



LOSS COSTS – IMPLEMENTATION

NOVEMBER 14, 2018

BUSINESSOWNERS

LI-BP-2018-090

## COLORADO BUSINESSOWNERS ADVISORY PROSPECTIVE LOSS COST REVISION TO BE IMPLEMENTED

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### KEY MESSAGE

Revised loss costs representing a combined +8.8% statewide change to be implemented.

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### BACKGROUND

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

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### ISO ACTION

We are implementing 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 Colorado Supplement, which provides additional information on the loss costs 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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### 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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## COMPANY ACTION

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

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

WE WILL SUBMIT OUR REFERENCE FILING TO THE INSURANCE DEPARTMENT ON FEBRUARY 22, 2019. ANY SUBMISSION YOU MAY MAKE WITH THE INSURANCE DEPARTMENT WITH RESPECT TO THIS FILING SHOULD NOT BE SUBMITTED PRIOR TO THIS DATE

In all correspondence with the Insurance Department on this revision, you should refer to ISO Reference Filing Number BP-2018-RLA1, NOT this circular number.

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

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## RATING SOFTWARE IMPACT

No new attributes are being introduced with this revision.

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## POLICYHOLDER NOTIFICATION

If you decide to implement this revision, you should check all applicable laws for the state(s) to which this revision applies, to determine whether or not a specific policyholder notice requirement may apply. Please note that circular [LI-CL-2017-074](#) contains the ISO Guide To Renewals With Changed Conditions For Commercial Lines, which is available only as a guide to assist participating companies in complying with various conditional renewal statutes or regulations, for the major commercial lines of insurance serviced by ISO. The information in the Guide does not necessarily reflect all requirements or exceptions that may apply, and it is not intended as a substitute for your review of all applicable statutes and regulations concerning policyholder notification.

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## REVISION DISTRIBUTION

We will issue a Notice to Manualholders with an edition date of **4-19** (or the earliest possible subsequent date), along with any new and/or revised manual pages.

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## REFERENCE(S)

- [LI-BP-2018-079](#) (09/21/2018) Businessowners Policy Experience Reviewed By Staff
- [LI-CL-2017-074](#) (11/20/2017) Revised Lead Time Requirements Listing

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## ATTACHMENT(S)

- Filing BP-2018-RLA1
- Colorado Supplement
- Excel Workbook

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## FILES AVAILABLE FOR DOWNLOAD

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

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

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## 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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# COLORADO

## 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 +8.8% 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	+0.3%	0.0%
Sales	+2.4%	+2.4%
Payroll	-4.5%	-4.5%
Liability Sub-Total	+1.0%	+0.9%
Property Sub-Total	+10.2%	+10.2%
TOTAL	+8.8%	+8.8%

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. A Lessors/Occupants loss cost level change of 0% was selected due to the small overall indication.

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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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COLORADO

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	9/1/2016
<u>Changes</u>			
Indicated	+16.6%	-9.2%	+4.7%
Filed	+16.5%	-9.3%	+4.7%
Implemented	+16.5%	-9.3%	+4.7%

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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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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. The Hartford
3. The Allied Group
4. Acuity, A Mutual Insurance Company
5. CNA Insurance Companies
6. Liberty Mutual (CSP)
7. Guard Insurance Group
8. Holyoke Mutual Insurance Company
9. State Auto Property & Casualty Insurance Company
10. Employers Mutual Casualty Company

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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: 39.9%

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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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COLORADO

BUSINESSOWNERS

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SECTION A – SCOPE OF REVISION

Loss Cost Level Changes.....	A-2-5
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TABLE A1

LOSS COST LEVEL CHANGE SUMMARY

	Statewide Aggregate Loss Costs <u>at Current Level</u>	<u>Loss Cost Level Change</u>	
		Ind.	Filed
<u>Property Total</u>	\$ 45,549,360	+10.2%	+10.2%
Lessors/Occupants	\$ 5,109,640	+0.3%	0.0%
Sales	2,820,536	+2.4%	+2.4%
Payroll	1,047	-4.5%	-4.5%
<u>Liability Total</u>	\$ 7,931,223	+1.0%	+0.9%
GRAND TOTAL	\$ 53,480,583	+8.8%	+8.8%

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BUSINESSOWNERS

TABLE A2-1

LOSS COST LEVEL CHANGES

PROPERTY

Buildings

<u>Territory</u>	<u>Aggregate Loss Costs at Current Level</u>	<u>Loss Cost Level Changes</u>
703	\$ 13,519,190	+12.2%
704	4,713,295	+18.0%
705	17,069,076	+9.3%
706	2,842,265	-2.7%
Statewide Total	\$ 38,143,826	+10.5%

Business Pers. Prop.

<u>Territory</u>	<u>Aggregate Loss Costs at Current Level</u>	<u>Loss Cost Level Changes</u>
703	\$ 2,057,260	+10.4%
704	987,223	+16.8%
705	3,688,181	+7.7%
706	672,870	-3.7%
Statewide Total	\$ 7,405,534	+8.6%

All Property

<u>Territory</u>	<u>Aggregate Loss Costs at Current Level</u>	<u>Loss Cost Level Changes</u>
703	\$ 15,576,450	+12.0%
704	5,700,518	+17.8%
705	20,757,257	+9.0%
706	3,515,135	-2.9%
Statewide Total	\$ 45,549,360	+10.2%

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BUSINESSOWNERS

TABLE A2-2

LOSS COST LEVEL CHANGES

LIABILITY

Lessors

<u>Territory</u>	<u>Aggregate Loss Costs at Current Level</u>	<u>Loss Cost Level Changes</u>
703	\$ 909,106	+10.5%
704	345,975	+11.8%
705	747,049	+13.3%
706	250,546	0.0%
Statewide Total	\$ 2,252,676	+10.5%

Occupants

<u>Territory</u>	<u>Aggregate Loss Costs at Current Level</u>	<u>Loss Cost Level Changes</u>
703	\$ 688,842	-8.7%
704	576,949	-9.8%
705	1,097,131	-7.1%
706	494,042	-14.7%
Statewide Total	\$ 2,856,964	-9.3%

Lessors/Occupants

<u>Territory</u>	<u>Aggregate Loss Costs at Current Level</u>	<u>Loss Cost Level Changes</u>
703	\$ 1,597,948	+2.2%
704	922,924	-1.7%
705	1,844,180	+1.2%
706	744,588	-9.8%
Statewide Total	\$ 5,109,640	-0.6% #

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

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BUSINESSOWNERS

TABLE A2-3

LOSS COST LEVEL CHANGES

LIABILITY-SALES

	Statewide Aggregate Loss Costs <u>at Current Level</u>	Loss Cost <u>Level Changes</u>
Statewide Total	\$ 2,820,536	+2.4%

LIABILITY-PAYROLL

	Statewide Aggregate Loss Costs <u>at Current Level</u>	Loss Cost <u>Level Changes</u>
Statewide Total	\$ 1,047	-4.5%

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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 Personal <u>Property</u>	<u>Territory</u>	<u>Buildings</u>	Business Personal <u>Property</u>
703	0.565	0.249	703	0.634	0.275
704	0.334	0.173	704	0.394	0.202
705	0.621	0.285	705	0.679	0.307
706	0.147	0.109	706	0.143	0.105
LIABILITY			LIABILITY		
<u>Territory</u>	<u>Lessors</u>	<u>Occupants</u>	<u>Territory</u>	<u>Lessors</u>	<u>Occupants</u>
703	0.019	0.046	703	0.019	0.046
704	0.017	0.051	704	0.017	0.051
705	0.015	0.042	705	0.015	0.042
706	0.011	0.034	706	0.011	0.034
<u>Territory</u>	<u>Sales</u>	<u>Payroll</u>	<u>Territory</u>	<u>Sales</u>	<u>Payroll</u>
703	1.101	7.735	703	1.127	7.387
704	1.049	7.710	704	1.074	7.363
705	1.190	7.754	705	1.219	7.405
706	1.122	7.889	706	1.149	7.534

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SECTION B – CALCULATION OF CHANGES

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## COLORADO

### 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.

# COLORADO

## 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.

COLORADO

BUSINESSOWNERS - PROPERTY

TABLE B1-1

CALCULATION OF STATEWIDE ADVISORY LOSS COST LEVEL CHANGE

	(1)	(2)	(3)	(3a)	(3b)	(3c)	(3d)
Fiscal Year Ending	Aggregate Loss Costs at Current Level	Incurred Losses and Loss Adjustment Expenses	Experience Ratio	<u>Partial Experience Ratios</u>			
				<u>Fire</u>	<u>EC</u>	<u>Burg</u>	<u>AOP</u>
9/30/2013	\$ 46,927,058	\$ 45,133,712	0.962	0.180	0.525	0.016	0.241
9/30/2014	37,755,566	59,207,847	1.568	0.082	1.132	0.014	0.340
9/30/2015	38,817,828	42,029,903	1.083	0.132	0.696	0.014	0.241
9/30/2016	40,574,721	49,988,887	1.232	0.123	0.804	0.015	0.290
9/30/2017	45,549,360	38,422,785	0.844	0.145	0.445	0.016	0.238
(4) Weighted Experience Ratio				=	1.109		
(5) Credibility				=	0.923		
(6) Expected Experience Ratio				=	1.020		
(7) Credibility-Wtd. Experience Ratio				=	1.102		
(8) Indicated Loss Cost Level Change				=	1.102	or	+10.2%
(9) Selected Loss Cost Level Change				=	+10.2%		

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

COLORADO

BUSINESSOWNERS - LIABILITY LESSORS & OCCUPANTS

TABLE B1-2

CALCULATION OF STATEWIDE ADVISORY LOSS COST LEVEL CHANGE

Fiscal Year <u>Ending</u>	(1) Aggregate Loss Costs at <u>Current Level</u>	(2) Incurred Losses and Loss Adjustment <u>Expenses</u>	(3) Experience <u>Ratio</u>
9/30/2013	\$ 4,832,482	\$ 3,441,262	0.712
9/30/2014	4,659,454	3,409,881	0.732
9/30/2015	4,855,793	6,045,020	1.245
9/30/2016	4,995,207	5,559,816	1.113
9/30/2017	5,109,640	4,930,051	0.965
(4) Weighted Experience Ratio		= 0.998	
(5) Credibility		= 0.562	
(6) Expected Experience Ratio		= 1.009	
(7) Credibility-Wtd. Experience Ratio		= 1.003	
(8) Indicated Loss Cost Level Change		= 1.003	or +0.3%
(9) Selected Loss Cost Level Change		= 0.0%	

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

COLORADO

BUSINESSOWNERS - LIABILITY SALES

TABLE B1-3

CALCULATION OF STATEWIDE ADVISORY LOSS COST LEVEL CHANGE

Fiscal Year <u>Ending</u>	(1) Multistate Aggregate Loss Costs at <u>Current Level</u>	(2) Multistate Incurred Losses and Loss Adjustment <u>Expenses</u>	(3) Experience <u>Ratio</u>
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.

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BUSINESSOWNERS - LIABILITY PAYROLL

TABLE B1-4

CALCULATION OF STATEWIDE ADVISORY LOSS COST LEVEL CHANGE

Fiscal Year <u>Ending</u>	(1) Multistate Aggregate Loss Costs at <u>Current Level</u>	(2) Multistate Incurred Losses and Loss Adjustment <u>Expenses</u>	(3) Experience <u>Ratio</u>
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.

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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.

## COLORADO

### 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).



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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

COLORADO

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 except for lessors/occupants where the 0% change was selected due to the small overall indication.

## COLORADO

### 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 Liability - territory and lessors/occupant</p>
ITERATIVE PROCEDURE	The iterative technique referred to in the previous paragraph solves for a set of relative changes for each rating variable based on the experience for the cells. This experience is based on the experience ratio and latest year adjusted aggregate loss cost volume for each combination of rating variables relative to the experience ratio and adjusted aggregate loss cost volume for all combinations or rating variables combined. Specifically, the iterative procedure uses the following formulas:

For Property:

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

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

## COLORADO

### 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.

## COLORADO

### 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.

COLORADO

BUSINESSOWNERS - PROPERTY

TABLE B2-1

CALCULATION OF RELATIVE CHANGES

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
	5-YEAR		5-YEAR		BALANCED			CREDI-		FINAL
	AGGREGATE		EXPERIENCE	EXPERIENCE	MINIMUM			BILITY		BALANCED
	LOSS COST	5-YEAR	RATIO	RELATIVITY	BIAS	EARNED	CREDI-	WEIGHTED	BALANCED	INDICATED
<u>TERRITORY</u>	<u>AT CURRENT</u>	<u>ADJUSTED</u>	<u>(2) / (1)</u>	<u>(3) / ToT(3)</u>	<u>RELATIVE</u>	<u>RISKS</u>	<u>BILITY</u>	<u>CHANGE</u>	<u>CHANGE</u>	<u>CHANGE</u>
	<u>LEVEL</u>	<u>LOSSES</u>			<u>CHANGE</u>					
703	\$66,286,612	\$76,678,062	1.157	1.033	1.032	60,753	0.441	1.014	1.018	1.018
704	25,187,452	33,541,287	1.332	1.189	1.190	42,735	0.370	1.066	1.071	1.071
705	99,002,707	108,626,053	1.097	0.979	0.980	105,067	0.580	0.988	0.992	0.992
706	19,147,762	15,937,732	0.832	0.743	0.743	57,487	0.429	0.880	0.884	0.884
TOTAL	209,624,533	234,783,134	1.120	1.000		266,042			1.000	1.000
Buildings	\$175,321,319	\$197,018,251	1.124	1.004	1.003	87,818	0.530	1.002	1.002	1.002
Bus. Pers. Prop.	34,303,214	37,764,883	1.101	0.983	0.983	178,224	0.756	0.987	0.987	0.987
TOTAL	209,624,533	234,783,134	1.120	1.000		266,042			1.000	1.000

COLORADO

BUSINESSOWNERS - LIABILITY

TABLE B2-2

CALCULATION OF RELATIVE CHANGES

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
	5-YEAR		5-YEAR		BALANCED			CREDI-		FINAL
	AGGREGATE		EXPERIENCE	EXPERIENCE	MINIMUM			BILITY		BALANCED
	LOSS COST	5-YEAR	RATIO	RELATIVITY	BIAS	EARNED	CREDI-	WEIGHTED	BALANCED	INDICATED
<u>TERRITORY</u>	<u>AT CURRENT</u>	<u>ADJUSTED</u>	<u>(2) / (1)</u>	<u>(3) / ToT(3)</u>	<u>RELATIVE</u>	<u>RISKS</u>	<u>BILITY</u>	<u>CHANGE</u>	<u>CHANGE</u>	<u>CHANGE</u>
	<u>LEVEL</u>	<u>LOSSES</u>			<u>CHANGE</u>					
703	\$6,971,479	\$7,012,321	1.006	1.092	1.041	32,946	0.271	1.011	1.009	1.009
704	4,576,516	3,979,234	0.869	0.944	0.971	23,917	0.231	0.993	0.991	0.991
705	8,521,857	8,398,647	0.986	1.071	1.085	51,422	0.339	1.028	1.026	1.026
706	3,518,102	2,330,210	0.662	0.719	0.751	25,625	0.239	0.934	0.932	0.932
TOTAL	23,587,954	21,720,412	0.921	1.000		133,910			1.000	1.000
Lessors	\$10,177,038	\$12,356,637	1.214	1.318	1.311	31,897	0.267	1.075	1.116	1.116
Occupants	13,410,916	9,363,775	0.698	0.758	0.764	102,013	0.477	0.879	0.912	0.912
TOTAL	23,587,954	21,720,412	0.921	1.000		133,910			1.000	1.000

## COLORADO

### 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.



COLORADO

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.

COLORADO

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.

COLORADO

BUSINESSOWNERS

TABLE B3

CALCULATION OF EXPECTED EXPERIENCE RATIOS

LOSS TREND

PROPERTY	Buildings <u>Adjusted Losses</u>	Trend <u>Factor</u>	Business Pers. Prop. <u>Adjusted Losses</u>	Trend <u>Factor</u>	
Fire	18,754,658	1.007	9,451,797	1.018	
EC	143,227,474	1.052	4,071,659	1.024	
AOP	34,921,047	1.035	21,176,065	1.034	All Property
Burglary			3,180,434	0.998	<u>Trend Factor</u>
	196,903,179	1.045	37,879,955	1.026	1.042
LIABILITY		Trend <u>Factor</u>			
AOI Lessors & Occupants		1.027			
Sales		1.058			
Payroll		1.054			

PREMIUM TREND

PROPERTY	Buildings <u>Adjusted Losses</u>	Trend <u>Factor</u>	Business Pers. Prop. <u>Adjusted Losses</u>	Trend <u>Factor</u>	All Property <u>Trend Factor</u>
	196,903,179	1.020	37,879,955	1.017	1.020
LIABILITY		Trend <u>Factor</u>			
AOI Lessors & Occupants		1.017			
Sales		1.017			
Payroll		1.028			

ANNUAL NET TRENDS (LOSS TREND/PREMIUM TREND)

	Annual Net <u>Trend Factor</u>	Expected Experience <u>Ratio (a)</u>
ALL		
PROPERTY	1.022	1.020
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,  $1.02 = 1.022^{(11/12)}$ .

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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

## COLORADO

### 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.

## COLORADO

### 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.

## COLORADO

### 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.

COLORADO

BUSINESSOWNERS

TABLE C1-1

SUMMARY OF FIRE LOSS TREND

<u>Year</u>	<u>Buildings Current Cost Factors*</u>	<u>Contents Current 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	-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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BUSINESSOWNERS

TABLE C1-2

FIRE  
BUILDINGS  
MULTISTATE  
SEVERITY AND FREQUENCY TREND

Accident <u>Year</u>	Trended <u>Exposures</u>	Total <u>Losses</u>	Normal <u>Losses</u>	Incurred <u>Occurrences</u>	Average Occurrence <u>Cost (Total)</u>	Average Occurrence <u>Cost (Normal)</u>	Average Occurrence <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>	
		<u>Severity</u>	<u>Frequency</u>	<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>	
		<u>Severity</u>	<u>Frequency</u>	<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

COLORADO  
BUSINESSOWNERS

TABLE C1-3

FIRE  
CONTENTS  
MULTISTATE  
SEVERITY AND FREQUENCY TREND

Accident Year	Trended Exposures	Total Losses	Normal Losses	Incurred Occurrences	Average Occurrence Cost (Total)	Average Occurrence Cost (Normal)	Average Occurrence 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

<u>Total Losses</u>				<u>R-Squared</u>	
		<u>Severity</u>	<u>Frequency</u>	<u>Severity</u>	<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

<u>Normal Losses</u>				<u>R-Squared</u>	
		<u>Severity</u>	<u>Frequency</u>	<u>Severity</u>	<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

## COLORADO

### 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.

COLORADO

BUSINESSOWNERS

TABLE C2-1

SUMMARY OF EXTENDED COVERAGE LOSS TREND

<u>Year</u>	<u>Buildings Current Cost Factors*</u>	<u>Contents Current 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.

COLORADO

BUSINESSOWNERS

TABLE C2-2

EXTENDED COVERAGE  
BUILDINGS  
MULTISTATE  
SEVERITY TREND

Accident <u>Year</u>	Total <u>Losses</u>	Normal <u>Losses</u>	Incurred <u>Occurrences</u>	Average Occurrence <u>Cost (Total)</u>	Average Occurrence <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%	

COLORADO

BUSINESSOWNERS

TABLE C2-3

EXTENDED COVERAGE  
CONTENTS  
MULTISTATE  
SEVERITY TREND

Accident Year	Total Losses	Normal Losses	Incurred Occurrences	Average Occurrence Cost (Total)	Average Occurrence 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%	

COLORADO  
TABLE C2-4  
DEVELOPMENT OF EXTENDED COVERAGE EXCESS MULTIPLIER

YEAR ENDING	(1)  EARNED PREMIUMS	(2)  INCURRED LOSSES	(3)  NORMAL INCURRED LOSSES	(4)  NORMAL LOSS RATIO	(5)  STATE EXCESS LOSS RATIO	(6)  REGIONAL EXCESS LOSS RATIO
9/30/1988	3,673,096	524,517	524,517	0.143		
9/30/1989	4,128,422	577,321	577,321	0.140		
9/30/1990	4,823,487	7,686,028	2,372,973	0.492	0.650	0.451
9/30/1991	4,394,610	1,694,367	1,296,926	0.295	0.086	0.005
9/30/1992	4,308,606	512,312	512,312	0.119		
9/30/1993	4,547,130	1,321,464	1,321,464	0.291		
9/30/1994	5,053,002	500,520	500,520	0.099		
9/30/1995	6,460,199	3,685,681	2,348,945	0.364	0.181	0.025
9/30/1996	7,387,552	4,617,839	3,071,118	0.416	0.186	0.024
9/30/1997	7,828,970	5,945,804	3,375,606	0.431	0.276	0.053
9/30/1998	9,227,561	1,154,329	1,154,329	0.125		
9/30/1999	11,269,608	12,087,941	5,782,368	0.513	0.414	0.146
9/30/2000	12,952,613	1,631,083	1,631,083	0.126		
9/30/2001	15,957,999	7,985,859	6,488,611	0.407	0.089	0.005
9/30/2002	20,318,492	3,381,343	3,381,343	0.166		
9/30/2003	24,460,642	1,907,764	1,907,764	0.078		
9/30/2004	28,942,234	17,616,552	13,114,926	0.453	0.143	0.013
9/30/2005	32,147,502	2,459,737	2,459,737	0.077		
9/30/2006	28,802,624	3,859,439	3,859,439	0.134		
9/30/2007	27,414,612	3,836,734	3,836,734	0.140		
9/30/2008	26,111,452	7,600,872	7,600,872	0.291		
9/30/2009	25,733,548	77,052,408	18,561,248	0.721	1.192	1.081
9/30/2010	25,544,892	21,802,168	18,617,428	0.729	0.120	0.005
9/30/2011	22,921,564	17,165,560	12,385,818	0.540	0.185	0.024
9/30/2012	21,010,830	31,686,960	12,057,682	0.574	0.590	0.344
9/30/2013	18,881,756	8,372,279	7,775,733	0.412	0.031	0.001
9/30/2014	18,466,312	34,573,320	14,023,770	0.759	0.906	0.207
9/30/2015	20,141,334	14,282,151	9,486,822	0.471	0.208	0.030
9/30/2016	21,218,084	31,976,148	12,030,716	0.567	0.673	0.267
9/30/2017	22,462,614	39,373,252	7,910,120	0.352	0.762	0.639
TOTALS				10.425	6.692	3.320
(7) STATE EXCESS COMPONENT = ( TOTAL (5) / TOTAL (4) )					0.642	
(8) REGIONAL EXCESS COMPONENT					0.195	
(9) STATE EXCESS MULTIPLIER = ( 1 + (7) ) x ( 1 + (8) )					1.962	

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BUSINESSOWNERS

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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BUSINESSOWNERS

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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BUSINESSOWNERS

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.

## COLORADO

### 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.

COLORADO

BUSINESSOWNERS

TABLE C3-1

SUMMARY OF ALL OTHER PROPERTY LOSS TREND

<u>Year</u>	<u>Buildings Current Cost Factors*</u>	<u>Contents Current 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.

COLORADO

BUSINESSOWNERS

TABLE C3-2

ALL OTHER PROPERTY  
BUILDINGS  
MULTISTATE  
SEVERITY TREND

Accident Year	Total Losses	Normal Losses	Incurred Occurrences	Average Occurrence Cost (Total)	Average Occurrence 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 Losses

R-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 Losses

R-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%	

## STATE X

## BUSINESSOWNERS

TABLE C3-3

ALL OTHER PROPERTY  
CONTENTS  
MULTISTATE  
SEVERITY TREND

Accident Year	Total Losses	Normal Losses	Incurred Occurrences	Average Occurrence Cost (Total)	Average Occurrence 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%	

COLORADO

TABLE C3-4

DEVELOPMENT OF ALL OTHER PROPERTY EXCESS MULTIPLIER

	(1)	(2)	(3)	(4)	(5)
YEAR	EARNED	INCURRED	NORMAL	NORMAL	STATE
ENDING	PREMIUMS	LOSSES	INCURRED	LOSS	EXCESS
			LOSSES	RATIO	LOSS
					RATIO
9/30/1988	1,845,784	503,589	503,589	0.273	
9/30/1989	2,074,592	1,187,094	946,126	0.456	0.116
9/30/1990	2,423,872	1,389,787	1,298,787	0.536	0.038
9/30/1991	2,208,355	1,318,228	975,752	0.442	0.155
9/30/1992	2,165,136	799,954	799,954	0.369	
9/30/1993	2,284,998	749,261	749,261	0.328	
9/30/1994	2,539,206	828,971	828,971	0.326	
9/30/1995	3,246,343	1,219,377	1,219,377	0.376	
9/30/1996	3,712,351	1,888,837	1,888,837	0.509	
9/30/1997	3,934,170	2,286,483	2,286,483	0.581	
9/30/1998	4,636,982	2,835,376	2,835,376	0.611	
9/30/1999	5,663,140	5,230,089	5,080,162	0.897	0.026
9/30/2000	6,508,875	4,680,249	4,634,878	0.712	0.007
9/30/2001	8,019,124	5,620,954	5,620,954	0.701	
9/30/2002	10,210,335	6,544,172	6,068,503	0.594	0.047
9/30/2003	12,291,826	25,916,570	6,676,434	0.543	1.565
9/30/2004	14,543,890	6,341,529	6,341,529	0.436	
9/30/2005	16,154,583	5,549,127	5,549,127	0.344	
9/30/2006	14,473,734	9,508,123	8,662,946	0.599	0.058
9/30/2007	13,776,238	7,832,160	7,832,160	0.569	
9/30/2008	13,121,381	7,952,559	7,296,875	0.556	0.050
9/30/2009	12,931,479	10,998,316	10,361,940	0.801	0.049
9/30/2010	12,836,677	11,463,083	10,382,247	0.809	0.084
9/30/2011	11,518,417	16,467,341	11,932,596	1.036	0.394
9/30/2012	10,558,245	6,925,571	6,925,571	0.656	
9/30/2013	9,488,355	6,629,315	6,629,315	0.699	
9/30/2014	9,279,589	8,544,560	7,775,430	0.838	0.083
9/30/2015	10,121,311	5,950,155	5,950,155	0.588	
9/30/2016	10,662,393	8,038,667	7,755,608	0.727	0.027
9/30/2017	11,287,788	9,155,636	7,459,933	0.661	0.150
TOTALS				17.573	2.849
(6) STATE EXCESS COMPONENT = ( TOTAL (5) / TOTAL (4) )					0.162
(7) STATE EXCESS MULTIPLIER = ( 1 + (6) )					1.162

## COLORADO

### BUSINESSOWNERS

#### 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>  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>  These are the unadjusted incurred losses for each year.
COLUMN (3)	<u>NORMAL INCURRED LOSSES</u>  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>  The normal loss ratio for each year is the ratio of the normal incurred losses for each year divided by the earned premiums for the year. Column (4) = Column (3) ÷ Column (1)
COLUMN (5)	<u>EXCESS LOSS RATIO</u>  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 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 Year Ending	Year Ending Averages		Current Cost Factors to 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)

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#### 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) Fire, EC and AOP Weights	(2a) Current Cost Factors	(2b) Current 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) $(1 + (4a)) ^ ((4b) / 12)$	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 $(5a) ^ (12 / (5b))$	1.026	1.013

**II. INTERNAL ANNUAL RATE OF CHANGE**

(6) 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.

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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 <u>External</u>	Annual <u>Internal</u>	Indicated Severity LTA <u>(8) / (7)</u>	Formula Severity LTA (c) <u>LTA (c)</u>	Frequency Effect <u>Effect</u>	Final LTA <u>(10) x (11)</u>
BUILDINGS						
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
CONTENTS						
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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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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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).

## COLORADO

### 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.



COLORADO  
BUSINESSOWNERS  
TABLE C6

BURGLARY  
MULTISTATE  
SEVERITY AND FREQUENCY TREND

Accident Year	Trended Exposures	Total Losses	Normal Losses	Incurred Occurrences	Average Occurrence Cost (Total)	Average Occurrence Cost Normal	Average Occurrence 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>R-squared</u>	
		<u>Severity</u>	<u>Frequency</u>	<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>R-squared</u>	
		<u>Severity</u>	<u>Frequency</u>	<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

## COLORADO

### 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.

## COLORADO

### 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.

COLORADO  
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

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

Accident	Trended	Paid Total	Paid Normal	Paid Occurrences**	Occurrence Cost (Total)	Occurrence Cost (Normal)	Occurrence 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> <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> <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

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

Accident	Trended	Paid Total	Paid Normal	Paid Occurrences**	Occurrence Cost (Total)	Occurrence Cost (Normal)	Occurrence 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> <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> <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	=	+7.5%	-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

COLORADO

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	2,218,120	4,593,681	5,072,639	2.071	1.104
2004	3,465,040	3,855,196	4,105,225	1.113	1.065
2005	3,786,737	4,278,148	5,302,399	1.130	1.239
2006	3,955,514	5,207,353	5,341,939	1.316	1.026
2007	3,455,629	4,237,455	5,950,428	1.226	1.404
2008	4,797,326	6,834,164	9,548,097	1.425	1.397
2009	3,514,615	4,637,753	6,298,664	1.320	1.358
2010	4,921,543	6,153,642	8,100,666	1.250	1.316
2011	3,416,636	3,854,756	5,753,560	1.128	1.493
2012	3,901,270	4,672,908	6,829,476	1.198	1.462
2013	2,320,035	3,384,149	3,472,191	1.459	1.026
2014	2,886,605	3,329,168	4,603,787	1.153	1.383
2015	3,536,108	5,735,873	8,123,454	1.622	1.416
2016	3,592,358	4,875,088		1.357	
2017	3,132,201				

(1) Average Best 3 of 5	(A) Statewide	1.338	1.420
	(B) Multistate	1.504	1.255
(2) Credibility		0.667	0.161
(3) Credibility Weighted Average		1.393	1.282

Summary of Factors

	<u>Factor</u>
63 to Ultimate**	1.012
51 to Ultimate**	1.032
39 to Ultimate**	1.110
27 to Ultimate	1.423
15 to Ultimate	1.982

\*\*Multistate

COLORADO  
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>LINKRATIOS</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 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	



COLORADO  
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>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>
	1.645	1.249	1.073	1.012	0.997	0.996	1.001	1.000	1.000

COLORADO  
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

COLORADO

BUSINESSOWNERS

TABLE C9

DEVELOPMENT OF EXPOSURE TREND FACTORS

Buildings

<u>Year</u>	(1) Annual Written <u>Increase</u>	(2) Calendar Yr. Written <u>Factors</u>	(3) Fiscal Yr. Written <u>Factors(a)</u>	(4) Projection <u>Factor</u>	(5) Exposure Trend <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) Annual Written <u>Increase</u>	(7) Calendar Yr. Written <u>Factors</u>	(8) Fiscal Yr. Written <u>Factors(a)</u>	(9) Projection <u>Factor</u>	(10) Exposure Trend <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

<u>Year</u>	(11) Selected Average <u>Annual Trend(b)</u>	(12) Exposure Trend <u>Factors(a)</u>
2013	1.7%	1.114
2014	1.7%	1.096
2015	1.7%	1.077
2016	1.7%	1.059
2017	1.7%	1.042

Payroll

<u>Year</u>	(13) Selected Average <u>Annual Trend(b)</u>	(14) Exposure Trend <u>Factors(a)</u>
2013	2.8%	1.194
2014	2.8%	1.161
2015	2.8%	1.130
2016	2.8%	1.099
2017	2.8%	1.069

(a) Fiscal Year Ending September 30.

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

# COLORADO

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

COLORADO

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).

COLORADO  
BUSINESSOWNERS

TABLE C10

STATEWIDE CREDIBILITY CALCULATION

		<u>Statewide Property</u>	<u>Statewide Liability L/O</u>	<u>Multistate Sales</u>	<u>Multistate 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	266,042	141,351	201,553	416,560
(8)	Statewide credibility [(7)/(6)] <sup>1/2</sup>	0.923	0.562	1.000	1.000

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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>

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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))



## COLORADO

### 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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BUSINESSOWNERS

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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BUSINESSOWNERS

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

## COLORADO

### BUSINESSOWNERS

#### 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, 2016. 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 territory 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) Total Losses	(2) Wind and Hail Losses	(3) Percent (2)/(1)
703	Building BPP	61,020,581	46,489,669	50%
		15,657,481	2,030,564	15%
704	Building BPP	27,091,292	20,272,099	50%
		6,449,995	550,043	10%
705	Building BPP	96,633,617	73,292,985	50%
		11,992,436	1,008,642	10%
706	Building BPP	12,272,761	1,860,278	15%
		3,664,971	20,547	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 Per \$100 Of Limit Of Ins.	Business Personal Property Per \$100 Of Limit Of Ins.	Occupant Liability Per \$100 Of Limit Of Ins.	Occupant Liability Per \$1,000 Of Annual Gross Sales	Occupant Liability Per \$1,000 Of Annual Payroll	Lessors Liability Per \$100 Of Limit Of Ins.
703	0.634	0.275	0.046	1.127	7.387	0.019
704	0.394	0.202	0.051	1.074	7.363	0.017
705	0.679	0.307	0.042	1.219	7.405	0.015
706	0.143	0.105	0.034	1.149	7.534	0.011

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

**SECTION III  
RATING AND ELIGIBILITY RULES**

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

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## 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
703-705	0.311	0.360	0.409
706	0.239	0.287	0.337

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>
703	Buildings (1)	0.317
	Business Personal Property (2)	0.041
704	Buildings (1)	0.197
	Business Personal Property (2)	0.020
705	Buildings (1)	0.340
	Business Personal Property (2)	0.031
706	Buildings (1)	0.021
	Business Personal Property (2)	0.005

**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	\$ 6.590	\$ 9.810	\$ 7.850
Each Additional Employee	4.620	6.880	5.500

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



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SUPPLEMENTARY INFORMATION

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PURPOSE

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

- A summary of significant factors used in the development of loss cost indications that underlie the loss costs in the current 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%

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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	1.423	1.359
15 to ultimate	1.982	1.927

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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	+2.2%	+1.9%
Liability Lessors/Occupants	+1.0%	+0.8%
Liability Sales	+4.0%	+3.9%
Liability Payroll	+2.5%	+3.8%

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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	Fire losses were consistent over the five-year period.
Extended Coverage	The Extended Coverage partial experience ratio in 2014 was high relative to the other years in this review. This was due to unfavorable experience in a large writer.
Burglary	Burglary losses were consistent over the five-year experience period.
All Other Property	All Other Property losses were consistent over the five-year period.
Liability	The Liability experience ratio in 2013 and 2014 were low relative to the other years in this review. This was due to favorable experience across several companies.

EXPLANATION  
OF CHANGES

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

Property	The +10.2% indicated change is mainly due to unfavorable experience in the middle years of the review.
Liability Lessors/Occ	No large indicated change.
Liability Sales	No large indicated change.
Liability Payroll	No large indicated change.

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BUSINESSOWNERS

SUPPLEMENTARY INFORMATION

PERCENTAGES OF ADJUSTED PROPERTY LOSSES BY TYPE OF LOSS\*

Property losses for Fire, EC, Burglary and AOP can result from property damage or 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	88.5%	99.9%	99.8%	97.7%
Business Interruption	11.5%	0.1%	0.2%	2.3%

CONTENTS

	<u>Fire</u>	<u>EC</u>	<u>Burglary</u>	<u>AOP</u>
Property Damage	76.5%	83.8%	99.3%	79.6%
Business Interruption	23.5%	16.2%	0.7%	20.4%

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