 1.237             | 1.085             | 1.022             | 1.005             | 1.009             |                   |                   |                    |                   |
| 2012               | 1.433             | 1.210             | 1.074             | 1.017             | 1.002             |                   |                   |                   |                    |                   |
| 2013               | 1.477             | 1.196             | 1.068             | 1.033             |                   |                   |                   |                   |                    |                   |
| 2014               | 1.521             | 1.319             | 1.121             |                   |                   |                   |                   |                   |                    |                   |
| 2015               | 1.598             | 1.320             |                   |                   |                   |                   |                   |                   |                    |                   |
| 2016               | 1.513             |                   |                   |                   |                   |                   |                   |                   |                    |                   |
| BEST<br>3 OF 5     | 1.504             | 1.255             | 1.076             | 1.020             | 1.000             | 1.005             | 1.003             | 1.002             | 1.002              |                   |
|                    | <u>15 to Ult.</u> | <u>27 to Ult.</u> | <u>39 to Ult.</u> | <u>51 to Ult.</u> | <u>63 to Ult.</u> | <u>75 to Ult.</u> | <u>87 to Ult.</u> | <u>99 to Ult.</u> | <u>111 to Ult.</u> |                   |
| FACTORS            | 2.095             | 1.393             | 1.110             | 1.032             | 1.012             | 1.012             | 1.007             | 1.004             | 1.002              |                   |

WEST VIRGINIA  
BUSINESSOWNERS  
TABLE 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> |
|-------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|-------------------|-------------------|
| 2003        | 9,922,415        | 10,635,457       | 10,290,685       | 9,995,030        | 9,885,437        | 9,934,791        | 9,981,047        | 9,979,972        | 9,980,772         | 9,980,772         |
| 2004        | 11,444,701       | 10,599,737       | 10,309,194       | 10,693,274       | 10,898,782       | 10,871,839       | 11,194,848       | 11,111,879       | 11,066,099        | 11,066,099        |
| 2005        | 11,313,790       | 10,504,976       | 11,477,730       | 12,363,400       | 12,608,101       | 12,772,108       | 12,734,745       | 12,738,393       | 12,639,797        | 12,639,797        |
| 2006        | 9,617,206        | 11,726,758       | 14,146,809       | 14,547,828       | 14,604,869       | 14,659,823       | 14,713,122       | 14,716,589       | 14,732,769        | 14,877,685        |
| 2007        | 11,959,848       | 15,298,500       | 17,441,115       | 18,411,420       | 18,524,155       | 18,545,246       | 18,360,577       | 18,442,748       | 18,408,499        | 18,419,776        |
| 2008        | 16,956,152       | 19,482,710       | 20,957,275       | 22,396,632       | 23,238,706       | 23,433,413       | 23,385,023       | 23,461,090       | 23,484,751        | 23,171,005        |
| 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        |                   |
| 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       |                   |                   |
| 2011        | 18,408,319       | 22,202,974       | 25,012,094       | 26,464,426       | 26,219,728       | 26,033,924       | 25,740,428       |                  |                   |                   |
| 2012        | 22,781,000       | 27,438,764       | 32,905,182       | 36,397,604       | 37,046,240       | 36,136,830       |                  |                  |                   |                   |
| 2013        | 27,963,592       | 38,093,778       | 43,202,951       | 45,462,068       | 46,685,142       |                  |                  |                  |                   |                   |
| 2014        | 43,956,636       | 60,571,596       | 72,444,540       | 77,414,584       |                  |                  |                  |                  |                   |                   |
| 2015        | 61,631,710       | 81,140,571       | 94,368,217       |                  |                  |                  |                  |                  |                   |                   |
| 2016        | 68,126,413       | 86,679,664       |                  |                  |                  |                  |                  |                  |                   |                   |
| 2017        | 67,024,028       |                  |                  |                  |                  |                  |                  |                  |                   |                   |

BUSINESSOWNERS LIABILITY LINK RATIOS

| <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>     |
|-------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|--------------------|
| 2003        | 1.072             | 0.968             | 0.971             | 0.989             | 1.005             | 1.005             | 1.000             | 1.000             | 1.000              |
| 2004        | 0.926             | 0.973             | 1.037             | 1.019             | 0.998             | 1.030             | 0.993             | 0.996             | 1.000              |
| 2005        | 0.929             | 1.093             | 1.077             | 1.020             | 1.013             | 0.997             | 1.000             | 0.992             | 1.000              |
| 2006        | 1.219             | 1.206             | 1.028             | 1.004             | 1.004             | 1.004             | 1.000             | 1.001             | 1.010              |
| 2007        | 1.279             | 1.140             | 1.056             | 1.006             | 1.001             | 0.990             | 1.004             | 0.998             | 1.001              |
| 2008        | 1.149             | 1.076             | 1.069             | 1.038             | 1.008             | 0.998             | 1.003             | 1.001             | 0.987              |
| 2009        | 1.181             | 1.177             | 1.074             | 1.005             | 1.005             | 0.997             | 0.999             | 1.000             |                    |
| 2010        | 1.161             | 1.097             | 1.023             | 1.022             | 1.006             | 1.016             | 0.987             |                   |                    |
| 2011        | 1.206             | 1.127             | 1.058             | 0.991             | 0.993             | 0.989             |                   |                   |                    |
| 2012        | 1.204             | 1.199             | 1.106             | 1.018             | 0.975             |                   |                   |                   |                    |
| 2013        | 1.362             | 1.134             | 1.052             | 1.027             |                   |                   |                   |                   |                    |
| 2014        | 1.378             | 1.196             | 1.069             |                   |                   |                   |                   |                   |                    |
| 2015        | 1.317             | 1.163             |                   |                   |                   |                   |                   |                   |                    |
| 2016        | 1.272             |                   |                   |                   |                   |                   |                   |                   |                    |
| BEST        |                   |                   |                   |                   |                   |                   |                   |                   |                    |
| 3 OF 5      | 1.317             | 1.164             | 1.060             | 1.015             | 1.001             | 0.995             | 1.001             | 1.000             | 1.000              |
|             | <u>15 to Ult.</u> | <u>27 to Ult.</u> | <u>39 to Ult.</u> | <u>51 to Ult.</u> | <u>63 to Ult.</u> | <u>75 to Ult.</u> | <u>87 to Ult.</u> | <u>99 to Ult.</u> | <u>111 to Ult.</u> |
| FACTORS     | 1.645             | 1.249             | 1.073             | 1.012             | 0.997             | 0.996             | 1.001             | 1.000             | 1.000              |



WEST VIRGINIA  
BUSINESSOWNERS  
TABLE 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> |
|-------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|-------------------|-------------------|
| 2003        | 20,620,352       | 26,848,695       | 33,034,560       | 34,805,799       | 36,510,380       | 36,904,731       | 37,594,126       | 38,125,495       | 38,313,245        | 39,261,059        |
| 2004        | 19,371,684       | 28,305,767       | 34,026,351       | 39,167,028       | 41,822,144       | 42,429,249       | 43,211,222       | 43,455,733       | 44,032,452        | 43,538,725        |
| 2005        | 27,248,889       | 35,381,965       | 43,767,133       | 45,566,472       | 47,958,829       | 48,248,560       | 48,574,591       | 48,105,992       | 48,586,167        | 49,045,765        |
| 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       | 71,935,094        | 72,637,774        |
| 2009        | 45,554,382       | 53,863,403       | 64,469,091       | 66,923,167       | 70,997,633       | 71,446,652       | 71,429,932       | 73,728,037       | 75,702,936        |                   |
| 2010        | 45,126,344       | 58,539,740       | 67,001,794       | 73,868,428       | 76,998,868       | 77,003,643       | 77,567,409       | 79,320,196       |                   |                   |
| 2011        | 48,131,340       | 63,238,411       | 74,281,322       | 81,378,836       | 83,753,093       | 85,428,432       | 85,407,471       |                  |                   |                   |
| 2012        | 42,284,923       | 55,615,528       | 66,094,443       | 73,708,983       | 78,517,877       | 79,367,490       |                  |                  |                   |                   |
| 2013        | 48,421,946       | 66,812,054       | 80,777,617       | 88,521,235       | 95,286,920       |                  |                  |                  |                   |                   |
| 2014        | 53,233,273       | 77,368,588       | 95,038,660       | 106,614,915      |                  |                  |                  |                  |                   |                   |
| 2015        | 55,200,249       | 77,975,698       | 96,748,735       |                  |                  |                  |                  |                  |                   |                   |
| 2016        | 59,399,078       | 82,960,543       |                  |                  |                  |                  |                  |                  |                   |                   |
| 2017        | 60,997,231       |                  |                  |                  |                  |                  |                  |                  |                   |                   |

BUSINESSOWNERS LIABILITY LINK RATIOS

| <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>     |
|----------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|--------------------|
| 2003           | 1.302             | 1.230             | 1.054             | 1.049             | 1.011             | 1.019             | 1.014             | 1.005             | 1.025              |
| 2004           | 1.461             | 1.202             | 1.151             | 1.068             | 1.015             | 1.018             | 1.006             | 1.013             | 0.989              |
| 2005           | 1.298             | 1.237             | 1.041             | 1.053             | 1.006             | 1.007             | 0.990             | 1.010             | 1.009              |
| 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             | 1.028             | 1.010              |
| 2009           | 1.182             | 1.197             | 1.038             | 1.061             | 1.006             | 1.000             | 1.032             | 1.027             |                    |
| 2010           | 1.297             | 1.145             | 1.102             | 1.042             | 1.000             | 1.007             | 1.023             |                   |                    |
| 2011           | 1.314             | 1.175             | 1.096             | 1.029             | 1.020             | 1.000             |                   |                   |                    |
| 2012           | 1.315             | 1.188             | 1.115             | 1.065             | 1.011             |                   |                   |                   |                    |
| 2013           | 1.380             | 1.209             | 1.096             | 1.076             |                   |                   |                   |                   |                    |
| 2014           | 1.453             | 1.228             | 1.122             |                   |                   |                   |                   |                   |                    |
| 2015           | 1.413             | 1.241             |                   |                   |                   |                   |                   |                   |                    |
| 2016           | 1.397             |                   |                   |                   |                   |                   |                   |                   |                    |
| BEST           |                   |                   |                   |                   |                   |                   |                   |                   |                    |
| 3 of 5         | 1.397             | 1.208             | 1.104             | 1.056             | 1.012             | 1.007             | 1.021             | 1.012             | 1.000              |
|                |                   |                   |                   |                   |                   |                   |                   |                   |                    |
| <u>FACTORS</u> | <u>15 to Ult.</u> | <u>27 to Ult.</u> | <u>39 to Ult.</u> | <u>51 to Ult.</u> | <u>63 to Ult.</u> | <u>75 to Ult.</u> | <u>87 to Ult.</u> | <u>99 to Ult.</u> | <u>111 to Ult.</u> |
|                | 2.070             | 1.482             | 1.227             | 1.111             | 1.052             | 1.040             | 1.033             | 1.012             | 1.000              |

WEST VIRGINIA

BUSINESSOWNERS

TABLE C9

DEVELOPMENT OF EXPOSURE TREND FACTORS

Buildings

| <u>Year</u> | (1)<br>Annual<br>Written<br><u>Increase</u> | (2)<br>Calendar Yr.<br>Written<br><u>Factors</u> | (3)<br>Fiscal Yr.<br>Written<br><u>Factors(a)</u> | (4)<br>Projection<br><u>Factor</u> | (5)<br>Exposure<br>Trend<br><u>Factors(a)</u> |
|-------------|---|--|---|------------------------------------|---|
| 2012        | 2.7%  | 1.120  |   |                                    |   |
| 2013        | 2.6%  | 1.092  | 1.099   | 1.049                              | 1.153   |
| 2014        | 2.5%  | 1.065  | 1.072   | 1.049                              | 1.125   |
| 2015        | 2.3%  | 1.041  | 1.047   | 1.049                              | 1.098   |
| 2016        | 2.1%  | 1.020  | 1.025   | 1.049                              | 1.075   |
| 2017        | 2.0%  | 1.000  | 1.005   | 1.049                              | 1.054   |

Contents

| <u>Year</u> | (6)<br>Annual<br>Written<br><u>Increase</u> | (7)<br>Calendar Yr.<br>Written<br><u>Factors</u> | (8)<br>Fiscal Yr.<br>Written<br><u>Factors(a)</u> | (9)<br>Projection<br><u>Factor</u> | (10)<br>Exposure<br>Trend<br><u>Factors(a)</u> |
|-------------|---|--|---|------------------------------------|--|
| 2012        | 1.8%  | 1.100  |   |                                    |  |
| 2013        | 2.1%  | 1.077  | 1.083   | 1.042                              | 1.128  |
| 2014        | 2.1%  | 1.055  | 1.061   | 1.042                              | 1.106  |
| 2015        | 1.9%  | 1.035  | 1.040   | 1.042                              | 1.084  |
| 2016        | 1.8%  | 1.017  | 1.022   | 1.042                              | 1.065  |
| 2017        | 1.7%  | 1.000  | 1.004   | 1.042                              | 1.046  |

Sales

Payroll

| <u>Year</u> | (11)<br>Selected Average<br><u>Annual Trend(b)</u> | (12)<br>Exposure<br>Trend<br><u>Factors(a)</u> | <u>Year</u> | (13)<br>Selected Average<br><u>Annual Trend(b)</u> | (14)<br>Exposure<br>Trend<br><u>Factors(a)</u> |
|-------------|--|--|-------------|--|--|
| 2013        | 1.7%   | 1.114  | 2013        | 2.8%   | 1.194  |
| 2014        | 1.7%   | 1.096  | 2014        | 2.8%   | 1.161  |
| 2015        | 1.7%   | 1.077  | 2015        | 2.8%   | 1.130  |
| 2016        | 1.7%   | 1.059  | 2016        | 2.8%   | 1.099  |
| 2017        | 1.7%   | 1.042  | 2017        | 2.8%   | 1.069  |

(a) Fiscal Year Ending September 30.

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

## WEST VIRGINIA

### BUSINESSOWNERS

#### EXPLANATORY NOTES TO TABLE C9

##### OBJECTIVE

Cost changes over time to both real and personal property result in the purchasing by insureds of 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. 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).

##### COLUMNS (1) AND (6)

##### ANNUAL WRITTEN INCREASE

The annual written increases for 2012 through 2017 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.

##### COLUMNS (2) AND (7)

##### CALENDAR YEAR WRITTEN FACTORS

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

##### COLUMNS (3) AND (8)

##### FISCAL YEAR WRITTEN FACTORS

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

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

WEST VIRGINIA

BUSINESSOWNERS

EXPLANATORY NOTES TO TABLE C9 (Cont'd)

COLUMNS (4)  
AND (9)

PROJECTION FACTORS

The projection factors are used to bring the fiscal year written factors at a 4/1/2017 level to the 9/1/2019 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 3/1/2019). Based on selected average annual changes of 2.0% for buildings and 1.7% for contents, the projection factors are calculated as follows:

$$\text{Buildings: } (1.020)^{29/12} = 1.049$$

$$\text{Contents: } (1.017)^{29/12} = 1.042$$

COLUMNS (5)  
AND (10)

EXPOSURE TREND FACTORS

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

COLUMNS (11)  
AND (13)

SELECTED AVERAGE ANNUAL TREND

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.

COLUMNS (12)  
AND (14)

EXPOSURE TREND FACTORS

The exposure trend factors were derived to project the reported sales and payroll exposures from the midpoint of each accident year to 9/1/2019, 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 3/1/2019). The trend factors for accident year ending 9/30/2017 were calculated as follows:

$$\text{Sales: } (1.017)^{29/12} = 1.042$$

$$\text{Payroll: } (1.028)^{29/12} = 1.069$$

where 29 is the number of months between the midpoint of accident year ending 9/30/2017 (4/1/2017) and the average date of writing (9/1/2019).

WEST VIRGINIA  
BUSINESSOWNERS

TABLE C10  
STATEWIDE CREDIBILITY CALCULATION

|     |  | <u>Statewide<br/>Property</u> | <u>Statewide<br/>Liability L/O</u> | <u>Multistate<br/>Sales</u> | <u>Multistate<br/>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   | 5.412                         | 3.360                              | 4.966                       | 3.404                         |
| (3) | Full credibility occurrence standard adjusted for severity ((1) X (2))     | 8,318                         | 5,164                              | 7,633                       | 5,232                         |
| (4) | Selected credibility occurrence standard adjusted for severity             | 8,300                         | 5,200                              | 7,600                       | 5,200                         |
| (5) | Multistate five-year ratio of earned risks to occurrences                  | 37.6                          | 86.1                               | 9.8                         | 43.2                          |
| (6) | Full credibility earned risks standard ((4) X (5))                         | 312,080                       | 447,720                            | 74,480                      | 224,640                       |
| (7) | Five-year earned risks   | 79,380                        | 30,284                             | 201,553                     | 416,560                       |
| (8) | Statewide credibility $[(7)/(6)]^{1/2}$                                    | 0.504                         | 0.260                              | 1.000                       | 1.000                         |

WEST VIRGINIA

BUSINESSOWNERS

EXPLANATORY NOTES TO TABLE C10

|          |   |
|----------|---|
| LINE (1) | <p><u>FULL CREDIBILITY OCCURRENCE STANDARD FOR FREQUENCY</u></p> <p>Based on a Poisson distribution, the expected numbers 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%.</p>                     |
| LINE (2) | <p><u>SEVERITY MODIFICATION FACTOR</u></p> <p>This factor defined as <math>(1 + S^2 / M^2)</math> 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).</p>                                      |
| LINE (3) | <p><u>FULL CREDIBILITY OCCURRENCE STANDARD ADJUSTED FOR SEVERITY</u></p> <p>This standard is the product of the frequency standard in line (1) and the severity modification factor in line (2).</p>  |
| LINE (4) | <p><u>SELECTED CREDIBILITY OCCURRENCE STANDARD ADJUSTED FOR SEVERITY</u></p> <p>This standard is selected based on the calculated credibility occurrence standard in line (3).</p>  |
| LINE (5) | <p><u>MULTISTATE FIVE-YEAR RATIO OF EARNED RISKS TO OCCURRENCE</u></p> <p>This ratio was determined based on Commercial Statistical Plan data.</p>  |
| LINE (6) | <p><u>FULL CREDIBILITY EARNED RISKS STANDARD</u></p> <p>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).</p> |
| LINE (7) | <p><u>FIVE-YEAR STATEWIDE EARNED RISKS</u></p> <p>This is the number of earned risks in the state for the five-year period ending September 30, 2017.</p>   |

WEST VIRGINIA

BUSINESSOWNERS

EXPLANATORY NOTES TO TABLE C10 (Cont'd)

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))

## WEST VIRGINIA

### BUSINESSOWNERS

#### LOSS ADJUSTMENT EXPENSE FACTORS

**OBJECTIVE** 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 Table 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 Table 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               | 1.100 |
| Extended Coverage  | 1.125 |
| All Other Property | 1.125 |
| Burglary and Theft | 1.210 |
| Liability          | 1.085 |



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TABLE C11-1

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

|  |          | <u>2012</u> | <u>2013</u> | <u>2014</u> | <u>2015</u> | <u>2016</u> |
|--|----------|-------------|-------------|-------------|-------------|-------------|
| (1) Fire                                     |          |             |             |             |             |             |
| (a) Direct Losses Incurred                   | Agency   | \$3,868,429 | \$3,734,693 | \$4,151,380 | \$4,212,429 | \$4,578,775 |
|  | Direct   | 1,154,677   | 953,467     | 1,301,675   | 1,095,469   | 1,046,624   |
|  | Combined | 5,023,106   | 4,688,160   | 5,453,055   | 5,307,898   | 5,625,399   |
| (b) Direct Loss Adjustment Expenses Incurred | Agency   | 409,156     | 389,298     | 433,539     | 447,719     | 471,760     |
|  | Direct   | 74,634      | 78,051      | 107,764     | 74,655      | 67,101      |
|  | Combined | 483,790     | 467,349     | 541,303     | 522,374     | 538,861     |
| (2) Allied Lines**                           |          |             |             |             |             |             |
| (a) Direct Losses Incurred                   | Agency   | 7,578,267   | 3,632,545   | 3,322,394   | 3,580,656   | 4,911,196   |
|  | Direct   | 1,033,302   | 1,170,331   | 1,167,944   | 1,149,364   | 1,392,341   |
|  | Combined | 8,611,569   | 4,802,876   | 4,490,338   | 4,730,020   | 6,303,537   |
| (b) Direct Loss Adjustment Expenses Incurred | Agency   | 687,057     | 585,974     | 478,746     | 514,824     | 547,386     |
|  | Direct   | 120,569     | 116,333     | 139,251     | 135,498     | 154,396     |
|  | Combined | 807,626     | 702,307     | 617,997     | 650,322     | 701,782     |

Incurred Percentages\*\*

|   |          | <u>2012</u> | <u>2013</u> | <u>2014</u> | <u>2015</u> | <u>2016</u> |
|---|----------|-------------|-------------|-------------|-------------|-------------|
| (3) Loss Adjustment Expense as Ratio to Losses Incurred |          |             |             |             |             |             |
| (a) Fire (1b)/(1a)                                      | Combined | 9.6%        | 10.0%       | 9.9%        | 9.8%        | 9.6%        |
| (b) Allied Lines (2b)/(2a)                              | Combined | 9.4%        | 14.6%       | 13.8%       | 13.7%       | 11.1%       |

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.

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TABLE C11-2

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

|  | <u>2007</u> | <u>2008</u> | <u>2009</u> | <u>2010</u> | <u>2011</u> |
|--|-------------|-------------|-------------|-------------|-------------|
| (1) Direct Losses Incurred                   | \$25,850    | \$30,606    | \$21,021    | \$38,222    | \$40,301    |
| (2) Direct Loss Adjustment Expenses Incurred | 4,944       | 7,807       | 8,202       | 9,327       | 4,868       |
|  | <u>2012</u> | <u>2013</u> | <u>2014</u> | <u>2015</u> | <u>2016</u> |
| (1) Direct Losses Incurred                   | \$45,955    | \$22,862    | \$29,225    | \$59,411    | \$50,793    |
| (2) Direct Loss Adjustment Expenses Incurred | 8,626       | 6,263       | 8,758       | 7,364       | 7,481       |

Incurred Percentages\*\*

|   | <u>2007</u> | <u>2008</u> | <u>2009</u> | <u>2010</u> | <u>2011</u> |
|---|-------------|-------------|-------------|-------------|-------------|
| (3) Loss Adj. Expenses Incurred as a ratio to Losses Incurred [(2)/(1)] | 19.1%       | 25.5%       | 39.0%       | 24.4%       | 12.1%       |
|   | <u>2012</u> | <u>2013</u> | <u>2014</u> | <u>2015</u> | <u>2016</u> |
| (3) Loss Adj. Expenses Incurred as a ratio to Losses Incurred [(2)/(1)] | 18.8%       | 27.4%       | 30.0%       | 12.4%       | 14.7%       |

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.

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TABLE C11-3

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

|   | <u>2012</u>  | <u>2013</u>  | <u>2014</u>  | <u>2015</u>  | <u>2016</u>  |
|---|--------------|--------------|--------------|--------------|--------------|
| (1) Direct Losses Incurred                        | \$14,928,481 | \$14,382,009 | \$15,368,235 | \$19,672,402 | \$20,662,587 |
| (2) Allocated Loss Adjustment Expenses Incurred   | 3,526,884    | 3,322,282    | 3,132,853    | 3,942,510    | 2,814,743    |
| (3) Unallocated Loss Adjustment Expenses Incurred | 1,399,507    | 1,529,660    | 1,644,185    | 1,818,161    | 1,889,987    |

Incurred Percentages\*\*

|  | <u>2012</u> | <u>2013</u> | <u>2014</u> | <u>2015</u> | <u>2016</u> |
|--|-------------|-------------|-------------|-------------|-------------|
| (4) Unallocated Loss Adjustment Expense as Ratio to Losses + Allocated Loss Adjustment Expense (3)/[(1)+(2)] | 7.6%        | 8.6%        | 8.9%        | 7.7%        | 8.1%        |

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

|      |      |
|------|------|
| 2007 | 7.0% |
| 2008 | 6.8% |
| 2009 | 7.7% |
| 2010 | 8.6% |
| 2011 | 7.9% |
| 2012 | 7.6% |
| 2013 | 8.6% |
| 2014 | 8.9% |
| 2015 | 7.7% |
| 2016 | 8.1% |

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.

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SECTION D - REVISED STATE LOSS COSTS

|  |       |
|--|-------|
| Windstorm or Hail Exclusion Credits..... | D-2   |
| Revised State Loss Costs .....           | D-3-4 |

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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 September 30, 2017. 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 below:

| Territory | Coverage | (1)<br>Total Losses | (2)<br>Wind and<br>Hail Losses | (3)<br>Percent<br>(2)/(1) |
|-----------|----------|---------------------|--------------------------------|---------------------------|
| ALL       | Building | 29,354,416          | 6,043,637                      | 20%                       |
|           | BPP      | 9,722,174           | 152,409                        | 5%                        |

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<br>Per \$100 Of<br>Limit Of Ins. | Business<br>Personal<br>Property<br>Per \$100 Of<br>Limit Of Ins. | Occupant<br>Liability Per<br>\$100 Of<br>Limit Of Ins. | Occupant<br>Liability Per<br>\$1,000 Of<br>Annual<br>Gross Sales | Occupant<br>Liability Per<br>\$1,000 Of<br>Annual<br>Payroll | Lessors<br>Liability Per<br>\$100 Of<br>Limit Of Ins. |
| 701       | 0.208                                     | 0.331   | 0.093  | 2.358  | 10.459   | 0.028   |
|           |   |   |  |  |  |   |
|           |   |   |  |  |  |   |
|           |   |   |  |  |  |   |
|           |   |   |  |  |  |   |

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       | 0.148                                   | 0.173 | 0.198 |
|           |   |       |       |
|           |   |       |       |

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

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**RULE 29.  
ENDORSEMENTS**


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**A. Property Endorsements****39. Windstorm Or Hail Exclusion****d. Rate Modification**

| <b>Territory</b> | <b>Coverage (Code)</b>         | <b>Credit</b> |
|------------------|--------------------------------|---------------|
| 701              | Buildings (1)                  | 0.042         |
|                  | Business Personal Property (2) | 0.017         |

**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**

| <b>Number Of Employees</b> | <b>Loss Cost Per Employee</b> |                  |                  |
|----------------------------|-------------------------------|------------------|------------------|
|                            | <b>Mercantile Restaurant</b>  | <b>Wholesale</b> | <b>All Other</b> |
| 1-25                       | \$ 4.800                      | \$ 7.150         | \$ 5.720         |
| Each Additional Employee   | 3.360                         | 5.000            | 4.000            |

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

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SUPPLEMENTARY INFORMATION

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 2018 filing and prior 2017 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

UNALLOCATED  
LOSS  
ADJUSTMENT  
EXPENSE

|                    | <u>Current</u> | <u>Prior</u> |
|--------------------|----------------|--------------|
| Liability          | 8.5%           | 8.5%         |
| Fire               | 10.0%          | 10.0%        |
| Extended Coverage  | 12.5%          | 12.5%        |
| All Other Property | 12.5%          | 12.5%        |
| Burglary/Theft     | 21.0%          | 22.0%        |

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 | 1.012          | 1.009        |
| 51 to ultimate | 1.032          | 1.023        |
| 39 to ultimate | 1.110          | 1.096        |
| 27 to ultimate | 1.396          | 1.342        |
| 15 to ultimate | 2.048          | 1.954        |



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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       | +2.6%                 | +2.7%               |
| Contents        | +1.3%                 | +1.0%               |

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                          | -1.9%                 | +0.5%        | -2.8%               | +0.9%        |
| Extended Coverage             | +2.5%                 | +1.1%        | +2.5%               | +1.3%        |
| All Other Property            | +0.9%                 | +2.1%        | +0.9%               | +2.0%        |
| Burglary                      | -0.2%                 |              | -1.2%               |              |
| Liability (Lessors/Occupants) | +2.7%                 |              | +2.7%               |              |

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       | +2.0%                 | +2.2%               |
| Contents        | +1.7%                 | +1.9%               |

NET TREND

Beginning in 2015, 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                | +0.7%                 | 0.0%                |
| Liability Lessors/Occupants | +1.0%                 | +0.8%               |
| Liability Sales             | +4.0%                 | +3.9%               |
| Liability Payroll           | +2.5%                 | +3.8%               |

WEST VIRGINIA  
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SUPPLEMENTARY INFORMATION

TYPE OF LOSS  
ANALYSIS

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

|                    |   |
|--------------------|---|
| Fire               | The Fire partial experience ratios in 2014 and 2015 were high relative to the other years in this review. This was due to unfavorable experience across several companies.            |
| Extended Coverage  | Extended Coverage partial experience ratios were consistent over the five-year experience period.   |
| Burglary           | Burglary losses were consistent over the five-year experience period.   |
| All Other Property | The All Other Property partial experience ratios in 2016 and 2017 were low relative to the other years in this review. This was due to favorable experience across several companies. |
| Liability          | Liability experience ratios were consistent over the five-year period.  |

EXPLANATION  
OF CHANGES

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

|                       |                            |
|-----------------------|----------------------------|
| Property              | No large indicated change. |
| Liability Lessors/Occ | No large indicated change. |
| Liability Sales       | No large indicated change. |
| Liability Payroll     | No large indicated change. |

WEST VIRGINIA  
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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 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       | 95.4%       | 99.5%     | 98.1%           | 95.3%      |
| Business Interruption | 4.6%        | 0.5%      | 1.9%            | 4.7%       |

CONTENTS

|                       | <u>Fire</u> | <u>EC</u> | <u>Burglary</u> | <u>AOP</u> |
|-----------------------|-------------|-----------|-----------------|------------|
| Property Damage       | 68.7%       | 82.7%     | 100.0%          | 80.2%      |
| Business Interruption | 31.3%       | 17.3%     | 0.0%            | 19.8%      |

\* Data from Accident Year ending 9/30/2013 through Accident Year ending 9/30/2017.