



LOSS COSTS – IMPLEMENTATION

AUGUST 2, 2019

COMMERCIAL PROPERTY

LI-CF-2019-077

## MICHIGAN COMMERCIAL FIRE AND ALLIED LINES ADVISORY PROSPECTIVE LOSS COST REVISION TO BE IMPLEMENTED

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### KEY MESSAGE

Revised advisory prospective loss costs reflecting a statewide loss cost level change of **+5.9%** to be implemented.

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### BACKGROUND

In circular [LI-CF-2019-041](#), we provided you with information about the Commercial Fire and Allied Lines loss cost level experience review.

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### ISO ACTION

We are implementing CF-2019-RLA1, which presents a review of Commercial Fire and Allied Lines loss cost experience. Refer to the attachment(s) for complete details.

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### SUPPLEMENTARY INFORMATION

We are including the following supplementary information:

- An Actuarial Analysis Supplement which provides discussion and analysis of changes in the experience and adjustments used to derive the loss cost level analysis.
- 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 **December 1, 2019**.

The effective date applies only to those insurers who have filed their Commercial Fire and Allied Lines loss cost adjustments to be automatically applicable to future ISO loss cost revisions.

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### IMPACT ON THE STATISTICAL REPORTING OF LOSS COST MULTIPLIER

For the purpose of reporting your company Loss Cost Multiplier under the CSP, as of December 1, 2019, the multiplier must be based on the relationship between your gross rates and the ISO advisory prospective loss costs contained in this circular.

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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 NOVEMBER 1, 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 CF-2019-RLA1, NOT this circular number.

CAUTION: This reference filing revises only certain advisory prospective loss costs for Commercial Fire and Allied Lines 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-2018-044](#) 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 INFORMATION

- **Manual And ISO Suite**

We will issue a Notice to Manualholders with an edition date of 12-19 (or the earliest possible subsequent date), along with any new and/or revised manual pages.

- **ProMetrix**

Revised loss costs for specifically rated and class-rated properties contained in ProMetrix will be displayed as "Pending" beginning on September 16, 2019. On December 1, 2019, these loss costs will move to "Current" status. The previous "Current" becomes the most recent "Prior" and joins all previously displayed "Priors". With each subsequent loss cost revision, we will make an additional "Prior" available. Information in ProMetrix will distinguish between loss costs which reflect the effect of limit of insurance (LOI) relativities and pre-LOI loss costs.

- **Toll-free Telephone Service**

Revised loss costs for specifically rated and class-rated properties will be available by calling toll-free 1-800-444-4554 and requesting "Pending" from September 16, 2019 to December 1, 2019. On December 1, 2019, these loss costs will move to "Current" status. The previous "Current" becomes the most recent "Prior" and joins all previously displayed "Priors". With each subsequent loss cost revision, we will make an additional "Prior" available. Information available via toll-free telephone service will distinguish between loss costs which reflect the effect of limit of insurance (LOI) relativities and pre-LOI loss costs.

**NOTE:** Specific property information is provided for Basic Group I and Basic Group II in this state. However, the eligibility criteria for Basic Group I and Basic Group II are independent and therefore an individual property may be eligible for Basic Group I and/or Basic Group II specific rating.

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**REFERENCE(S)**

- [LI-CF-2019-041](#) (06/12/2019) Commercial Fire And Allied Lines Experience Level Indications Reviewed By ISO Staff
- [LI-CL-2018-044](#) (11/27/2018) Revised Lead Time Requirements Listing

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**ATTACHMENT(S)**

- CF-2019-RLA1
- Actuarial Analysis 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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## DATA QUALITY

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

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## ACKNOWLEDGMENT OF ACTUARIAL QUALIFICATIONS

The American Academy of Actuaries' "Qualification 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, Rimma Maasbach, am an Actuarial Consultant in Actuarial Operations for ISO and I, Bei Zhou, am an Actuarial Product Director for Commercial Property 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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## XACTWARE SOLUTIONS, INC.

This filing incorporates the use of pricing data from Xactware Solutions, Inc., to estimate trends in building costs for commercial properties. Xactware provides computer software solutions for professionals involved in estimating all phases of building construction and repair. The company has been providing building cost data, estimate tracking and data trending to the insurance repair market since 1986. Insurance carriers using Xactware data are responsible for settlement of the majority of property claims in the USA and Canada.

For more information concerning Xactware Solutions, Inc., please see the Contact Information block.

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## CONTACT INFORMATION

If you have any questions concerning

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

MICHIGAN

COMMERCIAL FIRE AND ALLIED LINES INSURANCE PROSPECTIVE LOSS COST LEVEL REVISION  
EXECUTIVE SUMMARY

PURPOSE

This document:

- revises advisory prospective loss costs. These loss costs represent a +5.9% statewide change from the current ISO loss costs.
  - provides the analyses used to derive the prospective loss costs based on experience through calendar/accident year ending 06/30/2018, evaluated as of 09/30/2018.
- 

DEFINITION  
OF THE ISO  
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 and projected through trending to a future point in time.

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LOSS COST  
LEVEL  
CHANGES

The statewide monoline prospective loss cost level changes are:

Coverage	Filed
Basic Group I	+11.6%
Basic Group II	-5.3%
Special Causes of Loss	+3.3%
Total	+5.9%

Filed loss cost level changes are changes from the current loss cost level.

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PRIOR ISO REVISIONS

The latest revisions in this state are:

<u>Reference Document or Filing</u>	CF-2018-RLA1	CF-2016-RLA1
<u>Rates/ Loss Costs</u>	Loss Costs	Loss Costs
<u>Dates Implemented</u>	01/01/2019	03/01/2017
<u>Changes</u>		
Basic Group I	+9.5%	+3.4%
Basic Group II	+0.2%	+3.2%
Special Causes of Loss	+4.1%	+10.3%
Total	+6.1%	+5.4%

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HISTORICAL SOURCE DATA

The data used in this revision is:

- Voluntary experience for ISO reporting companies.
  - Five calendar/accident years ending 06/30/2018 for Basic Group I and Special Causes of Loss.
  - Ten calendar/accident years ending 06/30/2018 for Basic Group II.
- 

DISTRIBUTION OF STATEWIDE MONOLINE LOSS COST CHANGES

ISO has distributed the statewide monoline prospective loss cost changes as follows:

- by rating group and territory (where applicable) for Basic Group I.
- by category (building coverage and occupancy type) for Special Causes of Loss.

This has been done based on the experience of each rating group and territory (where applicable), or category for Basic Group I and Special Causes of Loss. Therefore, the resulting changes will vary by rating group and territory (where applicable) for Basic Group I and by category for Special Causes of Loss.

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TREND AND  
OTHER  
ADJUSTMENTS

Loss Trend

For trend purposes, the period of use for this revision is assumed to begin on 01/01/2020. To adjust the loss experience to the levels expected to prevail while the revised loss costs are in effect, trend factors have been applied to the historical incurred losses. These trend factors are based on:

- external cost indices published by the U.S. Government and information provided by Xactware Solutions, Inc.
- changes in multistate average claim costs through fourth quarter 2017.

The "historic" trend factors based on the external indices, i.e. the factors based on historic changes in the indices, vary by year. The latest annual rates of change based on these indices are:

<u>Coverage</u>	<u>Annual Rate of Change</u>
Buildings	3.0%
Contents	1.9%
Time Element	0.9%

Incurred losses are also multiplied by loss trend adjustment factors (LTA's) to reflect trends in claim frequency and claim costs that are different from those exhibited by the external indices. The annual loss trend adjustments are:

<u>Line of Business</u>	<u>Buildings</u>	<u>Contents</u>	<u>Time Element</u>
Basic Group I	-0.3%	0.7%	2.8%
Basic Group II	0.2%	0.6%	2.6%
Special Causes of Loss	0.2%	0.0%	2.8%

This produces a total annual loss trend of:

<u>Line of Business</u>	<u>Buildings</u>	<u>Contents</u>	<u>Time Element</u>
Basic Group I	2.7%	2.6%	3.7%
Basic Group II	3.2%	2.5%	3.5%
Special Causes of Loss	3.2%	1.9%	3.7%

Premium Trend

Over time, insureds tend to purchase increased amounts of insurance in order to compensate for inflation, which results in increased premium revenue.

TREND AND  
OTHER  
ADJUSTMENTS  
(cont'd)

In order to reflect this increase in revenue, ISO uses a premium trend procedure. The premium trend factors are based on observed changes in the annual amount of insurance written for BG I renewal policies for a group of selected companies. The selected annual trends in the amount of insurance are:

Buildings	2.6%
Contents	1.6%
Time Element	0.6%

Other Adjustments

Standard actuarial procedures have been used in calculating the loss costs including loss development and the reflection of all loss adjustment expense. In addition, smoothing procedures have been applied to stabilize the effects of large or excess losses.

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TEN LARGEST  
COMPANY  
GROUPS IN  
ISO DATA BASE

COMMERCIAL MULTIPERIL - NON-LIABILITY (ASLOB 51)

1. Travelers Indemnity Company
2. Cincinnati Insurance Company
3. Frankenmuth Mutual Insurance Company
4. Tokio Marine Companies
5. Hartford Accident & Indemnity Company
6. Zurich American Insurance Company
7. Westfield Insurance Company
8. Harleysville Insurance
9. AMCO (Allied Group)
10. Country Mutual Insurance Company

Insurers are listed in descending order based on the percent of statewide written premium volume from Annual Statement Page 15 for year ending 12/31/2017 for Annual Statement Line of Business (ASLOB) 51, Commercial Multiperil - Non-liability.

Although ASLOB 51 includes coverages in addition to commercial fire and allied lines, e.g., crime, inland marine, fidelity, the largest percentage of premium volume is due to fire and allied lines (Basic Group I, Basic Group II, and Special Causes of Loss coverages). ASLOB 51 does not include data reported under monoline fire and allied lines (ASLOBs 10 and 21), which includes both commercial and personal property experience.

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SIZE OF ISO  
DATA BASE

The market share of all insurers reporting to ISO in this state and included in the ratemaking experience underlying this review as measured by Annual Statement Page 15 written premium for year ending 12/31/2017 is:

Commercial Multi-peril - Non-liability (ASLOB 51)- 32.0%

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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 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 selected loss costs are appropriate for its use.

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

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MICHIGAN  
COMMERCIAL PROPERTY INSURANCE

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SECTION A - SCOPE OF REVISION

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TABLE 1 - SUMMARY OF MONOLINE PROSPECTIVE LOSS COST CHANGES (A)

COVERAGE	INDICATIONS	AGGREGATE LOSS COSTS AT CURRENT LEVEL
BASIC GROUP I	+11.6%	50,802,046
TERRITORY 01	+7.7%	
TERRITORY 08	+12.0%	
BASIC GROUP II	-5.3%	19,662,543
SPECIAL CAUSES OF LOSS	+3.3%	28,239,987
ALL COVERAGES COMBINED	+5.9%	98,704,576

TERRITORY DEFINITIONS

01 Detroit  
08 Balance of State

(A) FOR TREND PURPOSES, THE PERIOD OF USE FOR THIS REVISION IS ASSUMED TO BEGIN ON 01/01/2020.

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TABLE 2 - BASIC GROUP I PROSPECTIVE LOSS COST CHANGES  
BY RATING GROUP AND TERRITORY (A)

RATING GROUP DESCRIPTION	Detroit	Balance of State (Michigan)
	INDICATED	INDICATED
01 APARTMENTS	+7.1%	+10.8%
02 OTHER HABITATIONAL	+9.4%	+13.3%
03 RESTAURANTS & BARS	+3.8%	+7.5%
04 OTHER MERCANTILE RISKS	+10.1%	+14.0%
05 PUBLIC BUILDINGS	+8.4%	+12.2%
06 CHURCHES	+3.3%	+6.9%
07 SCHOOLS	+7.3%	+11.1%
08 OFFICES AND BANKS	+1.2%	+4.8%
09 RECREATIONAL FACILITIES	+10.6%	+14.5%
10 HOTELS & MOTELS	+7.7%	+11.5%
11 HOSPITALS & NURSING HOMES	+9.8%	+13.6%
12 BLDGS UNDER CONSTRUCTION	+9.7%	+13.5%
13 MOTOR VEHICLE RISKS	+7.0%	+10.7%
14 OTHER NON-MANUFACTURING	+9.7%	+13.5%
15 STORAGE	+5.8%	+9.5%
17 FOOD MANUFACTURING	+5.9%	+9.6%
18 WOOD MANUFACTURING	+7.4%	+11.2%
19 WEARING APPAREL	+8.3%	+12.1%
20 CHEMICAL MANUFACTURING	+8.7%	+12.5%
21 METAL MANUFACTURING	+12.4%	+16.3%
22 OTHER MANUFACTURING	+15.6%	+19.7%
TOTAL	+7.7%	+12.0%

(A) FOR EACH RATING GROUP, THE LOSS COST CHANGE FOR EACH CSP CLASS IN THE RATING GROUP, BY COVERAGE AND CONSTRUCTION, IS IDENTICAL TO THE OVERALL CHANGE SHOWN FOR THE RATING GROUP.

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TABLE 3 - SPECIAL CAUSES OF LOSS PROSPECTIVE LOSS COST CHANGES BY CATEGORY

CATEGORY DESCRIPTION	ENTIRE STATE
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01 BUILDINGS	+3.7%
02 RES. APTS. AND CONDOS	+4.0%
03 OFFICES	+2.7%
04 MERCANTILE - HIGH	+4.4%
05 MERCANTILE - MEDIUM	+1.1%
06 MERCANTILE - LOW	+0.8%
07 MOTELS AND HOTELS	+2.5%
08 INSTITUTIONAL - HIGH	+4.5%
09 INSTITUTIONAL - LOW	+3.1%
10 INDUST-PROC - HIGH	+3.4%
11 INDUST-PROC - LOW	+1.6%
12 SERVICE - HIGH	+1.0%
13 SERVICE - LOW	+3.1%
14 CONTRACTORS	+4.1%
STATEWIDE TOTAL	+3.3%

MICHIGAN  
TABLE 4

POTENTIAL IMPACT OF BG I, BG II, AND SCL MONOLINE REVISIONS  
ON COMMERCIAL PACKAGE POLICY

(1)	(2)	(3)	(4)	
TYPE OF POLICY	BASIC GROUP I	BASIC GROUP II	SPECIAL CAUSES OF LOSS	
31	MOTEL/HOTEL	+11.1%	-5.3%	+3.4%
32	APARTMENT	+11.3%	-5.3%	+3.8%
33	OFFICE	+4.6%	-5.3%	+3.3%
34	MERCANTILE	+11.5%	-5.3%	+3.2%
35	INSTITUTIONAL	+8.2%	-5.3%	+3.7%
36	SERVICES	+11.8%	-5.3%	+3.0%
37	INDUST/PROCESSING	+14.9%	-5.3%	+2.9%
38	CONTRACTORS	+11.8%	-5.3%	+3.9%

BASIC GROUP I, BASIC GROUP II, AND SPECIAL CAUSES OF LOSS MONOLINE CHANGES BY TYPE OF POLICY (TOP) ARE DISPLAYED. THEY ARE CALCULATED BY TAKING A WEIGHTED AVERAGE OF THE LOSS COST CHANGES BY TERRITORY (WHERE APPLICABLE) AND RATING GROUP (FOR BG I), OR BY CATEGORY (FOR SCL), USING THE LATEST YEAR MULTILINE AGGREGATE LOSS COSTS AS WEIGHTS. BASIC GROUP II MONOLINE CHANGES DO NOT VARY BY TOP BECAUSE THE SAME MONOLINE LOSS COST CHANGE IS APPLIED STATEWIDE.

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COMMERCIAL PROPERTY INSURANCE

SECTION B - CALCULATION OF PROPOSED CHANGES

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## OVERVIEW OF ISO ACTUARIAL PROCEDURES - COMMERCIAL PROPERTY

### INTRODUCTION

Commercial Property prospective loss costs are determined by evaluating the adequacy of the current ISO 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. This evaluation is done separately for Basic Group I, Basic Group II, and Special Causes of Loss.

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### STEP 1: DETERMINATION OF INDICATED STATEWIDE LOSS COST LEVEL CHANGE

The first step in this process is the determination of the indicated statewide loss cost level change. This indicated statewide loss cost level change is the average percentage change which must be made to the current ISO loss costs in order to achieve adequacy for the prospective conditions. The percentage changes are presented on the exhibits labeled "Statewide Coverage Loss Cost Level Evaluation".

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### STEP 2: DISTRIBUTION OF CHANGES

Based on the experience, ISO then distributes the indicated statewide loss cost level change by territory (where applicable), type of policy and rating group for Basic Group I; by type of policy for Basic Group II; and by type of policy and category for Special Causes of Loss.

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### STEP 3: CALCULATION OF REVISED LOSS COSTS

The last step is the calculation of the prospective ISO loss costs. This is achieved by applying the indicated monoline changes to the current ISO loss costs. For Basic Group I, for those states without BG I rating territories, the statewide loss cost changes by rating group are applied to the current manual loss costs. For those states with rating territories, the Balance of State loss cost changes by rating group are applied to the current manual loss costs. The revised territory multipliers are calculated by multiplying the current territory multipliers by the indicated territory changes. For specifically-rated properties, the appropriate changes are applied to the current experience level adjustment factors and territory multipliers. For Basic Group II, revised loss costs are calculated by applying the indicated statewide monoline change to the current ISO loss costs, and where applicable, adding the hurricane modeled loss costs. For Special Causes of Loss, revised loss costs are calculated by applying the indicated monoline changes by category to the current ISO loss costs.

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COMMERCIAL PROPERTY INSURANCE  
CALCULATION OF STATEWIDE ADVISORY LOSS COST LEVEL CHANGES IN TABLES 5, 6 AND 7

OBJECTIVE	The objective of this procedure is to determine the indicated statewide advisory loss cost level change. This procedure answers the question: What average percentage change must be made to the current ISO loss costs in order for them to be adequate to cover indemnity losses and all loss adjustment expenses incurred in the prospective period in which the revised loss costs are assumed to be in effect?
DESCRIPTION	<p>This procedure compares the trended and developed incurred losses and loss adjustment expenses with the trended aggregate loss costs at current ISO level. The aggregate loss costs at current level are the amounts that would have been collected for losses and all loss adjustment expenses if the current ISO loss costs had been in effect during the experience period.</p> <p>Experience ratios (losses and all loss adjustment expenses divided by aggregate loss costs, both trended to the prospective experience period) are calculated by year, and a weighted average of the yearly experience ratios is calculated. For Basic Group I (BG I) and Special Causes of Loss (SCL), the five year weights vary by year, giving greater weight to the more recent experience. For Basic Group II (BG II), because of the more volatile nature of the data, the ten individual years are given equal weight.</p> <p>The average experience ratio is then credibility-weighted with the expected experience ratio in order to minimize the impact of random variation in the observed losses. The resulting credibility-weighted experience ratio is the indicated statewide advisory loss cost level change in decimal form.</p>
EXPERIENCE BASE	The experience used in this review is the latest available data reported under the ISO Commercial Statistical Plan for BG I, BG II and SCL. The data are aggregated on an accident year basis.

MICHIGAN  
TABLE 5

STATEWIDE BASIC GROUP I  
COVERAGE LOSS COST LEVEL EVALUATION

(1) YEAR	(2) AGGREGATE* LOSS COSTS	(3) ADJUSTED** INCURRED LOSSES	(4) EXPERIENCE RATIO (3) / (2)	(5) WEIGHTS
2014	49,699,249	70,230,542	1.413	0.10
2015	51,175,654	46,924,222	0.917	0.15
2016	51,700,145	46,842,369	0.906	0.20
2017	50,258,971	66,502,250	1.323	0.25
2018	50,802,046	59,780,441	1.177	0.30

(6) WEIGHTED EXPERIENCE RATIO	= 1.144
(7) CREDIBILITY	= 0.416
(8) EXPECTED EXPERIENCE RATIO	= 1.009
(9) CREDIBILITY WEIGHTED EXPERIENCE RATIO (0.416 X 1.144 ) + (0.584 X 1.009 )	= 1.065
(10) INDICATED COVERAGE LOSS COST CHANGE	= 1.065
	OR +6.5%

\* AGGREGATE LOSS COSTS ARE ADJUSTED TO CURRENT ISO LOSS COST LEVEL AND 07/01/2020 AMOUNT OF INSURANCE LEVELS.

\*\* INCURRED LOSSES ARE ADJUSTED TO 01/01/2021 COST LEVELS INCLUDING LOSS DEVELOPMENT AND ALL LOSS ADJUSTMENT EXPENSES.

MICHIGAN  
TABLE 6

STATEWIDE BASIC GROUP II  
COVERAGE LOSS COST LEVEL EVALUATION

(1)	(2)	(3)	(4)
YEAR	AGGREGATE* LOSS COSTS	ADJUSTED** INCURRED LOSSES	EXPERIENCE RATIO (3) / (2)
2009	19,124,147	18,321,461	0.958
2010	18,737,169	13,940,479	0.744
2011	17,418,444	22,008,232	1.264
2012	16,747,169	15,424,945	0.921
2013	16,917,376	15,941,679	0.942
2014	17,842,810	19,169,839	1.074
2015	18,866,094	19,628,030	1.040
2016	19,212,234	16,248,897	0.846
2017	19,125,255	27,392,108	1.432
2018	19,662,543	14,224,668	0.723

(5) WEIGHTED EXPERIENCE RATIO (EQUAL WEIGHTS)	= 0.993
(6) CREDIBILITY	= 0.597
(7) EXPECTED EXPERIENCE RATIO	= 1.014
(8) CREDIBILITY WEIGHTED EXPERIENCE RATIO (0.597 x 0.993 ) + (0.403 x 1.014 )	= 1.001
(9) INDICATED COVERAGE LOSS COST CHANGE	= 1.001
	OR +0.1%

\* AGGREGATE LOSS COSTS ARE ADJUSTED TO CURRENT ISO LOSS COST LEVEL AND 07/01/2020 AMOUNT OF INSURANCE LEVELS.

\*\* INCURRED LOSSES ARE ADJUSTED TO 01/01/2021 COST LEVELS INCLUDING LOSS DEVELOPMENT AND ALL LOSS ADJUSTMENT EXPENSES.

MICHIGAN  
TABLE 7

STATEWIDE SPECIAL CAUSES OF LOSS  
COVERAGE LOSS COST LEVEL EVALUATION

(1)	(2)	(3)	(4)	(5)
YEAR	AGGREGATE* LOSS COSTS	ADJUSTED** INCURRED LOSSES	EXPERIENCE RATIO (3) / (2)	WEIGHTS
2014	26,522,807	40,140,620	1.513	0.10
2015	27,437,644	27,146,344	0.989	0.15
2016	28,219,020	17,332,649	0.614	0.20
2017	27,804,925	20,393,054	0.733	0.25
2018	28,239,987	23,047,366	0.816	0.30

(6) WEIGHTED EXPERIENCE RATIO = 0.850

(7) CREDIBILITY = 0.412

(8) EXPECTED EXPERIENCE RATIO = 1.012

(9) CREDIBILITY WEIGHTED EXPERIENCE RATIO = 0.945  
(0.412 X 0.850 ) + (0.588 X 1.012 )

(10) INDICATED COVERAGE LOSS COST CHANGE = 0.945

OR -5.5%

\* AGGREGATE LOSS COSTS ARE ADJUSTED TO CURRENT ISO LOSS COST LEVEL AND 07/01/2020 AMOUNT OF INSURANCE LEVELS.

\*\* INCURRED LOSSES ARE ADJUSTED TO 01/01/2021 COST LEVELS INCLUDING LOSS DEVELOPMENT AND ALL LOSS ADJUSTMENT EXPENSES.

EXPLANATORY NOTES TO TABLES 5, 6 AND 7

STATEWIDE BASIC GROUP I, BASIC GROUP II AND  
SPECIAL CAUSES OF LOSS COVERAGE LOSS COST LEVEL EVALUATION

COLUMN (1)

EXPERIENCE PERIOD

Experience for the five most recent accident years is used for BG I and SCL.  
Experience for the ten most recent accident years is used for BG II.

COLUMN (2)

AGGREGATE LOSS COSTS

Since the objective of the ratemaking procedure is to test the adequacy of the current ISO loss costs, premium data for each year in the experience period are adjusted to the loss cost level which would have been earned had the current loss costs been in effect. This is accomplished by using either an extension-of-exposures (PPR or premium at present rates/loss costs) approach or an on-level approach. Where appropriate, certain reported data elements have been adjusted prior to being used in the calculations.

Extension of Exposures Approach

Where feasible, aggregate loss costs at current level (ALCCL) are developed using an extension-of-exposures approach. That is, the exposure (amount of insurance per \$100) for each policy is multiplied by the current manual loss cost for that state, territory, subline, coverage, construction, occupancy and by any other applicable rating factors, such as limit of insurance factors and deductible relativities.

On-Level Approach

The on-level approach is applied on an individual policy basis. The first step in the process is to multiply the reported premiums by the product of all loss cost level changes that have become effective subsequent to the inception date of the policy. The premiums are divided by the reported Rating Modification Factors and Loss Cost Multipliers to bring them to current ISO monoline manual loss cost level.

For premium records with inception dates prior to the effective date of the implementation of Limit of Insurance (LOI ) curves, premiums are multiplied by off-balance factors and limit of insurance factors to bring them to a post-LOI loss cost level.

The on-level approach is used to adjust those premium records which cannot be adjusted using the extension-of-exposures techniques, for example, premium records for Basic Group I specifically-rated properties, for which manual loss costs do not exist. In addition, records failing an exposure edit which checks for a reasonable relationship between reported premium and exposure amount have also been on-leveled.

STATEWIDE BASIC GROUP I, BASIC GROUP II AND  
SPECIAL CAUSES OF LOSS COVERAGE LOSS COST LEVEL EVALUATION (cont'd)

COLUMN (2)  
(cont'd)

Current IPMF and Prospective Amount of Insurance Levels

Premiums are also adjusted to prospective amount of insurance levels by exposure trend factors to reflect the impact of inflation on the average amount of insurance written (Table 24). After multiline premiums are brought to current ISO monoline manual level, they are further adjusted to implicit package modification factor (IPMF) level by the application of Commercial Package Policy (CPP) IPMF's which vary by the eight CPP types of policy. (Both the adjustments to prospective amount of insurance level and to current IPMF level are done on an aggregate basis.) For a more complete description of the IPMF's and the other premium adjustments, refer to Tables 18 through 20 in the supporting material.

COLUMN (3)

ADJUSTED INCURRED LOSSES

In order to assure the adequacy of the proposed loss cost level, incurred losses are adjusted to reflect the effect of inflation and other trends on loss costs. The adjustment of past losses to prospective levels is accomplished on an individual loss basis by application of current cost factors, loss projection factors and loss trend adjustments (Tables 21 through 23). In addition to adjusting losses to prospective cost level, the effect of inflation on the deductible portion of the loss incurred is reflected.

For each subline, incurred losses are further adjusted by an excess loss procedure which smoothes fluctuations due to large loss occurrences. The procedure removes any losses determined to be excess from the total incurred losses, resulting in normal incurred losses. These normal incurred losses (total - excess) are then multiplied by excess loss factors to calculate adjusted incurred losses (Tables 29 through 32). The resulting adjusted incurred losses are then developed to their ultimate settlement value and loaded by a factor to include all loss adjustment expenses. Loss development factors can be found on Table 28, and loss adjustment expense factors on Table 41. Where appropriate, certain reported data elements have been adjusted prior to being used in the calculations.

COLUMN (4)

EXPERIENCE RATIO

The experience ratio is the ratio of adjusted incurred losses to aggregate loss costs for each year.

STATEWIDE BASIC GROUP I, BASIC GROUP II AND  
SPECIAL CAUSES OF LOSS COVERAGE LOSS COST LEVEL EVALUATION (cont'd)

COLUMN (5) - BG I, SCL    WEIGHTS

For Basic Group I and Special Causes of Loss, the yearly experience ratios are weighted using weights of 10%, 15%, 20%, 25%, and 30% with the greatest weight assigned to the most recent year. These weights recognize the need to balance stability and responsiveness. The ten Basic Group II experience ratios are equally weighted, each given 10% weight.

LINE (6) - BG I, SCL    WEIGHTED EXPERIENCE RATIO  
LINE (5) - BG II

For Basic Group I and Special Causes of Loss, the weights are applied to the experience ratios to yield the weighted experience ratio. For Basic Group II, the experience ratios are equally weighted. These weighted experience ratios represent a projection of the experience which would result if future policies were written without a loss cost level revision.

LINE (7) - BG I, SCL    CREDIBILITY  
LINE (6) - BG II

The standards for 100% credibility are discussed in detail in Tables 33, 33A, and 34 for Basic Group I, Basic Group II, and Special Causes of Loss, respectively.

LINE (8) - BG I, SCL    EXPECTED EXPERIENCE RATIO  
LINE (7) - BG II

The expected experience ratio is ISO's best prediction of the experience ratio if the actual incurred experience were 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 only to the extent of the net trend. The expected experience ratio is represented by the net (loss/amount of insurance) trend factor.

LINE (9) - BG I, SCL    CREDIBILITY WEIGHTED EXPERIENCE RATIO  
LINE (8) - BG II

The credibility weighted experience ratio is a weighted average of the weighted experience ratio (line (6) for BG I and SCL; line (5) for BG II) and the expected experience ratio (line (8) for BG I and SCL; line (7) for BG II) using the credibility factor and its complement as respective weights. For more detailed information regarding the development of the credibility factors, refer to Tables 33, 33A, and 34.

LINE (10) - BG I, SCL    INDICATED COVERAGE LOSS COST CHANGE  
LINE (9) - BG II

The credibility weighted experience ratio yields the overall coverage loss cost level change for Basic Group I (see Table 5), Basic Group II (see Table 6), and Special Causes of Loss (see Table 7).

## COMPOSITION OF THE RATEMAKING DATA BASE

### DATA INCLUDED

#### BASIC GROUP I

- . CSP Subline 010 (Commercial Fire)
- . CSP Subline 015 (Basic Group I, i.e., Fire, Lightning, Explosion, Vandalism, Sprinkler Leakage)
- . CSP Subline 016 (BG I excluding Vandalism)
- . CSP Subline 017 (BG I excluding Sprinkler Leakage)
- . CSP Subline 018 (BG I excluding Vandalism and Sprinkler Leakage)

#### BASIC GROUP II

- . CSP Subline 020 (Extended Coverage)
- . CSP Subline 025 (Basic Group II, i.e., Windstorm or Hail, Smoke, Aircraft or Vehicles, Riot or Civil Commotion, Sinkhole Collapse and Volcanic Action)
- . CSP Subline 027 (Basic Group II Causes of Loss, i.e., Windstorm or Hail, Smoke, Aircraft or Vehicles, Riot or Civil Commotion, Sinkhole Collapse and Volcanic Action)
- . CSP Subline 029 (Basic Group II Causes of Loss excluding Windstorm or Hail)

#### SPECIAL CAUSES OF LOSS

- . CSP Subline 028 (All Other Perils Special Coverage Forms & Endorsements)
- . CSP Subline 035 (Causes of Loss Special Form Including Theft)
- . CSP Subline 045 (Causes of Loss Special Form Excluding Theft)

### NOTES ON DATA INCLUDED

All CSP data are reviewed for CSP Types of Policy 10 (monoline), 3X, 70, and 7X (multiline).

For BG I, BG II and SCL, the reviewed experience is for property damage and time element coverages (coverage codes 1-7, as well as coverage code 9 reported under pre-simplification sublines 010, 020, and 028).

COMPOSITION OF THE RATEMAKING DATA BASE (cont'd)

<u>DATA EXCLUDED</u>	<u>TYPE OF DATA</u>	<u>BG I</u>	<u>BG II</u>	<u>SCL</u>
	• Non-voluntary experience (e.g. FAIR Plans)	X	X	NA
	• Dwelling experience	X	X	X
	• Farm experience	X	X	NA
	• Countrywide rated risks	X	X	X
	• Highly protected risks	X	X	X
	• Experience for policies with large deductibles	X	X	X

X indicates that experience is excluded.

Separately identifiable terrorism premium and loss records have been excluded from the ratemaking experience.

OVERVIEW OF ISO ACTUARIAL PROCEDURES - COMMERCIAL PROPERTY

STEP 2 - DISTRIBUTION OF LOSS COST LEVEL CHANGES

OBJECTIVE

The objective of this procedure is to distribute the indicated statewide loss cost level change for Basic Group I, Basic Group II, and Special Causes of Loss among the various rating variables used in each subline. These procedures are used to answer the question: What percentage change for each rating variable must be made to the current ISO loss costs in order to achieve adequacy for the prospective conditions?

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BASIC GROUP I

For Basic Group I, a consolidated simultaneous iterative procedure is used to calculate the type of policy, territory and rating group relativities. More detail on this procedure is given in Table 8. The type of policy relativities serve to price Commercial Package policies relative to monoline policies, via the Package Modification Factors (PMF), while the rating group and territory relativities serve to price the various rating groups and territories relative to one another.

The indicated monoline loss cost level changes shown on Table 2 are calculated for each rating group/territory combination by taking the product of the monoline type of policy relativity, the rating group relativity, the territory relativity and the statewide loss cost level change.

The overall monoline loss cost level change is a weighted average of the rating group/territory combination changes. In calculating this weighted average, the latest year aggregate monoline and multiline combined loss costs at current level are used as weights.

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BASIC GROUP II

The purpose of the Basic Group II relativity analysis is to determine monoline loss cost level needs, to obtain marginal relativities displayed on Table 12 and to price CPP policies relative to monoline policies via the PMFs. Unlike the BG I and SCL relativity analyses, the BG II relativity analysis does not employ a simultaneous review procedure because the overall loss cost change is distributed across type of policy only. The indicated statewide monoline change is the product of the monoline type of policy relativity times the statewide loss cost level change.

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## OVERVIEW OF ISO ACTUARIAL PROCEDURES - COMMERCIAL PROPERTY

### STEP 2 - DISTRIBUTION OF LOSS COST LEVEL CHANGES (cont'd)

#### SPECIAL CAUSES OF LOSS

For Special Causes of Loss, a simultaneous iterative procedure is used as for BG I to arrive at a set of type of policy and category relativities (as displayed on Table 9) that best represent the experience within each state. The type of policy relativities serve to price CPP policies relative to monoline policies via the PMFs, while the category relativities serve to price the various categories relative to one another.

The indicated monoline loss cost level changes are calculated for each category by taking the product of the monoline type of policy relativity, the category relativity and the statewide coverage loss cost change. See Table 9 for the monoline loss cost indications.

The overall monoline loss cost level change is a weighted average of the 14 monoline category changes. In calculating this weighted average, the latest year monoline and multiline combined loss costs at current level are used as weights.

MICHIGAN

TABLE 8 - BASIC GROUP I RELATIVITY ANALYSIS

	(1) \$ LST SQ FORMULA RELATIVITY	(2) CREDIBILITY Z	(3) Z-WTD. RELATIVITY	(4) BALANCED RELATIVITY	STATEWIDE COVERAGE LOSS COST CHANGE OF 1.065 OR +6.5%
TOP					
10	1.296	0.134	1.035	1.048	
31	0.862	0.058	0.991	1.003	
32	0.797	0.196	0.957	0.968	
33	0.994	0.095	0.999	1.011	
34	0.938	0.422	0.973	0.985	
35	0.792	0.207	0.953	0.964	
36	1.378	0.242	1.081	1.093	
37	0.900	0.358	0.963	0.974	
38	1.539	0.094	1.041	1.054	

RATING GROUP	(1)	(2)	(3)	(4)	(5) INDICATED MONOLINE LOSS COST LEVEL CHANGE **
01	0.967	0.284	0.991	0.990	+10.4
02	1.062	0.198	1.012	1.012	+13.0
03	0.853	0.251	0.961	0.960	+7.2
04	1.030	0.618	1.018	1.018	+13.6
05	1.141	0.022	1.003	1.002	+12.0
06	0.843	0.265	0.956	0.955	+6.1
07	0.912	0.083	0.992	0.992	+10.4
08	0.835	0.362	0.937	0.936	+4.5
09	1.121	0.207	1.024	1.023	+14.4
10	0.974	0.136	0.996	0.996	+11.1
11	1.208	0.083	1.016	1.015	+13.3
13	0.965	0.289	0.990	0.989	+10.5
14	1.067	0.214	1.014	1.014	+13.3
15	0.874	0.164	0.978	0.978	+8.9
17	0.849	0.129	0.979	0.979	+9.2
18	0.923	0.080	0.994	0.993	+11.0
19	1.098	0.014	1.001	1.001	+12.0
20	1.239	0.027	1.006	1.005	+12.0
21	1.093	0.437	1.040	1.039	+16.0
22	1.379	0.210	1.070	1.069	+19.4

STATEWIDE MONOLINE LOSS COST LEVEL CHANGE +11.6%

MICHIGAN

TABLE 8 - BASIC GROUP I RELATIVITY ANALYSIS

TERRITORY	(1) \$ LST SQ FORMULA RELATIVITY	(2) CREDIBILITY Z	(3) Z-WTD. RELATIVITY	(4) BALANCED RELATIVITY
Detroit	0.911	0.292	0.973	0.969
Balance of State (Michigan)	1.009	0.808	1.007	1.003

TERRITORY	(5) INDICATED MONOLINE LOSS COST LEVEL CHANGE
Detroit	+7.7
Balance of State (Michigan)	+12.0

LOSS COST CHANGES BY INDIVIDUAL TERRITORY AND RATING GROUP  
ARE SHOWN ON TABLE 2.

MICHIGAN

TABLE 8 - BASIC GROUP I RELATIVITY ANALYSIS

EXAMPLE OF AN INDIVIDUAL LOSS COST CHANGE CALCULATION  
FOR Detroit

STATEWIDE COVERAGE LOSS COST LEVEL CHANGE	=	+6.5%
TERRITORIAL RELATIVITY	=	0.969
MONOLINE (TOP 10) RELATIVITY	=	1.048
RATING GROUP 01 RELATIVITY	=	0.990

INDICATED MONOLINE LOSS COST LEVEL CHANGE FOR RATING GROUP 01

$$= 1.065 \quad \times \quad 0.969 \quad \times \quad 1.048 \quad \times \quad 0.990 \quad = \quad 1.071$$

OR      +7.1%

MICHIGAN

TABLE 8 - CALCULATION OF INDICATED TERRITORIAL MULTIPLIERS

(1)	(2)	(3)	(4)
TERRITORY	TERRITORY RELATIVITY	OFF-BALANCE FACTOR	CURRENT TERRITORIAL MULTIPLIER
Detroit	0.969	1.000	3.722
Balance of State (Michigan)	1.003	1.000	1.000

(5)	
INDICATED TERRITORIAL MULTIPLIER ((2)X(3)X(4) / (1.003 X 1.000 ))	
TERRITORY	
Detroit	3.596
Balance of State (Michigan)	1.000

MICHIGAN

TABLE 9 - SPECIAL CAUSES OF LOSS RELATIVITY ANALYSIS

	(1)	(2)	(3)	(4)	STATEWIDE COVERAGE LOSS COST CHANGE OF 0.945 OR -5.5%
TOP	\$ LST SQ FORMULA RELATIVITY	CREDIBILITY Z	Z-WTD. RELATIVITY	BALANCED RELATIVITY	
10	1.682	0.165	1.090	1.093	
31	1.142	0.041	1.005	1.009	
32	0.850	0.185	0.970	0.974	
33	0.906	0.167	0.984	0.987	
34	1.099	0.445	1.043	1.046	
35	0.905	0.383	0.962	0.966	
36	0.929	0.377	0.973	0.976	
37	0.969	0.354	0.989	0.992	
38	0.787	0.176	0.959	0.962	
-----					
CATEGORY					(5) INDICATED MONOLINE LOSS COST LEVEL CHANGE
01	1.007	0.855	1.006	1.004	+3.7
02	1.074	0.136	1.010	1.007	+4.0
03	0.982	0.189	0.997	0.994	+2.7
04	1.052	0.259	1.013	1.011	+4.4
05	0.928	0.254	0.981	0.979	+1.1
06	0.849	0.134	0.978	0.976	+0.8
07	0.806	0.025	0.995	0.992	+2.5
08	1.082	0.178	1.014	1.012	+4.5
09	0.999	0.205	1.000	0.998	+3.1
10	1.078	0.043	1.003	1.001	+3.4
11	0.964	0.365	0.987	0.984	+1.6
12	0.933	0.292	0.980	0.978	+1.0
13	1.003	0.196	1.001	0.998	+3.1
14	1.045	0.230	1.010	1.008	+4.1
OVERALL MONOLINE LOSS COST LEVEL CHANGE					+3.3%

MICHIGAN

TABLE 9 - SPECIAL CAUSES OF LOSS RELATIVITY ANALYSIS

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EXAMPLE OF A LOSS COST CHANGE CALCULATION

STATEWIDE COVERAGE LOSS COST LEVEL CHANGE = -5.5%  
MONOLINE (TOP 10) RELATIVITY = 1.093  
CATEGORY 01 RELATIVITY = 1.004

INDICATED MONOLINE LOSS COST LEVEL CHANGE FOR CATEGORY 01

= 0.945 X 1.093 X 1.004 = 1.037  
OR +3.7%

EXPLANATORY NOTES TO TABLES 8 AND 9

BASIC GROUP I AND SPECIAL CAUSES OF LOSS RELATIVITY ANALYSIS

INTRODUCTION

The explanations which follow clarify Tables 8 and 9, the Basic Group I relativity analysis and the Special Causes of Loss relativity analysis, respectively. The purpose of these analyses is to:

- (1) determine monoline classification and territorial loss cost level needs for Basic Group I;
- (2) determine monoline category loss cost level needs for Special Causes of Loss;
- (3) determine indicated changes to the eight CPP package modification factors (PMFs) based on Basic Group I/Special Causes of Loss experience.

COLUMN (1)

LEAST SQUARES FORMULA RELATIVITIES

The least squares formula relativities are the marginal relativities which result from the application of the simultaneous review procedure to the raw experience (where marginal refers to the relativities for a given rating variable, e.g. type of policy, across all subsets of any other rating variables, i.e. rating group and territory for Basic Group I, and category for Special Causes of Loss).

The purpose of such a simultaneous review procedure is to arrive at a set of type of policy relativities (which will serve to price CPP policies relative to monoline policies via the PMFs); a set of rating group/territory relativities for Basic Group I; and a set of category relativities for Special Causes of Loss that best represent the experience. This procedure is in contrast to a review of each rating variable's experience separately. Such one-way types of review do not take into account differing percentages of monoline and multiline experience in each rating variable, nor differing percentages of a particular rating variable's experience in the monoline and multiline types of policy. The simultaneous relativity procedure accounts for these different distributions in generating relativities for the various rating variables.

EXPLANATORY NOTES TO TABLES 8 AND 9 (cont'd)

COLUMN (1)  
(Cont'd)

The procedure follows an iterative technique to determine a set of marginal relativities by rating variable that is a best fit to the individual cell relativities, with each cell being defined as the cross-section of specific values of each rating variable. The process uses the relativity of the five year experience ratios by rating cell to the overall statewide experience ratio and the latest year aggregate loss costs for each rating cell. (This experience is shown in Table 10 for Basic Group I and Table 11 for Special Causes of Loss.) Specifically, the iteration procedure uses the following formulas:

BASIC GROUP I:

$$TOP_i = \frac{\sum_{j=1}^n \sum_{k=1}^t W_{ijk}^2 R_{ijk} RG_j TER_k}{\sum_{j=1}^n \sum_{k=1}^t W_{ijk}^2 RG_j^2 TER_k^2}, \quad \text{where } 1 \leq i \leq m;$$

$$RG_j = \frac{\sum_{i=1}^m \sum_{k=1}^t W_{ijk}^2 R_{ijk} TOP_i TER_k}{\sum_{i=1}^m \sum_{k=1}^t W_{ijk}^2 TOP_i^2 TER_k^2}, \quad \text{where } 1 \leq j \leq n;$$

$$TER_k = \frac{\sum_{i=1}^m \sum_{j=1}^n W_{ijk}^2 R_{ijk} TOP_i RG_j}{\sum_{i=1}^m \sum_{j=1}^n W_{ijk}^2 TOP_i^2 RG_j^2}, \quad \text{where } 1 \leq k \leq t;$$

SPECIAL CAUSES OF LOSS:

$$TOP_i = \frac{\sum_{j=1}^n w_{ij}^2 R_{ij} CAT_j}{\sum_{j=1}^n w_{ij}^2 CAT_j^2}, \quad \text{where } 1 \leq i \leq m;$$

$$CAT_j = \frac{\sum_{i=1}^m w_{ij}^2 R_{ij} TOP_i}{\sum_{i=1}^m w_{ij}^2 TOP_i^2}, \quad \text{where } 1 \leq j \leq n;$$

EXPLANATORY NOTES TO TABLES 8 AND 9 (cont'd)

COLUMN (1)  
(cont'd)

- $TOP_i$  is the relativity for the  $i$ th type of policy;
- $RG_j$  is the relativity for the  $j$ th rating group;
- $CAT_j$  is the relativity for the  $j$ th category;
- $TER_k$  is the relativity for the  $k$ th territory;
- $W_{ijk}$  is the loss cost volume at current level for the  $i$ th type of policy,  $j$ th rating group and  $k$ th territory;
- $R_{ijk}$  is the experience ratio relativity for the  $i$ th type of policy,  $j$ th rating group and  $k$ th territory;
- $R_{ij}$  is the experience ratio relativity for the  $i$ th type of policy, and  $j$ th category;
- $m$  is the number of types of policy in the analysis;
- $n$  is the number of rating groups or categories in the analysis;
- $t$  is the number of territories in the analysis.

The procedure determines  $m$  type of policy relativities using the above formulas. Then, using those results, a set of  $n$  rating group and  $t$  territory relativities are determined. These steps form an iterative process which continues until there is no appreciable difference in results from one iteration to the next.

COLUMN (2)

CREDIBILITY

The credibility of the experience for each rating variable is determined from the formula:

$$Z = \frac{P}{P + K} ,$$

where  $P$  represents the five-year aggregate adjusted loss costs for a given rating variable, and  $K$  is a constant value. For Basic Group I,  $K$  equals an aggregate loss cost volume of \$55,000,000 for territory, \$40,000,000 for rating group, and \$100,000,000 for type of policy. For Special Causes of Loss,  $K$  equals an aggregate loss cost volume of \$15,000,000.

EXPLANATORY NOTES TO TABLES 8 AND 9 (cont'd)

COLUMN (3)

CREDIBILITY-WEIGHTED RELATIVITIES

Credibility-weighted relativities are calculated based on the formula

$$W = R^Z,$$

where Z is the credibility, R is the least squares formula relativity and W is the credibility weighted relativity for a given rating variable.

This formula implicitly assigns the complement of credibility to a relativity of unity.

COLUMN (4)

BALANCED RELATIVITIES

The credibility-weighted relativities are balanced to assure that the average relativity across all rating variables remains at unity.

COLUMN (5)

INDICATED MONOLINE LOSS COST LEVEL CHANGE

For Basic Group I, the indicated monoline loss cost changes are calculated for each rating group and territory by taking the product of the monoline type of policy (TOP 10) relativity, the territory relativity, the rating group relativity and the statewide loss cost level change. (An example of such a calculation appears on Table 8.)

The indicated monoline loss cost changes by rating group shown in Table 8 of this analysis are the aggregate loss cost weighted averages of the monoline loss cost changes for the rating group across all territories.

EXPLANATORY NOTES TO TABLES 8 AND 9 (cont'd)

COLUMN (5)  
(cont'd)

Similarly, the indicated monoline loss cost changes by territory shown on the second page are aggregate loss cost-weighted averages of the monoline loss cost changes for the territory across all rating groups. The indicated overall statewide monoline loss cost level change shown at the bottom of the first page of Table 8 is the aggregate loss cost-weighted average of the individual rating group changes across all territories.

For Special Causes of Loss, the indicated monoline loss cost changes are calculated for each category by taking the product of the monoline type of policy (TOP 10) relativity, the category relativity, and the statewide loss cost level change. (An example of such a calculation is included in Table 9.) The indicated overall statewide loss cost level change shown at the bottom of Table 9 is the aggregate loss cost-weighted average of the individual category changes.

In all cases, the loss costs used in these calculations are the latest year's monoline and multiline combined adjusted loss costs.

MULTILINE  
CONSIDERATIONS

The type of policy (TOP) relativities are used to generate multiline indications which apply to the current implicit package modification factors (IPMF's). The indicated IPMF's are calculated as follows:

$$\frac{\text{TOP y indicated IPMF}}{\text{IPMF}} = \frac{(\text{TOP y current IPMF})(\text{TOP y relativity})}{\text{monoline relativity}}$$

For each CPP type of policy, the indicated IPMF is subject to a minimum value of 0.50 and a maximum value of 1.50. If an indicated IPMF falls outside one of those limits, it is capped at that amount, the loss costs for that type of policy are adjusted to the capped IPMF level, and the entire relativity review as described above is re-performed to take this into account. If an IPMF has been capped, it is so noted at the bottom of Table 8 and Table 9.

It should be noted that although this procedure generates multiline indications, this filing only addresses monoline loss cost levels. That is, upon implementation of this filing only the monoline loss costs will be revised. The multiline indications developed here will be combined with those of the other component coverages, e.g. GL Premises and Operations in the CPP review for the purpose of revising the package modification factors.

Detroit

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MICHIGAN  
 BASIC GROUP I RELATIVITY ANALYSIS  
 TABLE 10 - SUMMARY OF EXPERIENCE USED IN SIMULTANEOUS REVIEW

TYPE OF POLICY	CATEGORY	(1) ACCIDENT YEAR ENDING 06/30/18 AGGREGATE LOSS COSTS	(2) 5 - YEAR AGGREGATE LOSS COSTS	(3) 5 - YEAR EXPERIENCE RATIO	(4) Z-WEIGHTED EXPERIENCE RATIO	(5) Z-WEIGHTED RELATIVITY
10 MONOLINE	01 APARTMENTS	0	2,434	0.000	0.044	0.039
	02 OTHER HABITATIONAL	15,146	16,419	0.000	0.028	0.025
	03 RESTAURANTS & BARS	0	18,699	0.000	0.027	0.024
	04 OTHER MERCANTILE RS	47,948	243,636	0.168	0.160	0.141
	05 PUBLIC BUILDINGS	1,893	4,104	0.000	0.041	0.036
	06 CHURCHES	56	2,946	0.000	0.043	0.038
	07 SCHOOLS	5,765	22,916	0.000	0.024	0.021
	08 OFFICES AND BANKS	13,937	126,924	0.000	0.007	0.006
	09 REC. FACILITIES	7,352	40,298	0.000	0.018	0.016
	11 HOSPITALS/NURS HOME	538	10,936	0.513	0.261	0.230
	13 MOTOR VEHICLE RISKS	11,890	65,211	0.000	0.013	0.011
	14 OTHER NON-MANUF.	18,159	78,452	0.000	0.011	0.010
	15 STORAGE	10,017	59,613	0.000	0.013	0.011
	17 FOOD MANUFACTURING	3,499	16,438	0.000	0.028	0.025
	20 CHEM. MANUFACTURING	5,984	5,984	0.000	0.039	0.034
	21 METAL MANUFACTURING	9,102	64,872	0.000	0.013	0.011
	22 OTHER MANUFACTURING	1,100	4,900	0.000	0.040	0.035
	TOTAL*	152,386	784,782	0.055	0.064	0.056
31 MULTILINE	10 HOTELS AND MOTELS	123,073	278,065	0.000	0.614	0.540
MOTEL/HOTEL	TOTAL*	123,073	278,065	0.000	0.614	0.540
32 MULTILINE	01 APARTMENTS	451,241	689,762	0.416	0.679	0.598
APARTMENT	02 OTHER HABITATIONAL	154,133	969,762	0.519	0.696	0.613
	TOTAL*	605,374	1,659,524	0.442	0.683	0.602
33 MULTILINE	08 OFFICES AND BANKS	108,914	522,782	0.256	0.653	0.575
OFFICE	TOTAL*	108,914	522,782	0.256	0.653	0.575
34 MULTILINE	03 RESTAURANTS & BARS	213,065	1,002,493	2.157	0.994	0.875
MERCANTILE	04 OTHER MERCANTILE RS	1,036,253	5,032,472	0.931	0.788	0.694
	08 OFFICES AND BANKS	34,302	172,230	0.147	0.640	0.563
	13 MOTOR VEHICLE RISKS	15,537	140,374	0.000	0.616	0.542
	14 OTHER NON-MANUF.	17,256	89,246	7.639	1.841	1.621
	15 STORAGE	213,411	1,140,401	0.216	0.639	0.563
	TOTAL*	1,529,824	7,577,216	1.051	0.802	0.707

Detroit

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MICHIGAN  
 BASIC GROUP I RELATIVITY ANALYSIS  
 TABLE 10 - SUMMARY OF EXPERIENCE USED IN SIMULTANEOUS REVIEW

TYPE OF POLICY	CATEGORY	(1) ACCIDENT YEAR ENDING 06/30/18 AGGREGATE LOSS COSTS	(2) 5 - YEAR AGGREGATE LOSS COSTS	(3) 5 - YEAR EXPERIENCE RATIO	(4) Z-WEIGHTED EXPERIENCE RATIO	(5) Z-WEIGHTED RELATIVITY
35 MULTILINE INSTITUTIONAL	02 OTHER HABITATIONAL	0	8,081	0.000	0.619	0.545
	05 PUBLIC BUILDINGS	8,525	85,387	0.000	0.617	0.543
	06 CHURCHES	648,454	3,127,409	0.154	0.601	0.529
	07 SCHOOLS	112,672	648,136	2.518	1.045	0.920
	08 OFFICES AND BANKS	94,956	420,666	0.000	0.611	0.538
	09 REC. FACILITIES	33,143	154,044	0.000	0.616	0.542
	11 HOSPITALS/NURS HOME	53,785	282,319	0.231	0.652	0.574
	13 MOTOR VEHICLE RISKS	981	3,258	0.000	0.619	0.545
	14 OTHER NON-MANUF.	13,155	67,452	0.000	0.618	0.544
	TOTAL*	965,671	4,796,752	0.410	0.658	0.579
36 MULTILINE SERVICES	03 RESTAURANTS & BARS	6,338	34,551	0.000	1.806	1.590
	04 OTHER MERCANTILE RS	23,512	103,041	0.000	1.806	1.590
	08 OFFICES AND BANKS	82,492	366,949	0.021	1.807	1.591
	09 REC. FACILITIES	36,252	295,805	0.011	1.806	1.590
	13 MOTOR VEHICLE RISKS	133,737	717,555	1.423	1.999	1.760
	14 OTHER NON-MANUF.	34,461	233,240	14.764	3.828	3.370
	15 STORAGE	18,093	76,796	1.993	2.078	1.829
	21 METAL MANUFACTURING	14,339	78,918	0.000	1.806	1.590
	22 OTHER MANUFACTURING	52,745	183,946	0.000	1.805	1.589
	TOTAL*	401,969	2,090,801	1.834	2.056	1.810
37 MULTILINE INDUST/PROCESS	04 OTHER MERCANTILE RS	46,082	254,109	0.000	1.805	1.589
	08 OFFICES AND BANKS	4,403	28,325	0.000	1.806	1.590
	14 OTHER NON-MANUF.	8,968	82,373	14.360	3.767	3.316
	15 STORAGE	127-	30,518	0.000	1.806	1.590
	17 FOOD MANUFACTURING	121,832	819,365	0.000	1.801	1.585
	18 WOOD MANUFACTURING	25,224	76,924	0.000	1.806	1.590
	19 WEARING APPAREL	941	1,024	0.000	1.806	1.590
	20 CHEM. MANUFACTURING	29,268	86,958	0.000	1.806	1.590
	21 METAL MANUFACTURING	435,417	2,428,189	1.380	1.989	1.751
	22 OTHER MANUFACTURING	111,111	478,202	11.398	3.373	2.969
TOTAL*	783,119	4,285,987	2.549	2.152	1.894	

Detroit

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MICHIGAN  
 BASIC GROUP I RELATIVITY ANALYSIS  
 TABLE 10 - SUMMARY OF EXPERIENCE USED IN SIMULTANEOUS REVIEW

TYPE OF POLICY	CATEGORY	(1) ACCIDENT YEAR ENDING 06/30/18 AGGREGATE LOSS COSTS	(2) 5 - YEAR AGGREGATE LOSS COSTS	(3) 5 - YEAR EXPERIENCE RATIO	(4) Z-WEIGHTED EXPERIENCE RATIO	(5) Z-WEIGHTED RELATIVITY
38 MULTILINE	04 OTHER MERCANTILE RS	90,642	479,871	0.070	1.813	1.596
CONTRACTORS	08 OFFICES AND BANKS	35,783	137,190	0.224	1.836	1.616
	14 OTHER NON-MANUF.	6,934	25,064	0.000	1.806	1.590
	TOTAL*	133,359	642,125	0.108	1.819	1.601
TOTAL ALL TOPS*	01 APARTMENTS	451,241	692,196	0.416	0.679	0.598
	02 OTHER HABITATIONAL	169,279	994,262	0.473	0.636	0.560
	03 RESTAURANTS & BARS	219,403	1,055,743	2.095	1.018	0.896
	04 OTHER MERCANTILE RS	1,244,437	6,113,129	0.787	0.895	0.788
	05 PUBLIC BUILDINGS	10,418	89,491	0.000	0.513	0.451
	06 CHURCHES	648,510	3,130,355	0.154	0.601	0.529
	07 SCHOOLS	118,437	671,052	2.395	0.995	0.876
	08 OFFICES AND BANKS	374,787	1,775,066	0.114	0.998	0.878
	09 REC. FACILITIES	76,747	490,147	0.005	1.121	0.987
	10 HOTELS AND MOTELS	123,073	278,065	0.000	0.614	0.540
	11 HOSPITALS/NURS HOME	54,323	293,255	0.234	0.648	0.571
	13 MOTOR VEHICLE RISKS	162,145	926,398	1.174	1.712	1.507
	14 OTHER NON-MANUF.	98,933	575,827	7.777	2.207	1.943
	15 STORAGE	241,394	1,307,328	0.340	0.720	0.634
	17 FOOD MANUFACTURING	125,331	835,803	0.000	1.752	1.542
	18 WOOD MANUFACTURING	25,224	76,924	0.000	1.806	1.590
	19 WEARING APPAREL	941	1,024	0.000	1.806	1.590
	20 CHEM. MANUFACTURING	35,252	92,942	0.000	1.506	1.326
	21 METAL MANUFACTURING	458,858	2,571,979	1.310	1.944	1.711
	22 OTHER MANUFACTURING	164,956	667,048	7.678	2.850	2.508
	TOTAL*	4,803,689	22,638,034	1.052	1.080	0.951

\* TOTALS IN COLUMNS (3), (4) & (5) ARE AVERAGES USING COLUMN (1) AS WEIGHTS.

Balance of State (Michigan)  
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MICHIGAN  
 BASIC GROUP I RELATIVITY ANALYSIS  
 TABLE 10 - SUMMARY OF EXPERIENCE USED IN SIMULTANEOUS REVIEW

TYPE OF POLICY	CATEGORY	(1) ACCIDENT YEAR ENDING 06/30/18 AGGREGATE LOSS COSTS	(2) 5 - YEAR AGGREGATE LOSS COSTS	(3) 5 - YEAR EXPERIENCE RATIO	(4) Z-WEIGHTED EXPERIENCE RATIO	(5) Z-WEIGHTED RELATIVITY
10 MONOLINE	01 APARTMENTS	116,639	605,711	0.189	1.340	1.180
	02 OTHER HABITATIONAL	86,818	529,041	2.629	1.716	1.511
	03 RESTAURANTS & BARS	56,311	288,260	1.968	1.614	1.421
	04 OTHER MERCANTILE RS	751,265	3,881,639	1.083	1.468	1.292
	05 PUBLIC BUILDINGS	9,201	48,255	0.367	1.372	1.208
	06 CHURCHES	10,492	46,150	2.355	1.671	1.471
	07 SCHOOLS	23,103	123,747	2.355	1.672	1.472
	08 OFFICES AND BANKS	284,140	1,510,308	2.932	1.772	1.560
	09 REC. FACILITIES	140,911	841,566	2.552	1.706	1.502
	10 HOTELS AND MOTELS	27,972	145,807	0.231	1.351	1.189
	11 HOSPITALS/NURS HOME	128,027	607,594	0.066	1.321	1.163
	13 MOTOR VEHICLE RISKS	176,520	703,752	0.260	1.350	1.188
	14 OTHER NON-MANUF.	338,135	2,350,420	0.633	1.398	1.231
	15 STORAGE	137,920	526,638	5.615	2.175	1.915
	17 FOOD MANUFACTURING	17,720	65,607	3.481	1.841	1.621
	18 WOOD MANUFACTURING	24,495	111,723	0.000	1.317	1.159
	19 WEARING APPAREL	11,577	42,145	0.000	1.317	1.159
	20 CHEM. MANUFACTURING	19,149	50,701	0.000	1.317	1.159
	21 METAL MANUFACTURING	360,190	1,826,955	2.313	1.674	1.474
	22 OTHER MANUFACTURING	79,953	418,134	0.957	1.460	1.285
	TOTAL*	2,800,538	14,724,153	1.596	1.555	1.369
31 MULTILINE MOTEL/HOTEL	10 HOTELS AND MOTELS	973,249	5,897,688	0.984	0.953	0.839
	TOTAL*	973,249	5,897,688	0.984	0.953	0.839
32 MULTILINE APARTMENT	01 APARTMENTS	3,279,952	14,547,563	0.760	0.874	0.769
	02 OTHER HABITATIONAL	1,743,115	8,219,984	0.997	0.958	0.843
	TOTAL*	5,023,067	22,767,547	0.842	0.903	0.795
33 MULTILINE OFFICE	08 OFFICES AND BANKS	2,342,655	9,927,663	0.932	0.939	0.827
	TOTAL*	2,342,655	9,927,663	0.932	0.939	0.827
34 MULTILINE MERCANTILE	03 RESTAURANTS & BARS	2,258,056	11,416,104	0.827	0.903	0.795
	04 OTHER MERCANTILE RS	8,175,885	40,395,825	1.216	1.097	0.966
	08 OFFICES AND BANKS	598,965	2,481,354	1.257	1.006	0.886
	13 MOTOR VEHICLE RISKS	1,226,658	4,721,560	1.270	1.021	0.899
	14 OTHER NON-MANUF.	338,881	1,733,074	0.957	0.945	0.832
	15 STORAGE	964,437	4,555,787	0.445	0.823	0.724
	TOTAL*	13,562,882	65,303,704	1.097	1.031	0.907

Balance of State (Michigan)  
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MICHIGAN  
 BASIC GROUP I RELATIVITY ANALYSIS  
 TABLE 10 - SUMMARY OF EXPERIENCE USED IN SIMULTANEOUS REVIEW

TYPE OF POLICY	CATEGORY	(1) ACCIDENT YEAR ENDING 06/30/18 AGGREGATE LOSS COSTS	(2) 5 - YEAR AGGREGATE LOSS COSTS	(3) 5 - YEAR EXPERIENCE RATIO	(4) Z-WEIGHTED EXPERIENCE RATIO	(5) Z-WEIGHTED RELATIVITY
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35 MULTILINE	02 OTHER HABITATIONAL	31,388	118,971	0.000	0.791	0.696
INSTITUTIONAL	05 PUBLIC BUILDINGS	166,803	745,109	1.423	1.025	0.902
	06 CHURCHES	2,208,434	11,256,684	0.402	0.762	0.671
	07 SCHOOLS	520,263	2,838,409	0.280	0.803	0.707
	08 OFFICES AND BANKS	281,844	1,315,153	0.039	0.777	0.684
	09 REC. FACILITIES	205,326	1,067,773	0.396	0.844	0.743
	11 HOSPITALS/NURS HOME	512,750	2,731,513	1.850	1.131	0.996
	13 MOTOR VEHICLE RISKS	16,456	83,396	0.000	0.792	0.697
	14 OTHER NON-MANUF.	236,690	1,188,024	0.311	0.828	0.729
	TOTAL*	4,179,954	21,345,032	0.571	0.832	0.732
36 MULTILINE	03 RESTAURANTS & BARS	126,848	658,709	0.987	1.288	1.134
SERVICES	04 OTHER MERCANTILE RS	598,430	3,178,074	1.736	1.481	1.304
	08 OFFICES AND BANKS	463,044	2,725,356	0.279	1.023	0.901
	09 REC. FACILITIES	1,570,255	8,030,707	2.135	1.749	1.540
	13 MOTOR VEHICLE RISKS	1,807,969	9,678,108	1.625	1.502	1.322
	14 OTHER NON-MANUF.	615,383	3,256,024	2.612	1.776	1.563
	15 STORAGE	247,447	1,163,345	5.282	2.205	1.941
	21 METAL MANUFACTURING	70,551	424,417	0.037	1.139	1.003
	22 OTHER MANUFACTURING	162,897	741,371	4.968	2.032	1.789
	TOTAL*	5,662,824	29,856,111	1.997	1.596	1.405
37 MULTILINE	04 OTHER MERCANTILE RS	724,709	3,957,092	0.403	1.006	0.886
INDUST/PROCESS	08 OFFICES AND BANKS	205,136	954,723	0.172	1.116	0.982
	13 MOTOR VEHICLE RISKS	17,037	148,857	0.219	1.193	1.050
	14 OTHER NON-MANUF.	195,875	1,223,997	0.236	1.108	0.975
	15 STORAGE	63,987	279,926	8.545	2.454	2.160
	17 FOOD MANUFACTURING	1,027,508	5,034,750	0.128	0.851	0.749
	18 WOOD MANUFACTURING	652,647	3,281,602	0.114	0.938	0.826
	19 WEARING APPAREL	117,806	542,858	0.000	1.121	0.987
	20 CHEM. MANUFACTURING	188,295	977,037	0.869	1.256	1.106
	21 METAL MANUFACTURING	4,517,219	26,266,108	1.019	1.103	0.971
	22 OTHER MANUFACTURING	1,705,922	8,824,751	1.438	1.399	1.232
	TOTAL*	9,416,141	51,491,701	0.887	1.123	0.989

Balance of State (Michigan)

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MICHIGAN  
 BASIC GROUP I RELATIVITY ANALYSIS  
 TABLE 10 - SUMMARY OF EXPERIENCE USED IN SIMULTANEOUS REVIEW

TYPE OF POLICY	CATEGORY	(1)	(2)	(3)	(4)	(5)
		ACCIDENT YEAR ENDING 06/30/18 AGGREGATE LOSS COSTS	5 - YEAR AGGREGATE LOSS COSTS	5 - YEAR EXPERIENCE RATIO	Z-WEIGHTED EXPERIENCE RATIO	Z-WEIGHTED RELATIVITY
38 MULTILINE CONTRACTORS	04 OTHER MERCANTILE RS	1,494,932	7,072,046	2.293	1.804	1.588
	08 OFFICES AND BANKS	423,992	2,023,900	1.285	1.336	1.176
	14 OTHER NON-MANUF.	118,123	588,486	1.010	1.294	1.139
	TOTAL*	2,037,047	9,684,432	2.009	1.677	1.476
TOTAL ALL TOPS*	01 APARTMENTS	3,396,591	15,153,274	0.740	0.890	0.783
	02 OTHER HABITATIONAL	1,861,321	8,867,996	1.056	0.991	0.872
	03 RESTAURANTS & BARS	2,441,215	12,363,073	0.862	0.940	0.827
	04 OTHER MERCANTILE RS	11,745,221	58,484,676	1.321	1.225	1.078
	05 PUBLIC BUILDINGS	176,004	793,364	1.368	1.043	0.918
	06 CHURCHES	2,218,926	11,302,834	0.411	0.766	0.675
	07 SCHOOLS	543,366	2,962,156	0.368	0.840	0.739
	08 OFFICES AND BANKS	4,599,776	20,938,457	0.976	1.042	0.917
	09 REC. FACILITIES	1,916,492	9,940,046	1.979	1.649	1.451
	10 HOTELS AND MOTELS	1,001,221	6,043,495	0.963	0.964	0.849
	11 HOSPITALS/NURS HOME	640,777	3,339,107	1.494	1.169	1.029
	13 MOTOR VEHICLE RISKS	3,244,640	15,335,673	1.401	1.307	1.150
	14 OTHER NON-MANUF.	1,843,087	10,340,025	1.294	1.330	1.171
	15 STORAGE	1,413,791	6,525,696	2.163	1.271	1.118
	17 FOOD MANUFACTURING	1,045,228	5,100,357	0.185	0.868	0.764
	18 WOOD MANUFACTURING	677,142	3,393,325	0.110	0.952	0.838
	19 WEARING APPAREL	129,383	585,003	0.000	1.138	1.002
	20 CHEM. MANUFACTURING	207,444	1,027,738	0.789	1.262	1.111
	21 METAL MANUFACTURING	4,947,960	28,517,480	1.099	1.145	1.008
	22 OTHER MANUFACTURING	1,948,772	9,984,256	1.713	1.454	1.280
	TOTAL*	45,998,357	230,998,031	1.149	1.141	1.005

\* TOTALS IN COLUMNS (3), (4) & (5) ARE AVERAGES USING COLUMN (1) AS WEIGHTS.

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MICHIGAN  
 BASIC GROUP I RELATIVITY ANALYSIS  
 TABLE 10 - SUMMARY OF EXPERIENCE USED IN SIMULTANEOUS REVIEW

TYPE OF POLICY	CATEGORY	(1) ACCIDENT YEAR ENDING 06/30/18 AGGREGATE LOSS COSTS	(2) 5 - YEAR AGGREGATE LOSS COSTS	(3) 5 - YEAR EXPERIENCE RATIO	(4) Z-WEIGHTED EXPERIENCE RATIO	(5) Z-WEIGHTED RELATIVITY
10 MONOLINE	01 APARTMENTS	116,639	608,145	0.189	1.340	1.180
	02 OTHER HABITATIONAL	101,964	545,460	2.239	1.465	1.290
	03 RESTAURANTS & BARS	56,311	306,959	1.968	1.614	1.421
	04 OTHER MERCANTILE RS	799,213	4,125,275	1.028	1.389	1.223
	05 PUBLIC BUILDINGS	11,094	52,359	0.304	1.145	1.008
	06 CHURCHES	10,548	49,096	2.343	1.663	1.463
	07 SCHOOLS	28,868	146,663	1.885	1.343	1.182
	08 OFFICES AND BANKS	298,077	1,637,232	2.795	1.690	1.487
	09 REC. FACILITIES	148,263	881,864	2.425	1.623	1.428
	10 HOTELS AND MOTELS	27,972	145,807	0.231	1.351	1.189
	11 HOSPITALS/NURS HOME	128,565	618,530	0.068	1.317	1.159
	13 MOTOR VEHICLE RISKS	188,410	768,963	0.244	1.266	1.114
	14 OTHER NON-MANUF.	356,294	2,428,872	0.601	1.327	1.168
	15 STORAGE	147,937	586,251	5.235	2.029	1.786
	17 FOOD MANUFACTURING	21,219	82,045	2.907	1.542	1.357
	18 WOOD MANUFACTURING	24,495	111,723	0.000	1.317	1.159
	19 WEARING APPAREL	11,577	42,145	0.000	1.317	1.159
	20 CHEM. MANUFACTURING	25,133	56,685	0.000	1.013	0.891
	21 METAL MANUFACTURING	369,292	1,891,827	2.256	1.633	1.438
	22 OTHER MANUFACTURING	81,053	423,034	0.944	1.440	1.268
	TOTAL*	2,952,924	15,508,935	1.517	1.478	1.301
31 MULTILINE	10 HOTELS AND MOTELS	1,096,322	6,175,753	0.874	0.915	0.805
MOTEL/HOTEL	TOTAL*	1,096,322	6,175,753	0.874	0.915	0.805
32 MULTILINE	01 APARTMENTS	3,731,193	15,237,325	0.718	0.851	0.749
APARTMENT	02 OTHER HABITATIONAL	1,897,248	9,189,746	0.958	0.937	0.825
	TOTAL*	5,628,441	24,427,071	0.799	0.880	0.774
33 MULTILINE	08 OFFICES AND BANKS	2,451,569	10,450,445	0.902	0.926	0.815
OFFICE	TOTAL*	2,451,569	10,450,445	0.902	0.926	0.815
34 MULTILINE	03 RESTAURANTS & BARS	2,471,121	12,418,597	0.942	0.911	0.802
MERCANTILE	04 OTHER MERCANTILE RS	9,212,138	45,428,297	1.184	1.062	0.935
	08 OFFICES AND BANKS	633,267	2,653,584	1.197	0.986	0.868
	13 MOTOR VEHICLE RISKS	1,242,195	4,861,934	1.254	1.016	0.894
	14 OTHER NON-MANUF.	356,137	1,822,320	1.281	0.988	0.870
	15 STORAGE	1,177,848	5,696,188	0.404	0.790	0.695
	TOTAL*	15,092,706	72,880,920	1.092	1.008	0.887

ENTIRE STATE

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MICHIGAN  
 BASIC GROUP I RELATIVITY ANALYSIS  
 TABLE 10 - SUMMARY OF EXPERIENCE USED IN SIMULTANEOUS REVIEW

TYPE OF POLICY	CATEGORY	(1) ACCIDENT YEAR ENDING 06/30/18 AGGREGATE LOSS COSTS	(2) 5 - YEAR AGGREGATE LOSS COSTS	(3) 5 - YEAR EXPERIENCE RATIO	(4) Z-WEIGHTED EXPERIENCE RATIO	(5) Z-WEIGHTED RELATIVITY
35 MULTILINE INSTITUTIONAL	02 OTHER HABITATIONAL	31,388	127,052	0.000	0.791	0.696
	05 PUBLIC BUILDINGS	175,328	830,496	1.354	1.005	0.885
	06 CHURCHES	2,856,888	14,384,093	0.346	0.726	0.639
	07 SCHOOLS	632,935	3,486,545	0.678	0.846	0.745
	08 OFFICES AND BANKS	376,800	1,735,819	0.029	0.735	0.647
	09 REC. FACILITIES	238,469	1,221,817	0.341	0.813	0.715
	11 HOSPITALS/NURS HOME	566,535	3,013,832	1.696	1.086	0.956
	13 MOTOR VEHICLE RISKS	17,437	86,654	0.000	0.782	0.689
	14 OTHER NON-MANUF.	249,845	1,255,476	0.295	0.817	0.719
	TOTAL*	5,145,625	26,141,784	0.541	0.799	0.704
36 MULTILINE SERVICES	03 RESTAURANTS & BARS	133,186	693,260	0.940	1.313	1.156
	04 OTHER MERCANTILE RS	621,942	3,281,115	1.670	1.493	1.315
	08 OFFICES AND BANKS	545,536	3,092,305	0.240	1.142	1.005
	09 REC. FACILITIES	1,606,507	8,326,512	2.087	1.750	1.541
	13 MOTOR VEHICLE RISKS	1,941,706	10,395,663	1.611	1.537	1.352
	14 OTHER NON-MANUF.	649,844	3,489,264	3.256	1.885	1.659
	15 STORAGE	265,540	1,240,141	5.058	2.196	1.933
	21 METAL MANUFACTURING	84,890	503,335	0.031	1.252	1.102
	22 OTHER MANUFACTURING	215,642	925,317	3.753	1.976	1.740
	TOTAL*	6,064,793	31,946,912	1.986	1.626	1.431
37 MULTILINE INDUST/PROCESS	04 OTHER MERCANTILE RS	770,791	4,211,201	0.379	1.054	0.928
	08 OFFICES AND BANKS	209,539	983,048	0.168	1.130	0.995
	13 MOTOR VEHICLE RISKS	17,037	148,857	0.219	1.193	1.050
	14 OTHER NON-MANUF.	204,843	1,306,370	0.854	1.225	1.078
	15 STORAGE	63,860	310,444	8.562	2.455	2.161
	17 FOOD MANUFACTURING	1,149,340	5,854,115	0.114	0.952	0.838
	18 WOOD MANUFACTURING	677,871	3,358,526	0.110	0.970	0.854
	19 WEARING APPAREL	118,747	543,882	0.000	1.126	0.992
	20 CHEM. MANUFACTURING	217,563	1,063,995	0.752	1.330	1.171
	21 METAL MANUFACTURING	4,952,636	28,694,297	1.051	1.181	1.040
22 OTHER MANUFACTURING	1,817,033	9,302,953	2.047	1.519	1.338	
TOTAL*	10,199,260	55,777,688	1.014	1.202	1.058	

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 BASIC GROUP I RELATIVITY ANALYSIS  
 TABLE 10 - SUMMARY OF EXPERIENCE USED IN SIMULTANEOUS REVIEW

TYPE OF POLICY	CATEGORY	(1)	(2)	(3)	(4)	(5)
		ACCIDENT YEAR ENDING 06/30/18 AGGREGATE LOSS COSTS	5 - YEAR AGGREGATE LOSS COSTS	5 - YEAR EXPERIENCE RATIO	Z-WEIGHTED EXPERIENCE RATIO	Z-WEIGHTED RELATIVITY
38 MULTILINE	04 OTHER MERCANTILE RS	1,585,574	7,551,917	2.166	1.804	1.588
CONTRACTORS	08 OFFICES AND BANKS	459,775	2,161,090	1.202	1.375	1.210
	14 OTHER NON-MANUF.	125,057	613,550	0.954	1.323	1.164
	TOTAL*	2,170,406	10,326,557	1.892	1.686	1.484
TOTAL ALL TOPS*	01 APARTMENTS	3,847,832	15,845,470	0.702	0.866	0.762
	02 OTHER HABITATIONAL	2,030,600	9,862,258	1.008	0.961	0.846
	03 RESTAURANTS & BARS	2,660,618	13,418,816	0.963	0.946	0.833
	04 OTHER MERCANTILE RS	12,989,658	64,597,805	1.270	1.193	1.050
	05 PUBLIC BUILDINGS	186,422	882,855	1.291	1.013	0.892
	06 CHURCHES	2,867,436	14,433,189	0.353	0.729	0.642
	07 SCHOOLS	661,803	3,633,208	0.731	0.868	0.764
	08 OFFICES AND BANKS	4,974,563	22,713,523	0.911	1.039	0.914
	09 REC. FACILITIES	1,993,239	10,430,193	1.903	1.629	1.434
	10 HOTELS AND MOTELS	1,124,294	6,321,560	0.858	0.926	0.815
	11 HOSPITALS/NURS HOME	695,100	3,632,362	1.395	1.128	0.993
	13 MOTOR VEHICLE RISKS	3,406,785	16,262,071	1.390	1.326	1.167
	14 OTHER NON-MANUF.	1,942,020	10,915,852	1.624	1.375	1.210
	15 STORAGE	1,655,185	7,833,024	1.897	1.190	1.048
	17 FOOD MANUFACTURING	1,170,559	5,936,160	0.165	0.963	0.847
	18 WOOD MANUFACTURING	702,366	3,470,249	0.106	0.982	0.865
	19 WEARING APPAREL	130,324	586,027	0.000	1.143	1.006
	20 CHEM. MANUFACTURING	242,696	1,120,680	0.674	1.297	1.142
	21 METAL MANUFACTURING	5,406,818	31,089,459	1.117	1.213	1.068
	22 OTHER MANUFACTURING	2,113,728	10,651,304	2.179	1.563	1.376
	TOTAL*	50,802,046	253,636,065	1.140	1.136	1.000

\* TOTALS IN COLUMNS (3), (4) & (5) ARE AVERAGES USING COLUMN (1) AS WEIGHTS.

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SPECIAL CAUSES OF LOSS RELATIVITY ANALYSIS  
 TABLE 11 - SUMMARY OF EXPERINCE USED IN SIMULTANEOUS REVIEW

TYPE OF POLICY	CATEGORY	(1)	(2)	(3)	(4)	(5)
		ACCIDENT YEAR ENDING 06/30/18 AGGREGATE LOSS COSTS	5 - YEAR AGGREGATE LOSS COSTS	5 - YEAR EXPERIENCE RATIO	Z-WEIGHTED EXPERIENCE RATIO	Z-WEIGHTED RELATIVITY
10 MONOLINE	01 BUILDINGS	975,952	4,927,878	1.680	1.647	1.758
	02 RES. APTS. AND COND	6,325	36,029	0.213	1.038	1.108
	03 OFFICES	80,107	431,430	0.439	0.855	0.912
	04 MERCANTILE - HIGH	165,893	707,784	0.768	0.976	1.042
	05 MERCANTILE - MEDIUM	40,814	206,878	0.460	0.973	1.038
	06 MERCANTILE - LOW	37,493	164,215	0.245	0.920	0.982
	07 MOTELS AND HOTELS	2,519	19,116	0.254	1.068	1.140
	08 INSTITUTIONAL - HIG	12,586	71,085	1.969	1.510	1.612
	09 INSTITUTIONAL - LOW	17,532	95,571	2.129	1.576	1.682
	10 INDUST-PROC - HIGH	8,975	37,351	0.248	1.045	1.115
	11 INDUST-PROC - LOW	134,984	670,966	0.563	0.856	0.914
	12 SERVICE - HIGH	32,465	179,011	0.358	0.951	1.015
	13 SERVICE - LOW	57,358	291,988	1.651	1.472	1.571
	14 CONTRACTORS	23,280	91,469	0.418	1.040	1.110
	TOTAL*	1,596,283	7,930,771	1.308	1.399	1.492
31 MULTILINE MOTEL/HOTEL	01 BUILDINGS	252,891	1,353,150	1.758	1.090	1.163
	07 MOTELS AND HOTELS	64,736	363,001	0.482	0.873	0.932
		TOTAL*	317,627	1,716,151	1.498	1.046
32 MULTILINE APARTMENT	01 BUILDINGS	1,467,527	6,748,299	0.643	0.811	0.866
	02 RES. APTS. AND COND	534,690	2,320,199	0.660	0.865	0.923
		TOTAL*	2,002,217	9,068,498	0.648	0.825
33 MULTILINE OFFICE	01 BUILDINGS	1,226,534	5,124,942	0.733	0.859	0.917
	03 OFFICES	704,318	2,856,443	0.668	0.860	0.918
	04 MERCANTILE - HIGH	126	194	0.000	0.835	0.891
	08 INSTITUTIONAL - HIG	1,146	3,857	0.000	0.835	0.891
	11 INDUST-PROC - LOW	0	6	0.000	1.000	1.000
	12 SERVICE - HIGH	1,636	10,122	0.000	0.834	0.890
	14 CONTRACTORS	326	2,485	0.000	0.835	0.891
		TOTAL*	1,934,086	7,998,049	0.708	0.859

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SPECIAL CAUSES OF LOSS RELATIVITY ANALYSIS  
 TABLE 11 - SUMMARY OF EXPERIENCE USED IN SIMULTANEOUS REVIEW

TYPE OF POLICY	CATEGORY	(1)	(2)	(3)	(4)	(5)	
		ACCIDENT YEAR ENDING 06/30/18 AGGREGATE LOSS COSTS	5 - YEAR AGGREGATE LOSS COSTS	5 - YEAR EXPERIENCE RATIO	Z-WEIGHTED EXPERIENCE RATIO	Z-WEIGHTED RELATIVITY	
34 MULTILINE MERCANTILE	01 BUILDINGS	4,307,994	20,662,668	1.105	1.047	1.117	
	03 OFFICES	15,471	40,533	0.477	0.883	0.942	
	04 MERCANTILE - HIGH	836,871	4,061,448	1.568	1.138	1.215	
	05 MERCANTILE - MEDIUM	1,016,990	4,863,912	1.034	0.968	1.033	
	06 MERCANTILE - LOW	492,617	2,104,642	0.747	0.888	0.948	
	08 INSTITUTIONAL - HIG	163	530	0.000	0.835	0.891	
	10 INDUST-PROC - HIGH	0	2,976	0.000	1.000	1.000	
	11 INDUST-PROC - LOW	277	1,219	141.124	15.394	16.429	
	12 SERVICE - HIGH	17,164	127,398	0.313	0.862	0.920	
	13 SERVICE - LOW	32,309	113,614	0.623	0.897	0.957	
	14 CONTRACTORS	10,097	41,726	0.136	0.847	0.904	
	TOTAL*	6,729,953	32,020,666	1.124	1.033	1.103	
	35 MULTILINE INSTITUTIONAL	01 BUILDINGS	3,393,277	18,031,088	0.825	0.864	0.922
		03 OFFICES	3,268	12,092	0.000	0.834	0.890
08 INSTITUTIONAL - HIG		595,338	3,043,693	0.922	0.929	0.991	
09 INSTITUTIONAL - LOW		815,213	3,708,868	0.691	0.857	0.915	
12 SERVICE - HIGH		1,424	14,713	0.000	0.834	0.890	
13 SERVICE - LOW		90	454	0.000	0.835	0.891	
14 CONTRACTORS		954	8,661	0.000	0.834	0.890	
TOTAL*		4,809,564	24,819,569	0.813	0.871	0.929	
36 MULTILINE SERVICES	01 BUILDINGS	2,830,756	14,564,773	0.907	0.887	0.947	
	03 OFFICES	18,174	62,035	0.207	0.797	0.851	
	04 MERCANTILE - HIGH	42,466	174,211	0.086	0.779	0.831	
	05 MERCANTILE - MEDIUM	5,855	34,065	1.210	0.895	0.955	
	06 MERCANTILE - LOW	3,126	14,369	1.205	0.894	0.954	
	08 INSTITUTIONAL - HIG	28,017	135,201	0.000	0.772	0.824	
	09 INSTITUTIONAL - LOW	14,370	67,248	0.000	0.776	0.828	
	10 INDUST-PROC - HIGH	0	410	0.000	1.000	1.000	
	11 INDUST-PROC - LOW	12,367	45,743	0.833	0.858	0.916	
	12 SERVICE - HIGH	1,114,911	5,833,680	0.761	0.823	0.878	
	13 SERVICE - LOW	618,777	3,231,733	0.952	0.886	0.946	
	14 CONTRACTORS	23,265	63,925	0.113	0.788	0.841	
	TOTAL*	4,712,084	24,227,393	0.857	0.869	0.927	

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SPECIAL CAUSES OF LOSS RELATIVITY ANALYSIS  
 TABLE 11 - SUMMARY OF EXPERINCE USED IN SIMULTANEOUS REVIEW

TYPE OF POLICY	CATEGORY	(1) ACCIDENT YEAR ENDING 06/30/18 AGGREGATE LOSS COSTS	(2) 5 - YEAR AGGREGATE LOSS COSTS	(3) 5 - YEAR EXPERIENCE RATIO	(4) Z-WEIGHTED EXPERIENCE RATIO	(5) Z-WEIGHTED RELATIVITY	
37 MULTILINE INDUST/PROC	01 BUILDINGS	2,548,059	13,234,013	0.972	0.922	0.984	
	03 OFFICES	3,492	13,420	0.489	0.826	0.882	
	04 MERCANTILE - HIGH	11,575	52,835	0.029	0.780	0.832	
	05 MERCANTILE - MEDIUM	271	1,980	0.000	0.780	0.832	
	06 MERCANTILE - LOW	0	282	0.000	1.000	1.000	
	08 INSTITUTIONAL - HIG	0	78	0.000	1.000	1.000	
	10 INDUST-PROC - HIGH	130,937	640,491	1.851	0.996	1.063	
	11 INDUST-PROC - LOW	1,603,160	7,905,750	0.937	0.894	0.954	
	12 SERVICE - HIGH	1,281	8,566	1.555	0.926	0.988	
	13 SERVICE - LOW	734	2,892	2.951	1.057	1.128	
	14 CONTRACTORS	3,584	11,718	0.160	0.795	0.848	
	TOTAL*	4,303,093	21,872,025	0.983	0.914	0.975	
	38 MULTILINE CONTRACTORS	01 BUILDINGS	814,290	3,952,450	0.499	0.750	0.800
		03 OFFICES	21,682	75,554	0.408	0.816	0.871
04 MERCANTILE - HIGH		54,045	237,101	0.356	0.805	0.859	
05 MERCANTILE - MEDIUM		1,224	4,874	0.000	0.780	0.832	
06 MERCANTILE - LOW		5,858	34,336	0.967	0.871	0.930	
11 INDUST-PROC - LOW		52	284	0.000	0.780	0.832	
12 SERVICE - HIGH		2,215	5,430	0.318	0.810	0.864	
13 SERVICE - LOW		1,179	4,934	0.000	0.780	0.832	
14 CONTRACTORS		934,535	4,256,298	0.610	0.781	0.834	
TOTAL*		1,835,080	8,571,261	0.551	0.769	0.820	
TOTAL ALL TOPS*		01 BUILDINGS	17,817,280	88,599,261	0.951	0.956	1.021
		02 RES. APTS. AND COND	541,015	2,356,228	0.655	0.867	0.925
		03 OFFICES	846,512	3,491,507	0.623	0.857	0.915
		04 MERCANTILE - HIGH	1,110,976	5,233,573	1.317	1.080	1.153
	05 MERCANTILE - MEDIUM	1,065,154	5,111,709	1.012	0.967	1.033	
	06 MERCANTILE - LOW	539,094	2,317,844	0.717	0.890	0.950	
	07 MOTELS AND HOTELS	67,255	382,117	0.473	0.881	0.939	
	08 INSTITUTIONAL - HIG	637,250	3,254,444	0.900	0.933	0.996	
	09 INSTITUTIONAL - LOW	847,115	3,871,687	0.709	0.870	0.929	
	10 INDUST-PROC - HIGH	139,912	681,228	1.748	0.999	1.066	
	11 INDUST-PROC - LOW	1,750,840	8,623,968	0.930	0.893	0.953	
	12 SERVICE - HIGH	1,171,096	6,178,920	0.741	0.828	0.883	
	13 SERVICE - LOW	710,447	3,645,615	0.994	0.934	0.997	
	14 CONTRACTORS	996,041	4,476,282	0.587	0.788	0.841	
TOTAL*	28,239,987	138,224,383	0.920	0.937	1.000		

\* TOTALS IN COLUMNS (3) & (4) ARE AVERAGES USING COLUMN (1) AS WEIGHTS.

## EXPLANATORY NOTES TO TABLES 10 AND 11

### BASIC GROUP I/SPECIAL CAUSES OF LOSS RELATIVITY ANALYSIS SUMMARY OF EXPERIENCE USED IN SIMULTANEOUS REVIEW

INTRODUCTION	<p>The experience used in the relativity analysis and displayed on Tables 10 and 11 is the latest five accident years of data reported under the Commercial Statistical Plan. As in the overall review, loss costs have been adjusted to current ISO loss cost and prospective amount of insurance levels (with multiline aggregate loss costs adjusted additionally by the current implicit package modification factors). Incurred losses are adjusted to prospective cost levels, and are further adjusted by the Basic Group I large loss procedure and the Special Causes of Loss excess procedure. Losses have also been developed to their ultimate settlement value by application of loss development factors.</p>
COLUMN (1)	<p><u>2018 AGGREGATE LOSS COSTS</u></p> <p>The latest accident year aggregate loss costs (adjusted as described above) are used as weights both in the calculation of any totals shown in this table and in the iterative formulas used in the simultaneous review procedure.</p>
COLUMN (2)	<p><u>2014-2018 AGGREGATE LOSS COSTS</u></p> <p>The combined five-year adjusted aggregate loss costs (adjusted as described above) are used to calculate the experience ratios in column (3).</p>
COLUMN (3)	<p><u>FIVE-YEAR EXPERIENCE RATIOS</u></p> <p>These are the ratios of the combined five-year adjusted incurred losses (adjusted as described above) to the combined five-year adjusted aggregate loss costs as shown in column (2). Any totals which are shown are weighted averages using the adjusted aggregate loss costs in column (1).</p>
COLUMN (4)	<p><u>CREDIBILITY (Z) WEIGHTED EXPERIENCE RATIO</u></p> <p>A credibility procedure is applied to the initial experience ratios in column (3) on a cell-by-cell basis prior to the simultaneous review procedure. The credibility values are calculated using an empirical Bayesian credibility procedure. In the following discussion, cell refers to an individual combination of TOP, rating group or category, and territory (where applicable).</p>

EXPLANATORY NOTES TO TABLES 10 AND 11 (cont'd)

COLUMN (4)  
(cont'd)

The important concept underlying empirical Bayesian credibility is that credibility should depend both on the overall variation of the group of which the cell is a member and the variation of the yearly experience ratios for the cell. Therefore, if a cell's data is very stable then a relatively high credibility value is assigned, and vice versa.

The empirical Bayesian credibility formula for individual cell credibility is  $Z = ((C-3)/C) (P/(P+K)) + (3/C)$ . P equals the cell's five-year adjusted aggregate loss costs and C equals the number of unique combinations of rating variables (Territory, TOP and Rating Group/Category) within a class group. The K value is estimated from the underlying data using the empirical Bayes method and varies by TOP group and by territory where applicable. The three TOP groups used in this analysis are: Monoline (TOP 10), Premises (TOP's 31-35), and Operations (TOP's 36-38). The 3/C term corrects for the statistical bias associated with the credibility process. The minimum credibility that is possible is 3/C.

COLUMN (5)

WEIGHTED RELATIVITIES

The relativities are the ratios of the five-year credibility-weighted experience ratios shown in column (4) to the average five-year credibility-weighted experience ratio for all TOP's, rating groups and territories (where applicable) combined. These relativities represent how much better or worse than average the experience for a given cell is. They are used along with the aggregate loss costs in column (1) as input for the simultaneous review procedure.

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TABLE 12 - BASIC GROUP II RELATIVITY ANALYSIS

INDICATED LOSS COST ADJUSTMENT: +0.1%

	(1) ACCIDENT YEAR ENDING 06/30/18 AGGR. LOSS COSTS AT CURRENT IMPLICIT PMF	(2) ACCIDENT YEARS 2009-2018 EXPER. RATIO AT CURRENT PMF	(3) FORMULA RELATIVITY (2) / 0.986	(4) CREDI- BILITY Z C	(5) Z WEIGHTED RELA- TIVITY D	(6) BALANCED FORMULA RELA- TIVITY E	(7) NORMALIZED FORMULA RELA- TIVITY F	(8) CURRENT IMPLICIT PMF	(9) INDICATED IMPLICIT PMF G	(10) INDIC. LOSS COST ADJUST
MONOLINE	1,387,520	0.823	0.835	0.297	0.951	0.951	0.9464			-5.3%
MULTILINE	18,275,023	0.998	1.012	0.785	1.009	1.009	1.0045			+0.5%
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COVERAGE	19,662,543	0.986	1.000			1.0049 B	1.0004			+0.1%
MULTILINE TOP										
31 MOTEL/HOTEL	196,263	1.279	1.297	0.039	1.012	1.016	1.0110	0.932	0.996	+1.2%
32 APARTMENT	1,116,828	0.970	0.984	0.165	0.997	1.001	0.9961	0.666	0.701	-0.3%
33 OFFICE	801,314	0.970	0.984	0.104	0.998	1.002	0.9971	0.573	0.604	-0.2%
34 MERCANTILE	5,399,649	1.062	1.077	0.495	1.038	1.042	1.0369	0.899	0.985	+3.8%
35 INSTITUTIONAL	3,061,786	0.974	0.988	0.425	0.995	0.999	0.9941	0.734	0.771	-0.5%
36 SERVICES	4,248,268	0.975	0.989	0.477	0.995	0.999	0.9941	1.217	1.278	-0.5%
37 INDUST/PROCESS	2,590,318	0.891	0.904	0.335	0.968	0.972	0.9673	0.608	0.621	-3.2%
38 CONTRACTORS	860,597	1.115	1.131	0.146	1.019	1.023	1.0180	0.821	0.883	+1.9%
-----	-----	-----	-----	-----	-----	-----	-----			-----
	18,275,023	0.998 B	1.012		1.005 B	1.009 B	1.0045 B			+0.5%

B - AVERAGE WEIGHTED BY COLUMN (1)

C - CREDIBILITY = P/(P+K) WHERE P REPRESENTS THE TOTAL 10 YEAR ADJUSTED LOSS COSTS AND K = 45,000,000

D - (5) = (3) \* (4) + (1.000 - (4))

E - (6) = (5) \* (1.009/1.005)

F - (7) = (6) / 1.0049

G - (9) = (7) \* (8) / (0.9464)

EXPLANATORY NOTES TO TABLE 12

BASIC GROUP II RELATIVITY ANALYSIS

INTRODUCTION

The explanations which follow clarify Table 12, the Basic Group II (BG II) relativity analysis. The purpose of this analysis is to:

- (1) determine the monoline loss cost level need;
- (2) determine indicated changes to the eight CPP package modification factors (PMFs) based on Basic Group II experience.

COLUMN (1)

2018 AGGREGATE LOSS COSTS

The latest accident year adjusted aggregate loss costs (adjusted in the same manner as in the overall review, i.e. to current manual loss cost and prospective amount of insurance levels, with multiline aggregate loss costs further adjusted to current IPMF level) are used as weights in the calculation of any totals shown in this table.

COLUMN (2)

2009 - 2018 EXPERIENCE RATIO

These experience ratios are the ratios of the combined ten-year CSP adjusted incurred losses (adjusted to current deductible and prospective cost levels including loss development, and smoothed by the BG II excess loss procedure) to the combined ten year CSP adjusted aggregate loss costs. Any totals which are shown are weighted averages using the aggregate loss costs in column (1). When a dash is displayed in the column, it indicates that the indicated IPMF which resulted from this procedure was capped. The procedure which follows when capping occurs is described below.

COLUMN (3)

FORMULA RELATIVITY

The formula relativities are the ratios of the ten year experience ratios for the type of policy (either monoline vs. multiline or individual multiline programs) to the average ten year experience ratio for monoline and multiline combined. These relativities represent how much better or worse than average the experience for a given type of policy is. Again, any totals which are shown are weighted averages and the display of a dash indicates that the resulting IPMF was capped. Unlike the BG I and SCL relativity analyses, the BG II analysis does not employ a simultaneous review procedure since a one way review is involved. That is, the overall loss cost change is only distributed across type of policy; no other rating variables are considered.

EXPLANATORY NOTES TO TABLE 12 (cont'd)

COLUMN (4)

CREDIBILITY

The credibility of the experience for each type of policy is determined from the formula:

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

where P is the ten year aggregate adjusted loss costs for a given type of policy, and K is a constant loss cost volume of \$45,000,000.

COLUMN (5)

Z - WEIGHTED RELATIVITY

The weighted relativity is a weighted average of the individual TOP formula relativity and the overall (coverage) formula relativity using credibility and its complement as the respective weights. Therefore, to the extent that the indication for a type of policy is not fully credible, the complement of credibility is assigned to the statewide coverage level change.

COLUMN (6)

BALANCED FORMULA RELATIVITY

The individual multiline weighted relativities are balanced to the multiline weighted relativity level by applying a factor equal to the overall multiline relativity (i.e. the weighted relativity for all multiline combined which is shown on the top of the exhibit directly under the corresponding monoline relativity) divided by the average multiline relativity (i.e. the weighted average of the individual multiline weighted relativities which is shown on the bottom of the exhibit). When the indicated IPMF for a type of policy is capped, the balanced relativity is set equal to the product of the capped IPMF in column (9) and the monoline balanced formula relativity in column (6), divided by the current IPMF in column (8).

COLUMN (7)

NORMALIZED FORMULA RELATIVITY

The normalized relativity is equal to the balanced formula relativity divided by the average monoline/multiline combined relativity. This balances the average monoline/multiline relativity to unity.

COLUMN (8)

CURRENT IMPLICIT PMF

This is the current IPMF for each multiline type of policy.

EXPLANATORY NOTES TO TABLE 12 (cont'd)

COLUMN (9)

INDICATED IMPLICIT PMF

The indicated IPMF is calculated from the normalized relativities as follows:

$$\frac{\text{TOP y indicated IPMF}}{\text{IPMF}} = \frac{(\text{TOP y current IPMF})(\text{TOP y relativity})}{\text{monoline relativity}}$$

For each CPP type of policy the indicated IPMF is subject to a minimum value of 0.50 and a maximum value of 1.50. If an indicated IPMF falls outside one of those limits, it is capped at that amount, the aggregate loss costs for that type of policy are adjusted to the capped IPMF level, and the entire relativity review as described above is redone to take this into account. If an IPMF has been capped it is so noted in footnote A.

COLUMN (10)

INDICATED LOSS COST CHANGES

The indicated monoline and multiline (by TOP) changes are calculated by taking the product of the statewide loss cost level change and the corresponding TOP relativity.

The overall multiline loss cost level change is the aggregate loss cost weighted average of all multiline TOP loss cost level changes.

MULTILINE  
CONSIDERATIONS

It should be noted that although this procedure generates multiline indications, this filing only addresses monoline loss cost levels. That is, upon implementation of this filing only the monoline loss costs will be revised. The multiline indications developed here will be combined with those of the other component coverages, e.g. GL Premises and Operations in the CPP review for the purpose of revising the package modification factors.

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COMMERCIAL PROPERTY INSURANCE

SECTION C - SUPPORTING MATERIAL

Overview .....	C2-3
Loss Cost/Rate Level Histories (Tables 13 - 17).....	C4-13
Commercial Package Policy Implicit Package Modification Factors (IPMF's) and IPMF Caps (Tables 18 - 20) .....	C14-18
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Excess Loss Procedure (Tables 29 - 32) .....	C47-60
Credibility (Tables 33, 33A, and 34) .....	C61-66

## OVERVIEW

### AGGREGATE LOSS COSTS AT CURRENT LEVEL

Tables 13, 14 and 15 provide the overall loss cost/rate level histories for Basic Group I, Basic Group II, and Special Causes of Loss respectively. These tables, along with Tables 16 and 17, provide information on the on-level factors needed to bring collected aggregate loss costs to current loss cost level.

Table 16 provides rate level/loss cost level histories by rating id (class vs. specific), rating group, and territory (where applicable) for Basic Group I, while Table 17 provides rate level/loss cost level histories by category for Special Causes of Loss. These tables can be used to develop on-level factors appropriate to bring collected aggregate loss costs up to current loss cost level. Factors based on these tables are more appropriate for company use than the overall factors shown on Tables 13 and 15 if the company's mix of business differs substantially from the industrywide average. For example, if a company's business is very heavily concentrated in a single class or territory, it is more appropriate to use the rate level/loss cost history for that class rather than the overall average to develop on-level factors.

Tables 18, 19 and 20 provide the current implicit package modification factors (IPMFs) and IPMF caps for Basic Group I, Basic Group II and Special Causes of Loss.

### ADJUSTMENTS TO LOSSES

The loss projection factors, current cost factors, and loss trend adjustments shown on Tables 21, 22 and 23 reflect the combined impact of all economic influences on Commercial Property underwriting results and are used to project past underwriting results to future loss levels. They are intended to reflect the impact of inflation on loss payments, the impact of higher costs due to repairs done on an "emergency" basis, the impact of coinsurance and relative insurance to value on loss payments, and any other economic influences which can affect underwriting losses but for which specific provisions are not made. Losses have also been developed to their ultimate settlement value using factors shown on Table 28.

### CREDIBILITY

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

$Z$  = credibility

$C$  = final estimate

$R$  = estimate based on the most recent data

$N$  = net trend

## OVERVIEW (cont'd)

### CREDIBILITY (cont'd)

Credibility may range from 0 to 1, where  $Z=1$  is full credibility and  $Z=0$  is no credibility. The actual numerical value of  $Z$  is calculated by considering how the state's volume of experience compares with the full credibility standard. Credibility is capped at 25% if the credibility calculated is less than 25%. See Tables 33, 33A, and 34 for a complete explanation of the credibility standards for Basic Group I, Basic Group II, and Special Causes of Loss.

## LOSS COST/RATE LEVEL HISTORY

Loss cost/rate level histories are provided for Basic Group I, Basic Group II and Special Causes of Loss. The loss cost/rate level changes are then further split out by rating territory, rating group or category since a company's business may be more heavily concentrated in a single class. These histories can be used to develop on-level factors appropriate to bring collected aggregate loss costs up to current loss cost levels.

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TABLE 13

BASIC GROUP I

HISTORY OF STATEWIDE LOSS COST/RATE LEVEL CHANGES

LOSS COST/RATE LEVEL HISTORY				
(1)	(2)	(3)	(4)	(5)
EFFECTIVE DATE	LOSS COST/RATE LEVEL CHANGE (%)	LOSS COST/RATE LEVEL INDEX	ADJUSTMENT FACTOR	WEIGHT*
2000-07-01	-10.7	0.893	0.525	0.504
2001-07-01	12.5	1.005	0.467	0.504
2002-07-01	-7.4	0.930	0.504	0.504
2003-08-01	-10.9	0.829	0.566	0.419
2004-07-01	-7.6	0.766	0.612	0.503
2006-01-01	-22.2	0.596	0.787	1.000
2006-11-01	-14.5	0.509	0.921	0.167
2008-02-01	-12.5	0.446	1.052	0.915
2009-01-01	-17.5	0.368	1.274	1.000
2011-04-01	3.5	0.381	1.231	0.753
2012-01-01	3.7	0.395	1.187	1.000
2013-01-01	-5.5	0.373	1.257	1.000
2014-01-01	4.4	0.389	1.206	1.000
2016-01-01	6.3	0.414	1.133	1.000
2017-03-01	3.4	0.428	1.096	0.838
2019-01-01	9.5	0.469	1.000	1.000

TIME ELEMENT ONLY LOSS COST LEVEL HISTORY				
(1)	(2)	(3)	(4)	(5)
EFFECTIVE DATE	LOSS COST/RATE LEVEL CHANGE (%)	LOSS COST/RATE LEVEL INDEX	ADJUSTMENT FACTOR	WEIGHT*
2013-04-01	-13.1	0.869	1.000	0.753

\* WEIGHT DENOTES THE PORTION OF THE EFFECTIVE YEAR FOR WHICH THE ADJUSTMENT FACTORS APPLY.

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TABLE 14

BASIC GROUP II

HISTORY OF STATEWIDE LOSS COST/RATE LEVEL CHANGES

LOSS COST/RATE LEVEL HISTORY				
(1)	(2)	(3)	(4)	(5)
EFFECTIVE DATE	LOSS COST/RATE LEVEL CHANGE (%)	LOSS COST/RATE LEVEL INDEX	ADJUSTMENT FACTOR	WEIGHT*
2000-07-01	5.0	1.050	1.039	0.504
2001-07-01	4.7	1.099	0.993	0.504
2002-07-01	1.1	1.111	0.982	0.504
2003-08-01	2.1	1.135	0.961	0.419
2004-07-01	3.7	1.177	0.927	0.503
2006-01-01	21.0	1.424	0.766	1.000
2006-11-01	3.5	1.474	0.740	0.167
2008-02-01	-7.8	1.359	0.803	0.915
2009-01-01	-4.6	1.296	0.842	1.000
2011-04-01	-9.0	1.180	0.925	0.753
2012-01-01	-8.2	1.083	1.007	1.000
2013-01-01	-7.9	0.997	1.094	1.000
2014-01-01	-0.4	0.993	1.099	1.000
2016-01-01	6.2	1.055	1.034	1.000
2017-03-01	3.2	1.089	1.002	0.838
2019-01-01	0.2	1.091	1.000	1.000

TIME ELEMENT ONLY LOSS COST LEVEL HISTORY				
(1)	(2)	(3)	(4)	(5)
EFFECTIVE DATE	LOSS COST/RATE LEVEL CHANGE (%)	LOSS COST/RATE LEVEL INDEX	ADJUSTMENT FACTOR	WEIGHT*
2013-04-01	-13.3	0.867	1.000	0.753

\* WEIGHT DENOTES THE PORTION OF THE EFFECTIVE YEAR FOR WHICH THE ADJUSTMENT FACTORS APPLY.

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TABLE 15

SPECIAL CAUSES OF LOSS

HISTORY OF STATEWIDE LOSS COST/RATE LEVEL CHANGES

LOSS COST/RATE LEVEL HISTORY				
(1)	(2)	(3)	(4)	(5)
EFFECTIVE DATE	LOSS COST/RATE LEVEL CHANGE (%)	LOSS COST/RATE LEVEL INDEX	ADJUSTMENT FACTOR	WEIGHT*
2000-07-01	-0.3	0.997	1.038	0.504
2001-07-01	17.1	1.167	0.887	0.504
2002-07-01	-15.1	0.991	1.044	0.504
2003-08-01	-0.5	0.986	1.050	0.419
2004-07-01	-8.1	0.906	1.142	0.503
2006-01-01	-1.1	0.896	1.155	1.000
2006-11-01	21.0	1.085	0.954	0.167
2008-02-01	4.1	1.129	0.917	0.915
2009-01-01	-3.5	1.090	0.950	1.000
2011-04-01	-12.0	0.959	1.079	0.753
2012-01-01	-12.1	0.843	1.228	1.000
2013-01-01	-5.2	0.799	1.295	1.000
2014-01-01	6.7	0.853	1.213	1.000
2016-01-01	5.7	0.901	1.149	1.000
2017-03-01	10.3	0.994	1.041	0.838
2019-01-01	4.1	1.035	1.000	1.000

TIME ELEMENT ONLY LOSS COST LEVEL HISTORY				
(1)	(2)	(3)	(4)	(5)
EFFECTIVE DATE	LOSS COST/RATE LEVEL CHANGE (%)	LOSS COST/RATE LEVEL INDEX	ADJUSTMENT FACTOR	WEIGHT*
2013-04-01	-25.0	0.750	1.000	0.753

\* WEIGHT DENOTES THE PORTION OF THE EFFECTIVE YEAR FOR WHICH THE ADJUSTMENT FACTORS APPLY.

EXPLANATORY NOTES TO TABLES 13, 14 AND 15

LOSS COST/RATE LEVEL HISTORIES

COLUMN (1)

EFFECTIVE DATE

The effective dates of the latest loss cost/rate level changes are shown.

COLUMN (2)

LOSS COST/RATE LEVEL CHANGE

The overall loss cost/rate level change is shown in percent form.

COLUMN (3)

LOSS COST/RATE LEVEL INDEX

The product of all loss cost/rate level changes up to and including the loss cost/rate change for that effective date is used to calculate on level factors.

COLUMN (4)

WRITTEN ADJUSTMENT (ON LEVEL) FACTORS

The factors are used to bring individual policies with inception dates prior to the effective date up to current loss cost level. For Basic Group II these are the actual factors used. However, the loss cost/rate changes for Basic Group I vary by rating group and territory (where applicable), while the loss cost/rate level changes for Special Causes of Loss vary by category. Consequently, for these coverages the on-level factors represent average factors and are not the factors actually used to adjust the aggregate loss costs on an individual policy basis. For complete loss cost/rate level histories by rating group and territory (where applicable) for Basic Group I and by category for Special Causes of Loss refer to Tables 16 and 17.

COLUMN (5)

WEIGHT

The weight indicates the portion of the effective year for which the on level factors apply. These can be used to calculate average yearly factors.

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TABLE 16

HISTORY OF BASIC GROUP I

LOSS COST CHANGES BY TERRITORY, RATING ID AND RATING GROUP

TERRITORY: Detroit

EFFECTIVE DATE	RATING ID	RATING GROUP																				
		01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	17	18	19	20	21	22
01-01-2006	SPEC.	-13.0	-9.9	-3.4	-6.8	-10.2	-17.5	-12.4	-9.1	-8.7	-8.3	-8.3	-9.7	-5.7	-6.1	-8.9	-9.1	-10.9	-9.9	-9.8	-11.4	-11.4
	CLASS	-9.8	-6.6	0.2	-3.3	-6.9	-14.4	-9.1	-5.7	-5.3	-4.9	-4.9	-6.3	-2.1	-2.6	-5.4	-5.7	-10.9	-6.5	-9.8	-11.4	-8.1
11-01-2006	SPEC.	-11.7	-8.4	-4.8	-5.6	-8.9	-15.8	-12.3	-12.4	-8.8	-9.8	-9.0	-8.8	-3.0	-11.2	-9.4	-2.9	-6.6	-9.4	-7.6	-1.4	-13.6
	CLASS	-12.1	-8.7	-5.2	-6.0	-9.3	-16.1	-12.7	-12.7	-9.2	-10.2	-6.0	-9.2	-3.4	-11.6	-9.7	-3.2	-6.6	-9.7	-7.6	-1.4	-13.9
02-01-2008	SPEC.	13.0	20.4	2.9	-3.3	6.1	1.5	0.5	-1.5	0.3	4.9	6.9	4.6	10.4	-0.8	1.7	13.1	8.2	5.8	5.8	4.8	4.2
	CLASS	19.4	25.0	8.7	2.2	12.1	7.2	6.2	4.0	6.0	10.8	12.9	10.4	16.6	4.8	7.4	19.5	8.2	11.7	5.8	4.8	10.0
01-01-2009	SPEC.	-7.5	-1.8	-20.6	-15.6	-9.3	-3.3	-11.7	-13.5	-13.1	-11.3	-8.7	-10.8	-9.5	-13.0	-14.7	-6.9	-10.9	-10.4	-10.4	-8.5	-12.1
	CLASS	-2.5	3.5	-16.3	-11.0	-4.4	1.9	-6.9	-8.8	-8.4	-6.5	-3.7	-5.9	-4.5	-8.3	-10.0	-1.8	-10.9	-5.6	-10.4	-8.5	-7.3
04-01-2011	SPEC.	17.6	19.2	-12.5	17.5	15.2	21.8	8.5	16.2	22.1	12.8	14.3	14.2	11.2	14.7	11.9	16.3	12.1	14.0	13.9	8.4	17.2
	CLASS	7.6	9.1	-15.2	7.5	5.5	11.5	-0.7	6.4	11.8	3.3	4.6	4.5	1.8	5.0	2.4	6.5	12.1	4.4	13.9	8.4	7.3
01-01-2012	SPEC.	2.2	3.2	-2.2	16.1	6.4	8.8	4.0	3.0	18.7	6.3	5.9	8.5	14.8	8.5	5.5	1.3	1.7	4.9	4.4	-13.4	-1.7
	CLASS	6.1	7.1	1.5	20.4	10.4	12.9	8.0	6.9	23.2	10.3	9.9	12.6	19.1	12.6	9.5	5.1	1.7	8.8	4.4	-13.4	2.0
01-01-2013	SPEC.	-23.2	-25.5	-21.5	-16.9	-16.2	-11.6	-16.1	-16.1	-6.6	-12.4	-14.7	-12.3	-9.6	-12.3	-15.5	-18.7	-19.1	-17.0	-17.2	-25.2	-19.2
	CLASS	-20.1	-23.4	-18.3	-13.5	-12.8	-8.0	-12.7	-12.7	-2.8	-8.8	-11.2	-8.7	-6.0	-8.7	-12.1	-15.4	-19.1	-13.6	-17.2	-25.2	-15.9
01-01-2014	SPEC.	-14.3	-14.9	-11.6	-6.7	-7.7	-5.0	-5.6	-6.5	-5.6	-9.1	-7.5	-5.1	-7.4	-5.1	-9.6	-7.6	-8.2	-8.0	-7.4	-7.6	-6.8
	CLASS	-0.2	-0.8	3.0	8.7	7.5	10.7	10.0	8.9	10.0	5.9	7.8	10.6	7.9	10.6	5.3	7.7	-8.2	7.1	-7.4	-7.6	8.5
01-01-2016	SPEC.	17.8	11.8	11.6	27.5	22.0	12.7	25.5	21.4	21.4	28.2	24.7	24.7	24.0	24.7	15.4	21.7	22.3	21.5	22.4	22.5	22.5
	CLASS	21.5	15.4	15.1	31.3	25.9	16.2	29.5	25.2	25.2	31.3	28.6	28.6	27.9	28.6	19.0	25.5	22.3	25.4	22.4	22.5	26.4
03-01-2017	SPEC.	-4.8	-6.8	-10.0	0.6	-1.1	-16.7	2.3	-0.5	0.6	4.1	3.0	1.0	2.0	1.0	-6.0	-1.9	-0.8	-1.7	-1.1	-0.9	-1.3
	CLASS	-2.4	-4.5	-7.7	3.1	1.4	-14.6	4.9	2.0	3.1	6.7	5.6	3.5	4.6	3.5	-3.6	0.6	-0.8	0.8	-1.1	-0.9	1.2
01-01-2019	SPEC.	6.7	13.3	-8.0	9.4	5.8	-8.3	2.5	1.2	8.7	4.6	7.6	4.3	4.6	4.3	-2.4	4.4	4.9	5.0	5.0	7.3	9.4
	CLASS	6.7	13.3	-8.0	9.4	5.8	-8.3	2.5	1.2	8.7	4.6	7.6	4.3	4.6	4.3	-2.4	4.4	4.9	5.0	5.0	7.3	9.4

MICHIGAN  
TABLE 16

HISTORY OF BASIC GROUP I

LOSS COST CHANGES BY TERRITORY, RATING ID AND RATING GROUP

TERRITORY: Balance of State (Michigan)

EFFECTIVE DATE	RATING ID	RATING GROUP																				
		01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	17	18	19	20	21	22
01-01-2006	SPEC.	-27.5	-24.9	-19.5	-22.3	-25.1	-31.2	-26.9	-24.2	-23.8	-23.5	-23.5	-24.7	-21.4	-21.7	-24.0	-24.2	-25.7	-24.8	-24.8	-26.1	-26.1
	CLASS	-24.8	-22.1	-16.4	-19.3	-22.3	-28.6	-24.2	-21.4	-21.0	-20.7	-20.7	-21.9	-18.4	-18.8	-21.1	-21.4	-25.7	-22.0	-24.8	-26.1	-23.3
11-01-2006	SPEC.	-18.2	-15.1	-11.8	-12.6	-15.6	-22.0	-18.8	-18.8	-15.5	-16.5	-15.7	-15.5	-10.2	-17.7	-16.0	-10.0	-13.5	-16.0	-14.4	-8.6	-19.9
	CLASS	-18.6	-15.4	-12.1	-12.9	-15.9	-22.3	-19.1	-19.2	-15.9	-16.8	-16.0	-15.9	-10.5	-18.1	-16.4	-10.4	-13.5	-16.4	-14.4	-8.6	-20.3
02-01-2008	SPEC.	-8.1	-2.1	-16.3	-21.4	-13.7	-17.5	-18.3	-19.9	-18.4	-14.7	-13.1	-15.0	-10.2	-19.4	-17.3	-8.0	-12.1	-14.0	-14.0	-14.8	-15.3
	CLASS	-3.0	1.6	-11.6	-16.9	-8.9	-12.9	-13.7	-15.4	-13.8	-10.0	-8.2	-10.2	-5.2	-14.8	-12.7	-2.9	-12.1	-9.2	-14.0	-14.8	-10.6
01-01-2009	SPEC.	-17.2	-12.1	-28.9	-24.4	-18.8	-13.5	-20.9	-22.6	-22.2	-20.6	-18.2	-20.1	-19.0	-22.1	-23.6	-16.7	-20.2	-19.8	-19.8	-18.1	-21.3
	CLASS	-12.7	-7.4	-25.1	-20.3	-14.4	-8.8	-16.6	-18.4	-18.0	-16.3	-13.8	-15.8	-14.6	-17.9	-19.5	-12.1	-20.2	-15.5	-19.8	-18.1	-17.1
04-01-2011	SPEC.	10.9	12.4	-17.5	10.8	8.6	14.8	2.3	9.6	15.2	6.4	7.8	7.7	4.9	8.2	5.5	9.7	5.7	7.6	7.4	2.2	10.6
	CLASS	1.5	2.9	-20.0	1.4	-0.5	5.1	-6.3	0.3	5.4	-2.6	-1.3	-1.4	-4.0	-0.9	-3.4	0.4	5.7	-1.5	7.4	2.2	1.2
01-01-2012	SPEC.	-2.0	-1.1	-6.2	11.3	2.0	4.3	-0.3	-1.3	13.8	1.9	1.6	4.0	10.1	4.0	1.2	-2.9	-2.5	0.6	0.0	-17.0	-5.7
	CLASS	1.7	2.6	-2.7	15.5	5.8	8.2	3.5	2.4	18.1	5.7	5.4	7.9	14.2	7.9	5.0	0.8	-2.5	4.3	0.0	-17.0	-2.2
01-01-2013	SPEC.	-12.9	-15.5	-10.9	-5.8	-5.0	0.2	-4.8	-4.8	6.0	-0.6	-3.2	-0.5	2.5	-0.5	-4.2	-7.8	-8.2	-5.8	-6.0	-15.1	-8.4
	CLASS	-9.3	-13.1	-7.3	-1.9	-1.1	4.3	-0.9	-0.9	10.3	3.4	0.7	3.5	6.7	3.5	-0.3	-4.1	-8.2	-2.0	-6.0	-15.1	-4.7
01-01-2014	SPEC.	-9.6	-10.2	-6.7	-1.6	-2.6	0.2	-0.4	-1.4	-0.4	-4.1	-2.4	0.1	-2.3	0.1	-4.7	-2.5	-3.2	-3.0	-2.3	-2.5	-1.8
	CLASS	5.3	4.6	8.7	14.7	13.4	16.7	16.0	14.9	16.0	11.7	13.6	16.6	13.8	16.6	11.0	13.5	-3.2	13.0	-2.3	-2.5	14.4
01-01-2016	SPEC.	0.3	-4.8	-5.0	8.5	3.9	-4.1	6.9	3.4	3.4	9.2	6.2	6.2	5.6	6.2	-1.8	3.6	4.1	3.5	4.2	4.3	4.3
	CLASS	3.4	-1.8	-2.0	11.8	7.2	-1.0	10.3	6.6	6.6	11.8	9.5	9.5	8.9	9.5	1.3	6.8	4.1	6.7	4.2	4.3	7.6
03-01-2017	SPEC.	0.3	-1.9	-5.1	6.0	4.2	-12.2	7.8	4.8	6.0	9.7	8.5	6.4	7.5	6.4	-0.9	3.4	4.5	3.6	4.2	4.4	4.0
	CLASS	2.8	0.6	-2.7	8.6	6.8	-10.0	10.5	7.5	8.6	12.4	11.3	9.1	10.2	9.1	1.6	6.0	4.5	6.2	4.2	4.4	6.6
01-01-2019	SPEC.	11.9	18.9	-3.5	14.8	10.9	-3.8	7.5	6.2	14.0	9.7	12.9	9.4	9.7	9.4	2.4	9.5	10.1	10.2	10.2	12.6	14.8
	CLASS	11.9	18.9	-3.5	14.8	10.9	-3.8	7.5	6.2	14.0	9.7	12.9	9.4	9.7	9.4	2.4	9.5	10.1	10.2	10.2	12.6	14.8

EXPLANATORY NOTES TO TABLE 16

HISTORY OF BASIC GROUP I LOSS COST/RATE CHANGES  
BY TERRITORY, RATING ID AND RATING GROUP

TERRITORY

The loss cost/rate level changes shown apply to the rating territory shown here.

EFFECTIVE DATE

The effective dates of the latest loss cost/rate level changes are shown.

LOSS COST/RATE LEVEL CHANGES

Loss cost/rate level changes are shown in percent form for each rating group.

MICHIGAN  
TABLE 17

SPECIAL CAUSES OF LOSS

HISTORY OF LOSS COST/RATE LEVEL CHANGES BY CATEGORY

(1) EFFECTIVE DATE	(2) CATEGORY													
	01	02	03	04	05	06	07	08	09	10	11	12	13	14
01-01-2006	2.4	-4.0	-11.6	-11.5	-8.0									
11-01-2006	24.0	17.3	3.6	14.9	7.1									
02-01-2008	2.3	4.3	1.0	14.3	9.8									
01-01-2009	-6.4	-3.9	6.3	13.2	4.8									
04-01-2011	-13.8	-21.6	-11.6	-12.1	-5.5	-13.9	-11.2	-7.8	-17.2	-9.5	2.7	-8.2	-10.3	-3.0
01-01-2012	-13.3	-17.9	-11.4	-11.2	-6.6	-12.9	-12.2	-11.4	-17.4	-10.9	-4.0	-9.0	-8.6	-9.3
01-01-2013	-6.8	-5.0	-3.7	-5.3	-6.3	-6.0	-4.4	-8.0	-11.8	-5.6	5.7	1.5	-1.3	2.3
01-01-2014	6.5	5.5	7.5	4.2	4.8	7.3	6.3	1.3	-2.0	6.4	12.4	11.3	8.6	8.4
01-01-2016	8.8	0.4	3.3	1.7	4.3	11.1	4.0	-15.2	-10.1	3.4	-0.4	2.7	3.4	6.6
03-01-2017	12.4	7.9	10.4	13.6	6.9	12.1	9.0	-4.2	-2.5	8.5	5.8	7.1	6.7	11.6
01-01-2019	4.4	2.7	0.5	17.5	1.0	3.4	2.3	-4.3	-3.0	6.3	3.8	-1.8	6.9	13.5

EXPLANATORY NOTES TO TABLE 17

HISTORY OF SPECIAL CAUSES OF LOSS  
LOSS COST/RATE LEVEL CHANGES BY CATEGORY

COLUMN (1)

EFFECTIVE DATE

The effective dates of the latest loss cost/rate level changes are shown.

COLUMN (2)

LOSS COST/RATE LEVEL CHANGES BY CATEGORY

Loss cost/rate changes are shown in percent form for each category. Refer to Table 37 for definitions of the current 14 categories.

The prior category definitions (before implementation of the revised rating for Special Causes of Loss) are:

- 01 - Buildings
- 02 - Apartments Contents
- 03 - Office Contents
- 04 - Mercantile, Motel/Hotel and Institutional Contents
- 05 - Service, Industrial/Processing, and Contractors Contents

COMMERCIAL PACKAGE POLICY IMPLICIT PACKAGE MODIFICATION FACTORS (IPMF's)  
AND IPMF CAPS

IMPLICIT PACKAGE  
MODIFICATION  
FACTORS

Since multiline experience is included in the loss cost level evaluations, an additional adjustment is made to multiline aggregate loss costs after they have been brought to current ISO loss cost level. This adjustment is the application of implicit CPP package modification factors which vary for each of the eight CPP types of policy.

The loss costs used to price a Commercial Package Policy (CPP) are the monoline loss costs multiplied by the PMF to reflect the package policy discount for the particular type of CPP policy relative to the individual monoline policies. However, these PMF's measure the amount of multiline discount for all property coverages combined. A more accurate measure of the amount of multiline discount for each subline (e.g., Basic Group I, Basic Group II, or Special Causes of Loss) is the implicit package modification factor that was used to calculate the overall PMF for all property coverages combined.

For example, the published PMF for Apartments (all property coverages combined) may be .85, but the implicit PMF for Apartments, Commercial Basic Group I coverage only, may be .80. The average of the implicit PMF's for the various coverages is equal to the published PMF for each type of policy.

The current IPMF's by coverage for each CPP type of policy are applied to multiline aggregate loss costs at current level for Basic Group I, Basic Group II and Special Causes of Loss.

IPMF CAPS

For Basic Group I, Basic Group II, and Special Causes of Loss, the IPMF's lower caps are set at 0.50 and the upper caps are set at 1.50 for all TOP's.

MICHIGAN  
 TABLE 18  
 BASIC GROUP I IMPLICIT PACKAGE  
 MODIFICATION FACTORS (IPMFS) AND IPMF CAPS

CPP IMPLICIT PACKAGE MODIFICATION FACTORS (IPMFS) AND IPMF CAPS

TOP	DESCRIPTION	IPMF	LOW CAP	HIGH CAP
-----				
31	MOTEL/HOTEL	0.913	0.500	1.500
32	APARTMENT	0.903	0.500	1.500
33	OFFICE	1.038	0.500	1.500
34	MERCANTILE	1.104	0.500	1.500
35	INSTITUTIONAL	0.868	0.500	1.500
36	SERVICES	0.792	0.500	1.500
37	INDUST/PROCESSING	1.185	0.500	1.500
38	CONTRACTORS	0.901	0.500	1.500

MICHIGAN  
 TABLE 19  
 BASIC GROUP II IMPLICIT PACKAGE  
 MODIFICATION FACTORS (IPMFS) AND IPMF CAPS

CPP IMPLICIT PACKAGE MODIFICATION FACTORS (IPMFS) AND IPMF CAPS

TOP	DESCRIPTION	IPMF	LOW CAP	HIGH CAP
31	MOTEL/HOTEL	0.932	0.500	1.500
32	APARTMENT	0.666	0.500	1.500
33	OFFICE	0.573	0.500	1.500
34	MERCANTILE	0.899	0.500	1.500
35	INSTITUTIONAL	0.734	0.500	1.500
36	SERVICES	1.217	0.500	1.500
37	INDUST/PROCESSING	0.608	0.500	1.500
38	CONTRACTORS	0.821	0.500	1.500

MICHIGAN  
 TABLE 20  
 SPECIAL CAUSES OF LOSS IMPLICIT PACKAGE  
 MODIFICATION FACTORS (IPMFS) AND IPMF CAPS

CPP IMPLICIT PACKAGE MODIFICATION FACTORS (IPMFS) AND IPMF CAPS

TOP	DESCRIPTION	IPMF	LOW CAP	HIGH CAP
-----				
31	MOTEL/HOTEL	1.404	0.500	1.500
32	APARTMENT	1.153	0.500	1.500
33	OFFICE	1.171	0.500	1.500
34	MERCANTILE	0.913	0.500	1.500
35	INSTITUTIONAL	1.320	0.500	1.500
36	SERVICES	1.187	0.500	1.500
37	INDUST/PROCESSING	0.784	0.500	1.500
38	CONTRACTORS	1.115	0.500	1.500

EXPLANATORY NOTES TO TABLES 18, 19, AND 20

IMPLICIT PACKAGE MODIFICATION  
FACTORS (IPMF's) AND IPMF CAPS

TABLES 18, 19,  
AND 20

These tables provide the current IPMF's and IPMF caps for Basic Group I, Basic Group II, and Special Causes of Loss. The IPMF's shown here are those which resulted from the most recent CPP revision. The IPMF lower caps are set at .50 and the upper caps are set at 1.50 for all TOP's.

## TREND PROCEDURE

### INTRODUCTION

The prospective loss cost levels established in this document reflect the anticipated claim cost and claim frequency levels and changes in revenue due to increased amounts of insurance purchased for the period when the new loss costs are assumed to be in effect.

### LOSS TREND

#### EXTERNAL LOSS DATA

For Commercial Property, the loss trend factors are referred to as current cost factors (CCF's) and loss projection factors (LPF's). These CCF's and LPF's are based on the following accepted economic indices:

1. Xactware Commercial Index (XCI) for buildings loss projection factors and current cost factors
2. Producer Price Index (PPI) published by the US Department of Labor (Finished Goods Less Energy, Not Seasonally Adjusted) for contents factors
3. Index for Manufacturers' Sales Exposure (IMSEP) developed by ISO using indices published by the Department of Commerce and Chain-Type Price Index for Retail Sales (RSALES) produced by the Bureau of the Census, Bureau of Economic Analysis for time element factors

The CCF's adjust losses for actual inflationary changes which have taken place between the accident date and the midpoint of the latest period of external trend information, i.e. February 15, 2019 for property damage and time element. The LPF's adjust losses for projected inflationary changes from the midpoint of the latest period of external trend information to the anticipated average date of accident for policies written under the proposed loss costs (assumed to be 12 months after the assumed revision date based on all one-year policies).

The CCF's and LPF's are calculated separately for buildings, contents, and time element coverages. For coverage 3 (buildings and contents on a combined basis), combined trend factors are calculated using the following weights for buildings and contents: 70%/30% for Basic Group I, 75%/25% for Basic Group II, and 50%/50% for Special Causes of Loss. For time element (coverages 4-9) the combined trend factors are calculated using 70%/30% weights for RSALES/IMSEP. The factors are applied by coverage to the losses reported under CSP and CMSP on an individual occurrence basis.

## TREND PROCEDURE (cont'd)

### LOSS TREND (cont'd)

#### LOSS TREND ADJUSTMENT - SEVERITY

An evaluation of the latest Commercial Property insurance data shows that the cost levels inherent in the property damage coverages are increasing at a different rate than those measured by the external indices. Therefore, to insure adequate prospective loss cost levels during the period for which loss costs are to be determined, loss trend adjustments (LTA's) have been applied. These factors were developed by comparing the annual rate of change in average claim costs to the annual rate of change in the external indices. (Refer to Table 23 for the calculations.)

#### LOSS TREND ADJUSTMENT - FREQUENCY

In order to reflect total trend more precisely, a frequency component is included in the loss trend adjustment factors (LTA's) separately for buildings and contents for Basic Group I and contents only for Special Causes of Loss. No frequency component is used for Basic Group II and Special Causes of Loss buildings due to the extremely volatile nature of the coverages.

### AMOUNT-OF- INSURANCE TREND

Cost changes over time to both real and personal property result in insureds purchasing increased amounts of insurance. To reflect the impact of this phenomenon, amount of insurance trend factors are applied to collected loss costs to bring them to prospective amount of insurance levels. These factors are developed by measuring amount of insurance trends on a sample of renewal policies.

The application and development of these factors parallels loss trend factors in that separate factors are developed for buildings, contents, and time element, and the adjustment to prospective amount of insurance levels is done in two steps. The current written factors adjust loss costs to the amount of insurance level for the midpoint of the latest period of renewal information, i.e. July 1, 2018. Total amount of insurance trend factors are then calculated by projecting these current factors to the average date of writing (i.e. to the amount of insurance level six months beyond the assumed effective date).

TABLE 21

Development of Current Cost Factors and Loss Projection Factors  
For Commercial Property Building and Contents Experience  
 Period ending March 31, 2019

Part A: Quarterly Indices for Buildings, Contents and Time Element

Building Loss Projection Factors - Xactware Commercial Index (XCI) (Base: 2009 = 100.0)  
 Contents - Producer Price Index (PPI) - U.S. Dept. of Labor (Finished Goods Less Energy) (Base: 2009 = 100.0)  
 Time Element Combined Index - Weighted average of IMSEP and RSALES indices <sup>(a)</sup>

<u>Quarter</u>	<u>XCI</u>	<u>PPI</u>	<u>IMSEP</u>	<u>RSALES</u>	<u>Time Element Combined Index</u>
Q2-2016	110.7	114.3	1.031	0.955	0.978
Q3-2016	111.3	114.3	1.029	0.953	0.976
Q4-2016	111.9	114.6	1.033	0.956	0.979
Q1-2017	112.7	115.5	1.038	0.963	0.986
Q2-2017	114.0	116.5	1.036	0.957	0.981
Q3-2017	115.0	116.3	1.042	0.959	0.984
Q4-2017	115.5	117.1	1.044	0.965	0.989
Q1-2018	116.6	117.6	1.048	0.971	0.994
Q2-2018	117.5	118.1	1.055	0.974	0.998
Q3-2018	118.4	118.3	1.059	0.974	1.000
Q4-2018	118.8	119.6	1.059	0.972	0.998
Q1-2019	119.8	120.4	1.058	0.967	0.994

Part B: Computation of Loss Projection Factor (LPF) for Buildings based on 12 points

$$\text{Annual Rate of Change} = 0.0303 = 3.03\% \quad R^2 = 0.995$$

$$\text{Loss Projection Factor for Buildings} = 1.0303^{22.5/12 (b)} = 1.0576$$

Part C: Computation of Loss Projection Factor (LPF) for Contents based on 12 points

$$\text{Annual Rate of Change} = 0.0190 = 1.9\% \quad R^2 = 0.974$$

$$\text{Loss Projection Factor for Contents} = 1.019^{22.5/12 (b)} = 1.0359$$

Part D: Computation of Loss Projection Factor (LPF) for Time Element Based on 12 points

$$\text{Annual Rate of Change} = 0.0089 = 0.89\% \quad R^2 = 0.843$$

$$\text{Loss Projection Factor for Time Element} = 1.0089^{22.5/12 (b)} = 1.0168$$

- (a) 30% weight for IMSEP and 70% weight for RSALES. IMSEP & RSALES indices were rescaled to a 2012 year base.
- (b) Assuming a rate or loss cost revision date of January 1 2020, and all one year policies, the time interval between the midpoint of the latest period (02/15/2019) and the average date of accident (01/01/2021) would be 22.5 months.

TABLE 21

Development of Current Cost Factors and Loss Projection Factors

Part E: Calculation of Current Cost Factors (CCF)

<u>Year</u>	<u>Calendar Year Averages</u>			<u>Current Cost Factors Based on Average Index Values for Period ending March 31, 2019</u>		
	<u>XCI</u>	<u>PPI</u>	<u>Time Element Index</u>	<u>Buildings</u>	<u>Contents</u>	<u>Time Element</u>
2008	97.0	98.5	0.948	119.8 / 97.0 = 1.236	120.4 / 98.5 = 1.222	0.994 / 0.948 = 1.049
2009	100.0	100.0	0.940	119.8 / 100.0 = 1.198	120.4 / 100.0 = 1.204	0.994 / 0.940 = 1.057
2010	99.3	101.8	0.953	119.8 / 99.3 = 1.207	120.4 / 101.8 = 1.183	0.994 / 0.953 = 1.043
2011	100.0	105.2	0.985	119.8 / 100.0 = 1.198	120.4 / 105.2 = 1.144	0.994 / 0.985 = 1.009
2012	101.0	108.0	1.000	119.8 / 101.0 = 1.186	120.4 / 108.0 = 1.115	0.994 / 1.000 = 0.994
2013	102.7	109.7	1.003	119.8 / 102.7 = 1.167	120.4 / 109.7 = 1.097	0.994 / 1.003 = 0.991
2014	104.7	112.5	1.006	119.8 / 104.7 = 1.144	120.4 / 112.5 = 1.070	0.994 / 1.006 = 0.988
2015	109.1	113.8	0.987	119.8 / 109.1 = 1.098	120.4 / 113.8 = 1.058	0.994 / 0.987 = 1.007
2016	111.1	114.4	0.977	119.8 / 111.1 = 1.078	120.4 / 114.4 = 1.052	0.994 / 0.977 = 1.017
2017	114.3	116.4	0.985	119.8 / 114.3 = 1.048	120.4 / 116.4 = 1.035	0.994 / 0.985 = 1.009
2018	117.8	118.4	0.998	119.8 / 117.8 = 1.017	120.4 / 118.4 = 1.017	0.994 / 0.998 = 0.996

EXPLANATORY NOTES TO TABLE 21

PART A: XACTWARE, PRODUCER PRICE, IMSEP, RSALES INDICES AND COMBINED TIME ELEMENT

QUARTER	The quarter for which the indices shown apply.
XACTWARE COMMERCIAL INDEX (XCI)	The Xactware Commercial Index measures the costs of building material and repairs for commercial properties. The index, which is available since 1st Quarter 2005, is based on regular surveys of over 42,000 material and equipment suppliers and over 9,500 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 1/1/05 to the midpoint of the latest index point and for determining the loss projection factor.
PRODUCER PRICE INDEX (PPI)	The Producer Price Index is a time series which measures the price level for a predetermined group of goods produced relative to the price level for an earlier point in time (2009). The PPI Finished Goods Less Energy is published by the U.S. Department of Labor.
PRICE DEFLATOR INDEX FOR MANUFACTURERS' SALES EXPOSURE (IMSEP)	<p>The price deflator index for manufacturers' sales exposure is a quarter's model of Manufacturers' Sales Exposure Proxy (MSEP) for the period in question relative to MSEP measured in chained 2012 dollars. The price deflator is defined as the GNP (Gross National Product) price deflator with government expenditures, investment in intellectual property products, inventory changes, and all services except food services removed.</p> $\text{MSEP} = (\text{CD} + \text{CN} + \text{FS}) + (\text{EXD\&N} - \text{IMD\&N}) + (\text{IFIX} - \text{IPP}), \text{ where}$ <p>CD and CN represent consumption of durables and nondurables, respectively; EXD&amp;N and IMD&amp;N represent exports and imports of merchandise, respectively; FS represents food services and IFIX represents gross private domestic fixed investment (including residential fixed investment as well as nonresidential fixed investment in structures, equipment, and intellectual property products); and IPP represents nonresidential fixed investment in intellectual property products.</p>
CHAIN-TYPE PRICE INDEX FOR RETAIL SALES (RSALES)	The Chain-Type Price Index for Retail Sales measures changes in losses due solely to inflation.

EXPLANATORY NOTES TO TABLE 21 (cont'd)

PARTS B, C and D: COMPUTATION OF THE LOSS PROJECTION FACTOR

LOSS PROJECTION  
FACTOR

The loss projection factor is calculated by fitting a least squares exponential curve to the appropriate number of points (where the appropriate number of points is determined based on judgment and an examination of the goodness of fit as determined by the R-squared values subject to a maximum of 12 quarterly points for property damage and time element).

The table displays the indices for those points used in fitting the curve. The relevant equations are shown and the annual rate of change in the indices based on the exponential fit is developed. This annual rate of change is projected over the period which extends from the latest period of cost information to the average accident date of the projection period.

PART E: CALCULATION OF CURRENT COST FACTORS (CCF'S)

CALENDAR YEAR  
AVERAGES

The calendar year averages are the averages of the Xactware, PPI and Time Element indices for the given year. These average indices measure the average cost level of each year relative to the base.

CURRENT COST  
FACTORS

The current cost factors are the ratios of the indices for the latest period of cost information divided by the average indices for each calendar 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.

For buildings, the index for the latest point is based on the latest available Xactware point.

Since losses are trended on a record by record basis, these calendar year factors are not actually used in ISO's trend calculations. Instead, factors are calculated from the bi-monthly or quarterly indices and applied to the unit losses based on the date of occurrence.

TABLE 22

SUMMARY OF LOSS TREND ADJUSTMENTS (LTA'S)

<u>BUILDINGS</u>	<u>5 YEAR INCURRED LOSSES</u>	<u>LTA'S*</u>
BASIC GROUP I	3,397,603,765	-0.3
BASIC GROUP II	3,091,434,408	0.2
SPECIAL CAUSES OF LOSS	1,852,163,757	0.2
TOTAL	8,341,201,930	0.0
 <u>CONTENTS</u>		
	964,588,247	0.7
BASIC GROUP I		
BASIC GROUP II	283,850,498	0.6
SPECIAL CAUSES OF LOSS	724,827,074	0.0
TOTAL	1,973,265,819	0.4
 <u>TIME ELEMENT</u>		
BASIC GROUP I	397,520,411	2.8
BASIC GROUP II	75,461,620	2.6
SPECIAL CAUSES OF LOSS	138,773,134	2.8
TOTAL	611,755,165	2.8
GRAND TOTAL	10,926,222,913	0.2

\* The LTA's are based on internal severity and frequency data. They apply to both the historical period and projection period.

EXPLANATORY NOTES TO TABLE 22

SUMMARY OF LOSS TREND ADJUSTMENTS (LTA'S)

COLUMN (1)

COVERAGE

The LTA's vary by coverage (buildings, contents, and time element) and line of business (BG I, BG II, and SCL).

COLUMN (2)

FIVE-YEAR INCURRED LOSSES

The five-year multistate incurred losses are used as weights to determine the annual LTA for all lines of business and coverages combined.

COLUMN (3)

ANNUAL LTA's

The LTA's are the factors which are applied to losses to supplement the external indices in order to correctly reflect cost level and claim frequency changes. These are shown here as annual factors. However, they are applied over the entire length of the trend period, i.e. from the date of loss occurrence to the anticipated average accident date under the revised loss costs. The severity portion of the LTA is applied on an individual record basis in the same manner as the CCF's and LPF's. The frequency portion of the LTA is applied to the aggregate losses.

## OVERVIEW

### DEVELOPMENT OF LOSS TREND ADJUSTMENTS

#### INTRODUCTION

In order to supplement the external indices reflected in CCF's and LPF's, loss trend adjustments (LTA's) have been developed based on internal loss data. This is necessary because the external indices alone have been insufficient in reflecting cost level and claim frequency changes in Commercial Property Insurance. The following tables show the calculations used to develop these LTA's. Please note the development of the LTA's for the 2019 COMFAL reviews is based on internal commercial property experience through 12/31/2017 and external cost indices through 12/31/2017. Therefore, the CCF's and LPF's shown on Table 23 will not necessarily match those shown on Table 21. ISO has determined that the selected LTAs are appropriate to be used with the latest external indices shown on Table 21.

TABLE 23  
DEVELOPMENT OF LTA'S

I. EXTERNAL RATE OF CHANGE<sup>a</sup>

Calendar Year	(1) Buildings Current Cost Factor	(2) Contents Current Cost Factor	(3) Time Element Cost Factor	(4) Basic Group I (BGI)& Special Causes of Loss (SCL) Weights	(5) Basic Group II (BGII) Weights
2008	1.247	1.240	1.062		0.10
2009	1.191	1.189	1.043		0.10
2010	1.155	1.171	1.052		0.10
2011	1.164	1.150	1.038		0.10
2012	1.155	1.113	1.004		0.10
2013	1.144	1.085	0.989	0.10	0.10
2014	1.125	1.067	0.986	0.15	0.10
2015	1.103	1.041	0.983	0.20	0.10
2016	1.058	1.029	1.002	0.25	0.10
2017	1.040	1.023	1.012	0.30	0.10

(6) AVERAGE CURRENT COST FACTORS

	Buildings	Contents	Time Element
Basic Group I and Special Causes of Loss (Weighted on Column (4))	1.080	1.041	0.998
Basic Group II (Weighted on Column (5))	1.138	1.111	1.017

(7) LOSS PROJECTION FACTORS

	Buildings	Contents	Time Element
Annual Rate of Change	0.024	0.011	-0.001
Loss Projection Factor: <sup>b</sup> $(1.0 + \text{Annual Rate of Change})^{(X/12)}$	1.063	1.029	0.998

(8) TOTAL TREND FACTOR (Average Current Cost Factor  $\times$  Loss Projection Factor)

	Buildings	Contents	Time Element
Basic Group I and Special Causes of Loss	1.148	1.071	0.996
Basic Group II	1.210	1.143	1.015

(9) EXTERNAL ANNUAL RATE OF CHANGE<sup>c</sup>

	Buildings	Contents	Time Element
Basic Group I and Special Causes of Loss: $(\text{Total Trend Factor})^{12/54}$	1.031	1.015	0.999
Basic Group II: $(\text{Total Trend Factor})^{12/90}$	1.026	1.018	1.002

- (a) The Current Cost Factors and Loss Projection Factors on this exhibit are based on external economic indices through December 31, 2017 for Buildings, Contents and Time Element.
- (b) Assuming a loss cost revision date of July 1, 2019, the time interval between the midpoint of the latest period of external trend information (November 15, 2017) and the prospective average date of loss (July 1, 2020) is 31.5 months for Buildings, Contents and Time Element.
- (c) The time interval from the weighted midpoint of the experience period to the prospective average date of loss (July 1, 2020) is 54 months for BG I and SCL, and 90 months for BG II. The weighted midpoint is January 1, 2016 for BG I and SCL, and January 1, 2013 for BG II.

TABLE 23  
DEVELOPMENT OF LTA'S

II. INTERNAL ANNUAL RATES OF CHANGE:

(10) SELECTED COMFAL

	Buildings	Contents	Time Element
Basic Group I (BGI)	1.045	1.050	1.055
Basic Group II (BGII)	1.030	1.030	1.055
Special Causes of Loss	1.035	1.025	1.055

III. LTA CALCULATION:

CALCULATION OF LTAs - BUILDINGS

	(11) External Rate of Change <sup>d</sup>	(12) Internal Rate of Change	(13) Indicated Severity LTA [(12)/(11)-1.0]	(14) Formula Severity LTA <sup>e</sup>	(15) Frequency Effect	(16) Final LTA <sup>f</sup>
Basic Group I (BGI)	1.031	1.045	1.4	0.7	-1.0	-0.3
Basic Group II (BGII)	1.026	1.030	0.4	0.2	0.0	0.2
Special Causes of Loss	1.031	1.035	0.4	0.2	0.0	0.2

CALCULATION OF LTAs - CONTENTS

	(11) External Rate of Change <sup>d</sup>	(12) Internal Rate of Change	(13) Indicated Severity LTA [(12)/(11)-1.0]	(14) Formula Severity LTA <sup>e</sup>	(15) Frequency Effect	(16) Final LTA <sup>f</sup>
Basic Group I (BGI)	1.015	1.050	3.4	1.7	-1.0	0.7
Basic Group II (BGII)	1.018	1.030	1.2	0.6	0.0	0.6
Special Causes of Loss	1.015	1.025	1.0	0.5	-0.5	0.0

CALCULATION OF LTAs - TIME ELEMENT

	(11) External Rate of Change <sup>d</sup>	(12) Internal Rate of Change	(13) Indicated Severity LTA [(12)/(11)-1.0]	(14) Formula Severity LTA <sup>e</sup>	(15) Frequency Effect	(16) Final LTA <sup>f</sup>
Basic Group I (BGI)	0.999	1.055	5.6	2.8	0.0	2.8
Basic Group II (BGII)	1.002	1.055	5.3	2.6	0.0	2.6
Special Causes of Loss	0.999	1.055	5.6	2.8	0.0	2.8

(d) The external rates of change are based on external economic indices through December 31, 2017 for Buildings, Contents and Time Element.

(e) The formula severity LTA for Buildings, Contents and Time Element is calculated as one-half of the indicated severity LTA. This is equivalent to calculating the overall severity trend giving 50% weight to the external trend and 50% weight to the selected internal trend.

(f) The final LTA is calculated as the product (in factor form) of the formula severity LTA and frequency effect.

EXPLANATORY NOTES TO TABLE 23

DEVELOPMENT OF LOSS TREND ADJUSTMENTS (LTA'S)

I. EXTERNAL RATE OF CHANGE

COLUMN (1), (2)  
AND (3)

CURRENT COST FACTORS

The CCF's underlying the LTA analysis are based on external cost indices through 12/31/2017 for buildings, contents and time element.

COLUMNS (4)  
AND (5)

WEIGHTS

The standard review weights are shown for each line of business.

LINES (6)

AVERAGE CURRENT COST FACTORS

The average CCF's for the experience period are calculated based on the weights shown in columns (4) and (5).

LINE (7)

LOSS PROJECTION FACTORS

The LPF's underlying the LTA analysis are shown here.

LINE (8)

TOTAL TREND

The total trend is the product of the average CCF and the LPF.

LINE (9)

EXTERNAL ANNUAL RATE OF CHANGE

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 anticipated average accident date. For BG I and SCL the weighted midpoint of the experience period is 1/1/2016, for BG II it is 1/1/2013. Accordingly, there are 54 and 90 months, respectively, to the anticipated average accident date of 7/1/2020.

II. INTERNAL ANNUAL RATES OF CHANGES

LINE (10)

SELECTED COMFAL

The displayed annual rates of change in the average claim costs for BG I, BG II, and SCL were selected based on several least squares exponential fits of the annual claim costs for each subline. This was done to the most recent ten years of Commercial Property data using all companies in the ratemaking data base.

EXPLANATORY NOTES TO TABLE 23 (cont'd)

III. LTA CALCULATION

COLUMN (11)

ANNUAL EXTERNAL

The annual external rates of change from column (9) are shown here.

COLUMN (12)

ANNUAL INTERNAL

The adjusted annual internal rates of change in average loss from line (10) are shown here.

COLUMN (13)

INDICATED SEVERITY LTA

The indicated severity LTA's are calculated by dividing the annual internal rates of change by the annual external rates of change.

COLUMN (14)

FORMULA SEVERITY LTA

The severity LTA's in column (13) are then 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 (15)

FREQUENCY EFFECT

The displayed annual rates of change in claim frequency for BG I and SCL were selected based on several least squares exponential fits of the claim frequency by subline. No frequency trend was selected for BG II and SCL buildings due to the extremely volatile nature of the coverage.

COLUMN (16)

FINAL LTA

The final LTA is the combination of the severity and frequency trend adjustments, calculated as column (14) times column (15), in factor form.

TABLE 24A

EXPOSURE TREND  
DEVELOPMENT OF CURRENT AND PROJECTED EARNED EXPOSURE FACTORS

Year	Buildings				Contents			
	(1) <sup>a</sup> Annual Written Increase	(2) <sup>a</sup> 07-01-2018 Written Factors	(3) <sup>b</sup> 07-01-2020 Projected Factors	(4) <sup>c</sup> 07-01-2020 Earned Factors	(5) <sup>a</sup> Annual Written Increase	(6) <sup>a</sup> 07-01-2018 Written Factors	(7) <sup>b</sup> 07-01-2020 Projected Factors	(8) <sup>c</sup> 07-01-2020 Earned Factors
2006	3.8%	1.380	1.453	1.507	2.1%	1.268	1.317	1.345
2007	3.9%	1.328	1.398	1.453	2.4%	1.238	1.285	1.317
2008	3.5%	1.283	1.351	1.399	2.4%	1.209	1.255	1.285
2009	3.3%	1.242	1.307	1.351	2.2%	1.183	1.228	1.255
2010	2.5%	1.212	1.276	1.309	1.7%	1.163	1.208	1.229
2011	2.5%	1.182	1.244	1.276	1.8%	1.142	1.186	1.208
2012	2.7%	1.151	1.212	1.244	1.8%	1.122	1.165	1.186
2013	2.6%	1.122	1.181	1.212	2.1%	1.099	1.141	1.165
2014	2.5%	1.095	1.153	1.181	2.1%	1.076	1.117	1.141
2015	2.3%	1.070	1.126	1.153	1.9%	1.056	1.097	1.118
2016	2.1%	1.048	1.103	1.127	1.8%	1.037	1.077	1.097
2017	2.1%	1.026	1.080	1.103	1.8%	1.019	1.058	1.077
2018	2.6%	1.000	1.053	1.080	1.9%	1.000	1.038	1.058

Notes

a The percentages in columns (1) and (5) represent the change in written exposures from 07/01/n-1 to 07/01/n. Columns (2) and (6) contain the cumulative changes in written exposures for each year relative to the latest year.

b The selected average annual changes in Amount of Insurance for projection purposes are 2.6% and 1.9% for Buildings and Contents, respectively. Consequently, the written factors at 07/01/2018 levels in column (2) and column (6) are brought to the level of the average date of writing in the effective period, 07/01/2020 (i.e., 6 months beyond an assumed revision date of 01/01/2020), by applying a factor of  $(1.026)^{24/12}$  for Buildings and  $(1.019)^{24/12}$  for Contents.

c Written factors are earned into each accident year ending 12/31 using the following factors which assume all one year policies:

Year	Earning Factors
	All Years
n-2	1/8
n-1	3/4
n	1/8

For example, the factors used to adjust earned exposures for the period from 01/01/2018 to 12/31/2018 to the projected level are 1.080 for Buildings and 1.058 for Contents.

TABLE 24A (cont'd)

EXPOSURE TREND  
DEVELOPMENT OF CURRENT AND PROJECTED EARNED EXPOSURE FACTORS

	Time Element			
	(1) <sup>a</sup> Annual Written <u>Year</u> <u>Increase</u>	(2) <sup>a</sup> 07-01-2018 Written <u>Factors</u>	(3) <sup>b</sup> 07-01-2020 Projected <u>Factors</u>	(4) <sup>c</sup> 07-01-2020 Earned <u>Factors</u>
2006	1.4%	1.118	1.131	1.148
2007	1.3%	1.104	1.117	1.131
2008	1.3%	1.090	1.103	1.117
2009	0.8%	1.081	1.094	1.104
2010	0.7%	1.073	1.086	1.094
2011	0.8%	1.064	1.077	1.086
2012	0.8%	1.056	1.069	1.077
2013	0.9%	1.047	1.060	1.069
2014	1.0%	1.037	1.049	1.060
2015	1.1%	1.026	1.038	1.049
2016	1.1%	1.015	1.027	1.038
2017	0.9%	1.006	1.018	1.027
2018	0.6%	1.000	1.012	1.018

Notes

a The percentage in column (1) represents the change in written exposures from 07/01/n-1 to 07/01/n. Column (2) is the cumulative change in written exposures for each year relative to the latest year.

b The selected average annual change in Net Income (Time Element exposure) for projection purposes is 0.6%. Consequently, the written factors at 07/01/2018 levels in column (2) are brought to the level of the average date of writing in the effective period, 07/01/2020 (i.e., 6 months beyond an assumed revision date of 01/01/2020), by applying a factor of  $(1.006)^{24/12}$  for Time Element.

c Written factors are earned into each accident year ending 12/31 using the following factors which assume all one year policies:

<u>Year</u>	<u>Earning Factors</u>
	<u>All Years</u>
n-2	1/8
n-1	3/4
n	1/8

For example, the factor used to adjust earned exposures for the period from 01/01/2018 to 12/31/2018 to the projected level is 1.018.

TABLE 24B

PREMIUM TREND - BASIC GROUP I  
DEVELOPMENT OF CURRENT AND PROJECTED EARNED PREMIUM FACTORS

Year	Buildings				Contents			
	(1) <sup>a</sup> Annual Written Increase	(2) <sup>a</sup> 07-01-2018 Written Factors	(3) <sup>b</sup> 07-01-2020 Projected Factors	(4) <sup>c</sup> 07-01-2020 Earned Factors	(5) <sup>a</sup> Annual Written Increase	(6) <sup>a</sup> 07-01-2018 Written Factors	(7) <sup>b</sup> 07-01-2020 Projected Factors	(8) <sup>c</sup> 07-01-2020 Earned Factors
2006	3.1%	1.297	1.352	1.393	1.8%	1.219	1.258	1.281
2007	3.1%	1.258	1.311	1.352	2.0%	1.195	1.234	1.258
2008	2.8%	1.224	1.276	1.312	2.0%	1.172	1.210	1.234
2009	2.7%	1.192	1.243	1.276	1.8%	1.151	1.188	1.210
2010	2.0%	1.169	1.219	1.244	1.4%	1.135	1.172	1.189
2011	2.0%	1.146	1.195	1.219	1.5%	1.118	1.154	1.172
2012	2.2%	1.121	1.169	1.195	1.5%	1.101	1.137	1.154
2013	2.1%	1.098	1.145	1.169	1.8%	1.082	1.117	1.137
2014	2.0%	1.076	1.122	1.145	1.8%	1.063	1.097	1.117
2015	1.9%	1.056	1.101	1.122	1.6%	1.046	1.080	1.097
2016	1.7%	1.038	1.082	1.101	1.5%	1.031	1.064	1.080
2017	1.7%	1.021	1.064	1.082	1.5%	1.016	1.049	1.064
2018	2.1%	1.000	1.042	1.064	1.6%	1.000	1.032	1.049

Notes

a The percentages in columns (1) and (5) represent the change in written premium (reflecting the combined effect of change in exposures and limit of insurance factors) from 07/01/n-1 to 07/01/n. Columns (2) and (6) contain the cumulative changes in written premiums for each year relative to the latest year.

b The average annual changes in Premium for projection purposes are 2.1% and 1.6% for Buildings and Contents, respectively. Consequently, the written factors at 07/01/2018 levels in column (2) and column (6) are brought to the level of the average date of writing in the effective period, 07/01/2020 (i.e., 6 months beyond an assumed revision date of 01/01/2020), by applying a factor of  $(1.021)^{24/12}$  for Buildings and  $(1.016)^{24/12}$  for Contents.

c Written factors are earned into each accident year ending 12/31 using the following factors which assume all one year policies:

Year	Earning Factors
	All Years
n-2	1/8
n-1	3/4
n	1/8

For example, the factors used to adjust earned exposures for the period from 01/01/2018 to 12/31/2018 to the projected level are 1.064 for Buildings and 1.049 for Contents.

TABLE 24C

PREMIUM TREND - BASIC GROUP II - OTHER THAN SOUTHEAST  
DEVELOPMENT OF CURRENT AND PROJECTED EARNED PREMIUM FACTORS

<u>Year</u>	<u>Buildings</u>				<u>Contents</u>			
	<u>(1)<sup>a</sup></u> <u>Annual</u> <u>Written</u> <u>Increase</u>	<u>(2)<sup>a</sup></u> <u>07-01-2018</u> <u>Written</u> <u>Factors</u>	<u>(3)<sup>b</sup></u> <u>07-01-2020</u> <u>Projected</u> <u>Factors</u>	<u>(4)<sup>c</sup></u> <u>07-01-2020</u> <u>Earned</u> <u>Factors</u>	<u>(5)<sup>a</sup></u> <u>Annual</u> <u>Written</u> <u>Increase</u>	<u>(6)<sup>a</sup></u> <u>07-01-2018</u> <u>Written</u> <u>Factors</u>	<u>(7)<sup>b</sup></u> <u>07-01-2020</u> <u>Projected</u> <u>Factors</u>	<u>(8)<sup>c</sup></u> <u>07-01-2020</u> <u>Earned</u> <u>Factors</u>
2006	2.8%	1.272	1.321	1.358	1.6%	1.197	1.231	1.250
2007	2.9%	1.236	1.283	1.321	1.8%	1.176	1.209	1.231
2008	2.6%	1.205	1.251	1.284	1.8%	1.155	1.188	1.209
2009	2.4%	1.177	1.222	1.251	1.7%	1.136	1.168	1.188
2010	1.9%	1.155	1.199	1.223	1.3%	1.121	1.153	1.169
2011	1.9%	1.133	1.176	1.199	1.4%	1.106	1.137	1.153
2012	2.0%	1.111	1.154	1.176	1.4%	1.091	1.122	1.137
2013	1.9%	1.090	1.132	1.154	1.6%	1.074	1.104	1.122
2014	1.9%	1.070	1.111	1.132	1.6%	1.057	1.087	1.104
2015	1.7%	1.052	1.092	1.111	1.4%	1.042	1.071	1.087
2016	1.6%	1.035	1.075	1.092	1.4%	1.028	1.057	1.071
2017	1.6%	1.019	1.058	1.075	1.4%	1.014	1.043	1.057
2018	1.9%	1.000	1.038	1.058	1.4%	1.000	1.028	1.043

Notes

a The percentages in columns (1) and (5) represent the change in written premium (reflecting the combined effect of change in exposures and limit of insurance factors) from 07/01/n-1 to 07/01/n. Columns (2) and (6) contain the cumulative changes in written premiums for each year relative to the latest year.

b The average annual changes in Premium for projection purposes are 1.9% and 1.4% for Buildings and Contents, respectively. Consequently, the written factors at 07/01/2018 levels in column (2) and column (6) are brought to the level of the average date of writing in the effective period, 07/01/2020 (i.e., 6 months beyond an assumed revision date of 01/01/2020), by applying a factor of  $(1.019)^{24/12}$  for Buildings and  $(1.014)^{24/12}$  for Contents.

c Written factors are earned into each accident year ending 12/31 using the following factors which assume all one year policies:

<u>Earning Factors</u>	
<u>Year</u>	<u>All Years</u>
n-2	1/8
n-1	3/4
n	1/8

For example, the factors used to adjust earned premium for the period from 01/01/2018 to 12/31/2018 to the projected level are 1.058 for Buildings and 1.043 for Contents.

TABLE 24D

PREMIUM TREND - SPECIAL CAUSES OF LOSS  
DEVELOPMENT OF CURRENT AND PROJECTED EARNED PREMIUM FACTORS

<u>Year</u>	<u>Buildings</u>				<u>Contents</u>			
	<u>(1)<sup>a</sup></u> <u>Annual</u> <u>Written</u> <u>Increase</u>	<u>(2)<sup>a</sup></u> <u>07-01-2018</u> <u>Written</u> <u>Factors</u>	<u>(3)<sup>b</sup></u> <u>07-01-2020</u> <u>Projected</u> <u>Factors</u>	<u>(4)<sup>c</sup></u> <u>07-01-2020</u> <u>Earned</u> <u>Factors</u>	<u>(5)<sup>a</sup></u> <u>Annual</u> <u>Written</u> <u>Increase</u>	<u>(6)<sup>a</sup></u> <u>07-01-2018</u> <u>Written</u> <u>Factors</u>	<u>(7)<sup>b</sup></u> <u>07-01-2020</u> <u>Projected</u> <u>Factors</u>	<u>(8)<sup>c</sup></u> <u>07-01-2020</u> <u>Earned</u> <u>Factors</u>
2006	2.9%	1.281	1.333	1.371	1.4%	1.168	1.196	1.213
2007	3.0%	1.244	1.294	1.333	1.6%	1.150	1.178	1.196
2008	2.7%	1.211	1.260	1.295	1.6%	1.132	1.159	1.178
2009	2.5%	1.181	1.229	1.260	1.4%	1.116	1.143	1.159
2010	1.9%	1.159	1.206	1.230	1.1%	1.104	1.131	1.144
2011	1.9%	1.137	1.183	1.206	1.2%	1.091	1.117	1.131
2012	2.1%	1.114	1.159	1.183	1.2%	1.078	1.104	1.117
2013	2.0%	1.092	1.136	1.159	1.4%	1.063	1.089	1.104
2014	1.9%	1.072	1.115	1.136	1.4%	1.048	1.073	1.089
2015	1.8%	1.053	1.096	1.115	1.2%	1.036	1.061	1.074
2016	1.6%	1.036	1.078	1.096	1.2%	1.024	1.049	1.061
2017	1.6%	1.020	1.061	1.078	1.2%	1.012	1.036	1.049
2018	2.0%	1.000	1.040	1.061	1.2%	1.000	1.024	1.036

Notes

a The percentages in columns (1) and (5) represent the change in written premium (reflecting the combined effect of change in exposures and limit of insurance factors) from 07/01/n-1 to 07/01/n. Columns (2) and (6) contain the cumulative changes in written premiums for each year relative to the latest year.

b The average annual changes in Premium for projection purposes are 2.0% and 1.2% for Buildings and Contents, respectively. Consequently, the written factors at 07/01/2018 levels in column (2) and column (6) are brought to the level of the average date of writing in the effective period, 07/01/2020 (i.e., 6 months beyond an assumed revision date of 01/01/2020), by applying a factor of  $(1.020)^{24/12}$  for Buildings and  $(1.012)^{24/12}$  for Contents.

c Written factors are earned into each accident year ending 12/31 using the following factors which assume all one year policies:

<u>Year</u>	<u>Earning Factors</u>
	<u>All Years</u>
n-2	1/8
n-1	3/4
n	1/8

For example, the factors used to adjust earned premium for the period from 01/01/2018 to 12/31/2018 to the projected level are 1.061 for Buildings and 1.036 for Contents.

EXPLANATORY NOTES TO TABLES 24A - 24D  
EXPOSURE AND PREMIUM TREND FACTORS

Table 24A contains Exposure trend factors.

Tables 24B, 24C and 24D contain Premium trend factors for Basic Group I, Basic Group II and Special Causes of Loss respectively, building and contents. As annual written exposures increase (decrease), the resulting limit of insurance factors used for rating decrease (increase) and the combined effect should be reflected when trending premiums to future level. There are separate premium trend factor tables for Basic Group I, Basic Group II and Special Causes of Loss since there are separate limit of insurance curves for BG I, BG II and SCL.

For Time Element, exposure trend factors are also used to trend premiums, i.e., there are not separate Time Element premium trend factors because Time Element does not use limit of insurance factors for rating.

COLUMNS (1)  
AND (5)

ANNUAL WRITTEN INCREASE

The annual written increases for buildings, contents, and time element are calculated from the actual changes in amount of insurance from one year to the next for a sample of renewal policies (based on BG I experience). The change in amount of insurance for each policy in the sample was weighted with its prior year's premiums to obtain a weighted average change for each year. The Annual Written Increase in Premiums (Tables 24B, 24C and 24D) are calculated as the Annual Written Increase in Exposure tempered by the change in Limit of Insurance factor.

COLUMNS (2)  
AND (6)

07-01-2018 WRITTEN FACTORS

The written factors for a given year are the product of the written annual changes for all years subsequent to that year. Although the 2018 written changes are based on two quarters of data, the consistency of this experience allows for the assumption that written changes for the first half of 2018 are applicable for the entire year.

COLUMNS (3)  
AND (7)

07-01-2020 PROJECTED FACTORS

The 07-01-2020 factors are calculated by applying a factor to adjust the 07-01-2018 written factors to the amount of insurance level at the average date of writing, 07-01-2020. This is done using the selected annual changes in exposure or premium.

COLUMNS (4)  
AND (8)

07-01-2020 EARNED EXPOSURES/PREMIUM FACTORS

The projected earned factors at the 07-01-2020 level (where 07-01-2020 is the average date of writing in the effective period) are calculated by earning the written factors assuming all one-year policies. The earning factors are shown in footnote (c).

MICHIGAN  
TABLE 25

BASIC GROUP I

ADDITIONAL INFORMATION ON TREND ADJUSTMENTS

YEAR	(1)	(2)	(3)	(4)		TIME ELEMENT
	UNADJUSTED INCURRED LOSSES	TRENDED INCURRED LOSSES	AVERAGE TOTAL LOSS TREND FACTOR (2) / (1)	SPLIT %		
				BUILDINGS	CONTENTS	
2014	75,965,239	96,689,813	1.273	65.2%	30.0%	4.8%
2015	41,854,739	51,003,715	1.219	64.8%	27.3%	7.9%
2016	32,365,076	38,568,370	1.192	78.1%	18.4%	3.5%
2017	48,798,446	56,522,040	1.158	74.9%	20.3%	4.8%
2018	66,400,515	73,974,822	1.114	67.3%	14.9%	17.8%

MICHIGAN  
TABLE 26

BASIC GROUP II

ADDITIONAL INFORMATION ON TREND ADJUSTMENTS

YEAR	(1)	(2)	(3)	(4)		TIME ELEMENT
	UNADJUSTED INCURRED LOSSES	TRENDED INCURRED LOSSES	AVERAGE TOTAL LOSS TREND FACTOR (2) / (1)	SPLIT %		
				BUILDINGS	CONTENTS	
2009	10,051,697	13,459,288	1.339	80.7%	17.5%	1.8%
2010	7,814,128	10,240,943	1.311	72.1%	19.7%	8.2%
2011	12,363,271	16,167,661	1.308	83.7%	13.4%	2.9%
2012	8,931,808	11,331,466	1.269	84.5%	14.0%	1.5%
2013	9,273,644	11,711,049	1.263	88.6%	10.0%	1.4%
2014	11,410,292	14,082,516	1.234	83.7%	13.4%	2.9%
2015	11,887,289	14,318,881	1.205	86.5%	10.4%	3.1%
2016	10,019,061	11,714,191	1.169	91.9%	6.5%	1.6%
2017	30,056,275	34,062,836	1.133	78.9%	11.5%	9.6%
2018	8,558,840	9,414,156	1.100	87.2%	9.8%	3.0%

MICHIGAN  
TABLE 27

SPECIAL CAUSES OF LOSS

ADDITIONAL INFORMATION ON TREND ADJUSTMENTS

YEAR	(1)	(2)	(3)	(4)		TIME ELEMENT
	UNADJUSTED INCURRED LOSSES	TRENDED INCURRED LOSSES	AVERAGE TOTAL LOSS TREND FACTOR (2) / (1)	SPLIT %		
				BUILDINGS	CONTENTS	
2014	49,490,098	60,487,640	1.222	71.3%	13.5%	15.2%
2015	20,666,224	24,392,272	1.180	65.6%	30.5%	3.9%
2016	12,186,917	14,051,884	1.153	61.7%	36.8%	1.5%
2017	14,740,576	16,675,709	1.131	54.9%	37.8%	7.3%
2018	17,927,422	19,679,403	1.098	60.4%	28.1%	11.5%

EXPLANATORY NOTES TO TABLES 25, 26 AND 27

BG I, BG II, AND SCL ADDITIONAL INFORMATION ON TREND ADJUSTMENTS

COLUMN (1) UNADJUSTED INCURRED LOSSES

The unadjusted incurred losses are the reported losses prior to any adjustment.

COLUMN (2) TRENDED INCURRED LOSSES

The trended incurred losses are the aggregate of the individual losses trended on a unit record basis.

COLUMN (3) AVERAGE TREND FACTOR

The average trend factors are the trended incurred losses in column (2) divided by the unadjusted incurred losses in column (1). Although average factors could be calculated from the information contained in Tables 21 through 23, they would differ from the factors shown in this table for the following reasons:

- (1) In calculating such averages, the usual assumption is that the losses are spread evenly throughout the year, yielding the midpoint of each year as the average date of loss. A predominance of losses at a certain time of the year could shift the average accident date away from the midpoint.
- (2) The average trend factors will be slightly higher due to the impact of trend on the deductible.

COLUMN (4) PERCENTAGE SPLIT BETWEEN BUILDINGS, CONTENTS, AND TIME ELEMENT

The current cost factors and loss projection factors are different for buildings, contents, and time element. Therefore, in addition to the reasons cited above, the average trend factors will differ from state to state depending on the buildings/contents/time element split. Companies with splits substantially different from the industrywide averages shown here may find it appropriate to develop trend factors which reflect their own coverage mix.

## LOSS DEVELOPMENT

### INTRODUCTION

For Commercial Property, losses are evaluated as of September 30, 2018, three months after the end of the latest experience year used in the review. In order to account for development of losses beyond fifteen months and to reflect overall loss development patterns, loss development was incorporated into the adjustment process of incurred losses to their ultimate settlement value.

### LOSS DEVELOPMENT PROCEDURES

The application of loss development factors recognizes the fact that not all of the Commercial Property losses for a particular accident year have been finally determined at the time the experience is compiled.

The incurred losses underlying the statewide loss cost level indications were evaluated as of September 30, 2018.

Accident year ended June 30, 2018 includes all losses paid on accidents from July 1, 2017 to June 30, 2018 and all losses outstanding on those accidents as of September 30, 2018, fifteen months after the inception of the accident year. Similarly, accident years ended June 30, 2017, 2016, 2015 and 2014 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 or 51 months must be adjusted to an ultimate settlement basis. This adjustment is accomplished through the use of loss development factors based on the historic multistate Basic Group I, Basic Group II, and Special Causes of Loss incurred losses as shown in Table 28.

TABLE 28  
 BASIC GROUP I  
 INCURRED LOSSES  
 LOSS YEARS 2009-2018  
 EVALUATED AS OF 9/2018

LOSSES AS OF					
YEAR ENDING	15 MONTHS	27 MONTHS	39 MONTHS	51 MONTHS	63 MONTHS
6/30/2009	1,050,426,515	1,029,260,907	1,023,569,754	1,032,254,019	1,028,148,127
6/30/2010	957,072,639	952,264,273	938,683,274	930,751,058	926,094,798
6/30/2011	989,660,178	975,973,425	960,866,659	947,897,904	947,075,793
6/30/2012	908,659,121	883,403,689	864,089,877	861,024,004	855,343,194
6/30/2013	936,101,117	901,278,654	887,829,991	876,766,139	862,345,384
6/30/2014	945,799,039	945,335,699	933,368,118	921,144,552	916,203,205
6/30/2015	849,619,662	837,702,539	818,591,368	815,735,642	
6/30/2016	848,223,504	835,485,521	824,397,387		
6/30/2017	893,872,673	861,483,439			
6/30/2018	1,142,176,213				

RATIOS				
YEAR ENDING	27:15 MONTHS	39:27 MONTHS	51:39 MONTHS	63:51 MONTHS
6/30/2009	0.980	0.994	1.008	0.996
6/30/2010	0.995	0.986	0.992	0.995
6/30/2011	0.986	0.985	0.987	0.999
6/30/2012	0.972	0.978	0.996	0.993
6/30/2013	0.963	0.985	0.988	0.984
6/30/2014	1.000	0.987	0.987	0.995
6/30/2015	0.986	0.977	0.997	
6/30/2016	0.985	0.987		
6/30/2017	0.964			
5 POINT AVERAGE	0.980	0.983	0.991	0.993

DEVELOPMENT FACTORS TO ULTIMATE

15 MONTHS TO ULTIMATE = 0.980 X 0.983 X 0.991 X 0.993 = 0.948

27 MONTHS TO ULTIMATE = 0.983 X 0.991 X 0.993 = 0.967

39 MONTHS TO ULTIMATE = 0.991 X 0.993 = 0.984

51 MONTHS TO ULTIMATE = 0.993 = 0.993

TABLE 28  
 BASIC GROUP II  
 INCURRED LOSSES  
 LOSS YEARS 2009-2018  
 EVALUATED AS OF 9/2018

LOSSES AS OF					
YEAR ENDING	15 MONTHS	27 MONTHS	39 MONTHS	51 MONTHS	63 MONTHS
6/30/2009	579,314,989	627,438,229	632,493,486	633,319,508	635,016,618
6/30/2010	593,473,536	613,709,201	616,811,155	618,534,968	620,010,002
6/30/2011	1,194,512,759	1,300,964,928	1,312,448,690	1,322,755,319	1,336,992,084
6/30/2012	870,336,643	924,388,549	936,632,146	949,177,607	952,945,803
6/30/2013	748,910,135	792,509,415	805,350,297	818,039,505	825,996,247
6/30/2014	637,750,446	669,816,137	677,712,346	685,417,259	689,783,316
6/30/2015	435,688,364	467,509,244	474,346,909	480,871,412	
6/30/2016	630,699,956	675,870,627	695,978,304		
6/30/2017	788,050,528	869,693,520			
6/30/2018	539,134,252				

RATIOS				
YEAR ENDING	27:15 MONTHS	39:27 MONTHS	51:39 MONTHS	63:51 MONTHS
6/30/2009	1.083	1.008	1.001	1.003
6/30/2010	1.034	1.005	1.003	1.002
6/30/2011	1.090	1.009	1.008	1.011
6/30/2012	1.062	1.013	1.013	1.004
6/30/2013	1.058	1.016	1.016	1.010
6/30/2014	1.050	1.012	1.011	1.006
6/30/2015	1.073	1.015	1.014	
6/30/2016	1.072	1.030		
6/30/2017	1.104			
5 POINT AVERAGE	1.071	1.017	1.012	1.007

DEVELOPMENT FACTORS TO ULTIMATE

15 MONTHS TO ULTIMATE = 1.071 X 1.017 X 1.012 X 1.007 = 1.110  
 27 MONTHS TO ULTIMATE = 1.017 X 1.012 X 1.007 = 1.036  
 39 MONTHS TO ULTIMATE = 1.012 X 1.007 = 1.019  
 51 MONTHS TO ULTIMATE = 1.007 = 1.007

TABLE 28  
SPECIAL CAUSES OF LOSS  
INCURRED LOSSES  
LOSS YEARS 2009-2018  
EVALUATED AS OF 9/2018

LOSSES AS OF					
YEAR ENDING	15 MONTHS	27 MONTHS	39 MONTHS	51 MONTHS	63 MONTHS
6/30/2009	637,118,000	629,872,649	633,789,200	627,566,991	627,084,722
6/30/2010	691,476,434	678,758,185	676,942,016	674,742,971	674,958,734
6/30/2011	745,957,244	730,915,165	722,472,296	721,768,992	720,008,114
6/30/2012	455,332,279	443,766,392	439,670,150	440,561,037	437,724,920
6/30/2013	428,040,480	430,727,560	421,200,231	423,042,249	424,352,905
6/30/2014	666,406,888	662,491,780	658,064,917	658,931,592	655,772,070
6/30/2015	611,845,522	615,095,309	612,242,351	611,147,871	
6/30/2016	371,521,520	381,417,818	378,954,250		
6/30/2017	417,171,371	430,086,614			
6/30/2018	554,002,545				

RATIOS					
YEAR ENDING	27:15 MONTHS	39:27 MONTHS	51:39 MONTHS	63:51 MONTHS	
6/30/2009	0.989	1.006	0.990	0.999	
6/30/2010	0.982	0.997	0.997	1.000	
6/30/2011	0.980	0.988	0.999	0.998	
6/30/2012	0.975	0.991	1.002	0.994	
6/30/2013	1.006	0.978	1.004	1.003	
6/30/2014	0.994	0.993	1.001	0.995	
6/30/2015	1.005	0.995	0.998		
6/30/2016	1.027	0.994			
6/30/2017	1.031				
5 POINT AVERAGE	1.013	0.990	1.001	0.998	

DEVELOPMENT FACTORS TO ULTIMATE

15 MONTHS TO ULTIMATE = 1.013 X 0.990 X 1.001 X 0.998 = 1.002

27 MONTHS TO ULTIMATE = 0.990 X 1.001 X 0.998 = 0.989

39 MONTHS TO ULTIMATE = 1.001 X 0.998 = 0.999

51 MONTHS TO ULTIMATE = 0.998 = 0.998

## EXPLANATORY NOTES TO TABLE 28

### LOSS DEVELOPMENT

#### INTRODUCTION

Table 28 shows multistate incurred loss development exhibits for Basic Group I, Basic Group II and Special Causes of Loss. The exhibits on Table 28 are arranged identically for each subline and can be summarized as listing the following information: incurred losses by accident year and age, age-to-age factors by accident year, and age-to-ultimate factors.

#### INCURRED LOSSES

The multistate incurred losses are shown by accident year and age at the top of Table 28. The multistate incurred losses are evaluated as of 15, 27, 39, 51 and 63 months. For Basic Group II, losses due to hurricanes reflected in the modeled hurricane loss costs have been removed from the experience for each rating territory and loss month.

#### AGE-TO-AGE DEVELOPMENT FACTORS

Age-to-age development factors or link ratios are calculated for each accident year. These age-to-age factors are calculated by dividing the incurred losses evaluated at each age by the incurred losses evaluated at the immediately preceding age. For example, 27:15 month age-to-age factors are calculated by taking the losses evaluated as of 27 months and dividing them by the losses evaluated as of 15 months, for each accident year. Age-to-age development factors are also calculated for 39:27 months, 51:39 months and 63:51 months. Latest five-year averages are then determined for each age-to-age interval.

#### AGE-TO-ULTIMATE DEVELOPMENT FACTORS

Age-to-ultimate factors are then calculated for the latest four years by multiplying the five-year average age-to-age development factors. These age-to-ultimate factors are then used in the adjustment of incurred losses to develop losses to their ultimate settlement value.

## EXCESS LOSS PROCEDURES

### INTRODUCTION

If not addressed, the presence or absence of large losses during the review period can produce significant fluctuations in loss cost levels. In order to develop a more stable body of experience, large losses have been smoothed. This procedure removes any excess losses from the experience and applies excess loss factors to the resultant state normal losses to generate the adjusted incurred losses. The adjusted losses developed in this manner replace the incurred losses in the loss cost level evaluation.

### BASIC GROUP I

First, the excess portion of each large loss is removed from the trended loss experience.

Individual claim amounts that result from the same occurrence are grouped together, and if the total loss for one occurrence exceeds the normal loss cutoff (at 2005 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 the normal loss cutoff.

The Basic Group I normal loss cutoff begins at \$250,000 and varies with the size of loss up to a maximum normal amount (approached asymptotically) of \$1,250,000. (The formula and a graph are shown on Table 29.) The portion of each large loss exceeding the cutoff is considered excess and the portion of any loss up to the cutoff is considered normal.

As noted above, the excess loss procedure is performed on trended loss experience (i.e. loss experience adjusted to prospective cost levels by the current cost factors, loss projection factors, and loss trend adjustment factors (for claim cost only) shown in Tables 21 through 22). The loss trend adjustment for frequency trend is not reflected at this step in the process. The normal breakpoint of \$250,000 for BGI and the parameters in the normal loss formula are at 2005 cost levels and therefore have been similarly adjusted to prospective cost levels.

Both the normal and total incurred losses are aggregated over all states by construction, protection, and amount of insurance intervals. The most recent ten years of experience are used in this analysis. Excess loss factors by construction, protection and amount of insurance are then calculated as the ratios of the ten year multistate incurred losses to the ten-year multistate normal losses.

These factors are then smoothed by fitting curves (by amount of insurance intervals) to the indicated factors. The resulting factors are then balanced so the original ten-year multistate incurred loss level is maintained.

## EXCESS LOSS PROCEDURES (cont'd)

### BASIC GROUP I (cont'd)

The excess factors are then applied to the state normal losses, which are maintained in the same detail (construction, protection and amount of insurance) as well as by year, territory, rating group and TOP. The state normal losses used in this calculation have also been trended for frequency.

The excess loss factors vary by construction, protection and the amount of insurance because these are the most significant severity-related rating variables.

### BASIC GROUP II

Since catastrophic wind losses affect both the frequency and severity of loss, the Basic Group II excess procedure identifies periods of overall adverse experience, rather than individual large losses. Also, due to the extreme volatility of windstorm losses, a long-term review period (1950 - present) is used to estimate the expected excess losses.

Loss ratio cutoffs are used to determine normal losses, state excess losses, and regional excess losses for each year in the long-term review period. The application of these cutoffs is detailed in the explanatory notes to Table 31A. The state excess losses are used to determine the state excess component of the state excess multiplier, and the regional excess losses are used to determine the regional excess component. (Table 31B is a list of states by region.) The state excess multiplier is derived in such a manner as to provide an estimate of the expected excess loss dollars per normal loss dollar.

The state excess multiplier is applied to each accident year in the ten-year experience period used in the review. In this way, a review database is created reflecting both the current normal loss experience and the average excess loss experience based on the long-term review. This allows a concurrent evaluation of both the normal and the excess components of the BG II loss cost level.

### SPECIAL CAUSES OF LOSS

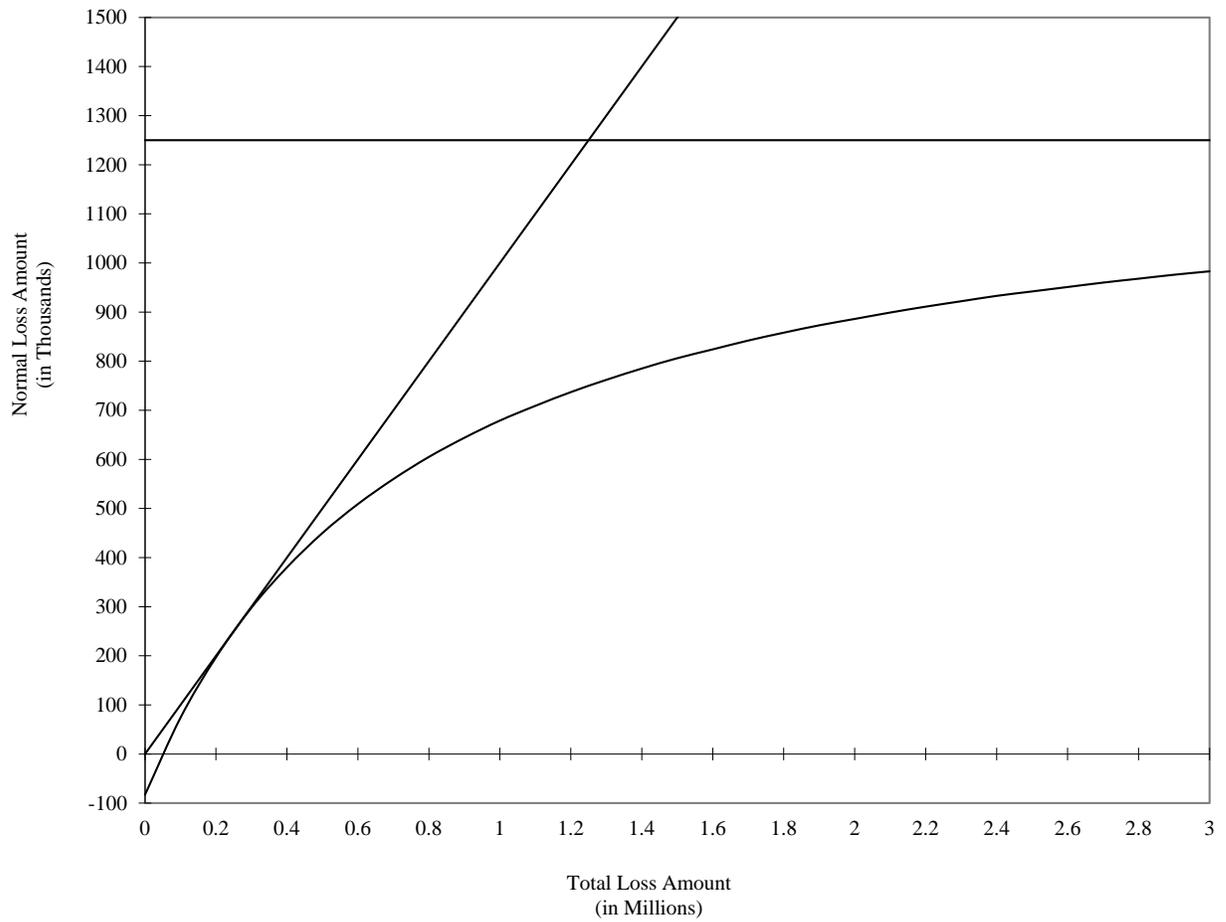
Similar to Basic Group II, the Special Causes of Loss (SCL) smoothing procedure uses a loss ratio approach to reflect both the frequency and severity of unusual loss events which may produce significant fluctuations in loss cost levels. The excess procedure uses longer term statewide SCL experience (1985 - 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 cause of large SCL 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. SCL has a lower loss ratio cutoff than that used in Basic Group II in order to reflect the less catastrophic nature of unusual SCL loss events. The calculations underlying the smoothing procedure are described in the Explanatory Notes to Table 32.



Table 29 (cont'd)

Countrywide Basic Group I  
Normal vs. Total Loss Amount

$$\text{Normal Loss} = \$1,250,000 \times (1 - (\$800,000 \div (\text{Total Loss} + \$750,000)))$$



EXPLANATORY NOTES TO TABLES 29

COUNTRYWIDE BASIC GROUP I EXCESS LOSS FACTORS

EXCESS LOSS  
FACTORS

The multistate excess loss factors are the ratios of the ten-year multistate adjusted incurred losses to the ten-year multistate adjusted normal losses (both adjusted for severity trend). They are determined separately by construction, protection and amount of insurance range. Due to credibility considerations, both constructions and protections have been consolidated as shown. The amount of insurance ranges are also shown.

**MICHIGAN  
TABLE 30**

**BASIC GROUP I  
ADDITIONAL EXCESS LOSS INFORMATION**

<b>YEAR</b>	<b>(1)</b>	<b>(2)</b>	<b>(3)</b>	<b>(4)</b>	<b>(5)</b>	<b>(6)</b>
	<b>TRENDED INCURRED LOSSES</b>	<b>TRENDED NORMAL LOSSES</b>	<b>STATE NORMAL % (2) / (1)</b>	<b>MULTI- STATE NORMAL %</b>	<b>ADJUSTED INCURRED LOSSES</b>	<b>STATE AVERAGE EXCESS FACTOR (5) / (2)</b>
2014	96,689,813	44,045,368	45.6%	72.1%	68,269,438	1.550
2015	51,003,715	33,095,074	64.9%	74.8%	45,461,242	1.374
2016	38,568,370	31,396,282	81.4%	70.4%	45,413,626	1.446
2017	56,522,040	39,910,371	70.6%	73.5%	64,982,308	1.628
2018	73,974,822	38,348,128	51.8%	67.3%	58,890,046	1.536

EXPLANATORY NOTES TO TABLE 30

BASIC GROUP I ADDITIONAL EXCESS LOSS INFORMATION

COLUMN (1)                    TRENDED INCURRED LOSSES

The trended incurred losses are the aggregate of all individually-trended loss records prior to any adjustment for large losses. They are shown here fully trended for severity.

COLUMN (2)                    TRENDED NORMAL LOSSES

The normal losses are the aggregate of the normal portions of each loss occurrence. These are also fully trended.

COLUMN (3)                    STATE NORMAL PERCENTAGE

The state normal percentages are the statewide normal losses divided by the statewide trended incurred losses. These percentages can be used in conjunction with the multistate percentages and actual dollar amounts of normal losses to assess the state loss experience. For example, consistently lower state normal percentages relative to multistate normal percentages could indicate that the state has a greater propensity for large losses.

COLUMN (4)                    MULTISTATE NORMAL PERCENTAGES

The multistate normal percentages are the multistate normal losses divided by the multistate trended incurred losses. As noted above these can be used as a yardstick against which the statewide experience can be measured.

COLUMN (5)                    ADJUSTED INCURRED LOSSES

The adjusted incurred losses are the totals across all constructions, protections and exposures of the fully trended normal losses multiplied by the excess loss factors.

COLUMN (6)                    STATE AVERAGE EXCESS FACTOR

The state average excess factors are the adjusted incurred losses in column (5) divided by the normal losses in column (2). These factors represent the annual averages of the factors calculated separately by construction, protection and amount of insurance. The average excess factor reflects the normal loss mix by construction, protection and exposure. Heavy concentration in those subsets of the data with high excess factors will result in large average factors.

MICHIGAN  
TABLE 31A

DEVELOPMENT OF BASIC GROUP II EXCESS MULTIPLIER

YEAR	(1)	(2)	(3)	(4)	(5)	(6)
	EARNED PREMIUMS	INCURRED LOSSES	NORMAL INCURRED LOSSES	NORMAL LOSS RATIO	STATE EXCESS LOSS RATIO	REGIONAL EXCESS LOSS RATIO
1950	2,682,652	1,416,726	1,416,726	0.528		
1951	3,046,503	869,832	869,832	0.286		
1952	3,496,470	789,411	789,411	0.226		
1953	3,927,437	3,244,988	2,878,811	0.733	0.089	0.004
1954	4,406,758	1,628,270	1,628,270	0.369		
1955	4,707,665	2,500,186	2,500,186	0.531		
1956	5,091,629	5,093,687	3,732,164	0.733	0.238	0.029
1957	5,430,497	2,672,493	2,672,493	0.492		
1958	5,046,485	2,087,120	2,087,120	0.414		
1959	5,314,686	2,631,190	2,631,190	0.495		
1960	5,481,914	2,381,202	2,381,202	0.434		
1961	5,419,881	2,099,160	2,099,160	0.387		
1962	5,375,107	2,204,773	2,204,773	0.410		
1963	4,960,097	2,833,113	2,833,113	0.571		
1964	4,703,611	2,773,668	2,773,668	0.590		
1965	4,446,688	2,767,289	2,767,289	0.622		
1966	4,213,391	1,958,987	1,958,987	0.465		
1967	4,263,513	4,894,116	3,125,155	0.733	0.349	0.066
1968	4,050,129	2,393,702	2,393,702	0.591		
1969	4,012,233	1,664,703	1,664,703	0.415		
1970	5,766,279	2,095,995	2,095,995	0.363		
1971	5,635,956	3,353,331	3,353,331	0.595		
1972	6,734,759	2,924,055	2,924,055	0.434		
1973	6,754,551	2,972,356	2,972,356	0.440		
1974	7,717,955	4,435,141	4,435,141	0.575		
1975	9,567,592	5,756,074	5,756,074	0.602		
1976	11,845,819	4,437,254	4,437,254	0.375		
1977	12,774,110	4,536,495	4,536,495	0.355		
1978	14,554,134	5,474,032	5,474,032	0.376		
1979	16,349,108	8,870,509	8,870,509	0.543		
1980	16,107,256	31,605,530	12,632,755	0.784	0.844	0.334
1981	13,694,268	6,064,199	5,633,957	0.411	0.025	0.007
1982	13,852,116	10,394,092	10,394,092	0.750		
1983	14,508,888	15,094,828	9,148,253	0.631	0.329	0.080
1984	14,981,928	12,107,872	8,838,025	0.590	0.193	0.025
1985	17,754,120	7,582,905	7,582,905	0.427		
1986	26,191,308	4,959,193	4,959,193	0.189		
1987	25,685,844	5,720,657	5,720,657	0.223		
1988	24,073,029	5,312,535	5,312,535	0.221		
1989	19,892,313	5,117,030	5,117,030	0.257		
1990	19,623,084	8,515,055	8,515,055	0.434		
1991	15,024,396	8,616,636	8,311,144	0.553	0.020	0.001

MICHIGAN  
TABLE 31A

DEVELOPMENT OF BASIC GROUP II EXCESS MULTIPLIER

YEAR	(1) EARNED PREMIUMS	(2) INCURRED LOSSES	(3) NORMAL INCURRED LOSSES	(4) NORMAL LOSS RATIO	(5) STATE EXCESS LOSS RATIO	(6) REGIONAL EXCESS LOSS RATIO
1992	14,319,498	2,889,837	2,889,837	0.202		
1993	12,756,624	2,014,733	2,014,733	0.158		
1994	11,652,555	3,459,848	3,459,848	0.297		
1995	10,455,984	3,562,616	3,562,616	0.341		
1996	9,609,051	5,671,510	5,671,510	0.590		
1997	8,852,283	12,154,204	5,721,507	0.646	0.504	0.223
1998	8,313,864	19,861,609	10,882,007	1.309	0.758	0.322
1999	8,752,665	7,134,417	6,831,685	0.781	0.034	
2000	8,715,852	7,648,510	5,891,028	0.676	0.180	0.022
2001	9,311,676	8,083,680	8,083,680	0.868		
2002	10,827,270	4,794,551	4,794,551	0.443		
2003	13,043,766	4,905,273	4,905,273	0.376		
2004	15,666,867	4,600,317	4,600,317	0.294		
2005	16,952,826	3,690,682	3,690,682	0.218		
2006	18,178,311	3,860,496	3,860,496	0.212		
2008	30,718,554	15,854,626	15,854,626	0.516		
2009	21,118,669	10,051,697	10,051,697	0.476		
2010	20,673,794	7,814,128	7,814,128	0.378		
2011	19,547,019	12,363,271	12,363,271	0.632		
2012	19,741,729	8,931,808	8,931,808	0.452		
2013	21,490,981	9,273,644	9,273,644	0.432		
2014	24,523,076	11,410,292	11,410,292	0.465		
2015	26,848,893	11,887,289	11,887,289	0.443		
2016	28,406,835	10,019,061	10,019,061	0.353		
2017	28,843,591	30,056,275	17,180,958	0.596	0.352	0.094
2018	28,770,832	8,558,840	8,558,840	0.297		
<b>TOTALS</b>				<b>32.604</b>	<b>3.915</b>	<b>1.207</b>

(7) STATE EXCESS COMPONENT = (SELR / NLR) = 0.120

(8) REGIONAL EXCESS COMPONENT = 0.080

(9) STATE EXCESS MULTIPLIER = (1 + SEC) \* (1 + REC) = 1.210

NOTE: FOR YEARS PRIOR TO 2007, THE DISPLAYED YEAR INCLUDES DATA FOR ACCIDENT YEAR ENDING 12/31. FOR YEARS 2009 TO 2018, THE DISPLAYED YEAR INCLUDES DATA FOR ACCIDENT YEAR ENDING 06/30. THE DISPLAYED YEAR 2008 INCLUDES DATA FOR FIRST QUARTER 2007 THROUGH SECOND QUARTER 2008.

EXPLANATORY NOTES TO TABLE 31A

COLUMN (1)

EARNED PREMIUMS

The unadjusted earned premiums are shown for each year.

COLUMN (2)

INCURRED LOSSES

The unadjusted incurred losses are shown for each year.

COLUMN (3)

NORMAL INCURRED LOSSES

Normal losses which are shown for each year are defined as follows:

- for losses reported under CSP (for which month of loss detail is available), that portion of each month's losses which does not exceed 2.5 times that month's earned premiums.
- for losses reported under CRSP, SCOH and SMP (for which month of loss detail is not available), that part of each year's losses which does not exceed 0.733 times that year's earned premiums.

COLUMN (4)

NORMAL LOSS RATIO

For each year in the excess review period, the normal loss ratio is calculated as the ratio of the normal losses (for CSP data the sum of each month's normal losses) to the earned premiums for the same year.

COLUMN (5)

STATE EXCESS LOSS RATIO

The state excess loss ratio is the ratio of the state excess losses to the unadjusted earned premium. The state excess losses are determined by the following formulas:

• 
$$EP \times \frac{20(LR-2.5)}{(LR-2.5)+20} \text{ if } LR > 2.5; \text{ otherwise } 0$$

for CSP, where EP = the monthly earned premiums, LR = the monthly loss ratio and the yearly state excess losses are the sum of the monthly state excess losses.

• 
$$EP \times \frac{2.2(LR-.733)}{(LR-.733)+2.2} \text{ if } LR > 0.733; \text{ otherwise } 0$$

for CRSP, SCOH, SMP, where EP = the earned premiums and LR = the yearly loss ratio.

EXPLANATORY NOTES TO TABLE 31A (cont'd)

COLUMN (6)

REGIONAL EXCESS LOSS RATIO

If  $LR > NLR$ , then the regional excess loss ratio is:

regional excess loss ratio =  $LR - SELR - NLR$

where             $SELR$  = the state excess loss ratio,  
                      $NLR$  = the normal loss ratio, and  
                      $LR$  = the loss ratio

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).

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 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. See Table 31B for the appropriate BG II region for the state.

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.

TABLE 31B

BASIC GROUP II REGIONS

NORTHEAST REGION

CONNECTICUT  
DELAWARE  
DIST OF COLUMBIA  
MAINE  
MARYLAND  
MASSACHUSETTS  
NEW HAMPSHIRE  
NEW JERSEY  
NEW YORK  
PENNSYLVANIA  
RHODE ISLAND  
VERMONT  
VIRGINIA

PLAINS REGION

ARKANSAS  
COLORADO  
IOWA  
KANSAS  
MINNESOTA  
MISSOURI  
MONTANA  
NEBRASKA  
NORTH DAKOTA  
OKLAHOMA  
SOUTH DAKOTA  
WYOMING

SOUTHEAST REGION

ALABAMA  
FLORIDA  
GEORGIA  
LOUISIANA  
MISSISSIPPI  
NORTH CAROLINA  
SOUTH CAROLINA  
HAWAII

MIDWEST REGION

ILLINOIS  
INDIANA  
KENTUCKY  
MICHIGAN  
OHIO  
TENNESSEE  
WEST VIRGINIA  
WISCONSIN

WEST REGION

ARIZONA  
CALIFORNIA  
IDAHO  
NEVADA  
NEW MEXICO  
OREGON  
UTAH  
WASHINGTON  
ALASKA

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TABLE 32 - DEVELOPMENT OF SPECIAL CAUSES OF LOSS EXCESS MULTIPLIER

YEAR	(1) EARNED PREMIUMS	(2) INCURRED LOSSES	(3) NORMAL INCURRED LOSSES	(4) NORMAL LOSS RATIO	(5) STATE EXCESS LOSS RATIO
1986	10,276,152	6,596,129	6,596,129	0.642	
1987	12,144,342	6,755,870	6,755,870	0.556	
1988	12,617,232	5,980,910	5,980,910	0.474	
1989	12,614,886	7,480,832	7,480,832	0.593	
1990	14,753,886	9,825,486	9,825,486	0.666	
1991	17,829,030	11,997,644	11,997,644	0.673	
1992	20,371,866	13,306,701	13,306,701	0.653	
1993	21,277,377	13,205,921	13,205,921	0.621	
1994	19,222,572	16,719,741	14,042,973	0.731	0.139
1995	19,441,476	11,569,725	11,569,725	0.595	
1996	17,093,001	12,835,412	12,835,412	0.751	
1997	14,745,132	11,478,335	11,478,335	0.778	
1998	14,154,936	10,867,078	10,867,078	0.768	
1999	14,290,554	22,960,432	15,402,060	1.078	0.529
2000	13,873,953	11,467,220	11,467,220	0.827	
2001	14,589,945	26,710,560	17,352,280	1.189	0.642
2002	16,146,861	8,568,577	8,568,577	0.531	
2003	18,578,724	10,791,462	10,791,462	0.581	
2004	20,668,647	12,819,613	12,819,613	0.620	
2005	22,216,875	13,056,023	13,056,023	0.588	
2006	22,718,031	11,946,751	11,946,751	0.526	
2007	24,608,253	18,124,253	15,916,427	0.647	0.090
2008	23,784,300	16,544,752	16,544,752	0.696	
2009	25,321,959	23,463,043	22,797,919	0.900	0.027
2010	25,216,131	12,849,298	12,849,298	0.510	
2011	25,079,748	17,833,733	17,833,733	0.711	
2012	24,946,224	15,708,202	15,708,202	0.630	
2013	25,640,445	13,915,835	13,713,005	0.535	0.008
2014	27,499,253	49,490,098	26,447,578	0.962	0.838
2015	30,090,798	20,666,224	18,657,113	0.620	0.067
2016	32,132,439	12,186,917	12,186,917	0.379	
2017	33,264,694	14,740,576	14,740,576	0.443	
2018	34,087,418	17,927,422	16,881,341	0.495	0.031
TOTALS		490,390,775	441,623,863	21.969	2.371

(6) STATE EXCESS COMPONENT = (SELR / NLR) = 0.108

(7) STATE EXCESS MULTIPLIER = (1 + SEC) = 1.108

EXPLANATORY NOTES TO TABLE 32

SPECIAL CAUSES OF LOSS ADDITIONAL EXCESS LOSS FACTOR

COLUMN (1)                    EARNED PREMIUMS

These are the unadjusted earned premiums for each year.

COLUMN (2)                    INCURRED LOSSES

These are the unadjusted incurred losses for each year.

COLUMN (3)                    NORMAL INCURRED LOSSES

The normal incurred losses are shown for each year. The normal incurred losses are defined to be that portion of each month's losses which does not exceed 2.0 times the monthly earned premiums.

COLUMN (4)                    NORMAL LOSS RATIO

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)                    EXCESS LOSS RATIO

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.

LINE (6)                        EXCESS COMPONENT

The excess component is determined by dividing the sum of the excess loss ratios by the sum of the normal loss ratios, where the sums are 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.

## OVERVIEW

### APPLICATION OF CREDIBILITY

#### INTRODUCTION

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

$Z$  = credibility

$C$  = final estimate

$R$  = estimate based on the most recent data

$N$  = net trend

Credibility may range from 0 to 1, where  $Z=1$  is full credibility and  $Z=0$  is no credibility. The actual numerical value of  $Z$  is calculated by considering how the state's volume of experience compares with an established full credibility standard. Credibility is capped at 25% if the credibility calculated is below 25%. See Tables 33, 33A, and 34 for a complete explanation of the credibility standards for Basic Group I, Basic Group II, and Special Causes of Loss.

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TABLE 33 - BASIC GROUP I STATEWIDE CREDIBILITY CALCULATION

(1a)	FULL CREDIBILITY CLAIMS STANDARD FOR FREQUENCY WITH (P,K) = ( 95.00% , 5.00%)	1,537
(1b)	SEVERITY MODIFICATION FACTOR	8.700
(1c)	FULL CREDIBILITY CLAIMS STANDARD ADJUSTED FOR SEVERITY ((1a) X (1b))	13,372
(2)	MULTISTATE FIVE YEAR RATIO OF EARNED RISKS TO CLAIMS	344.398
(3)	FULL CREDIBILITY EARNED RISKS STANDARD (1c)X(2)	4,605,290
(4)	FIVE YEAR STATEWIDE EARNED RISKS	796,939
(5)	FIVE YEAR AGGREGATE LOSS COSTS	253,636,065
(6)	AGGREGATE LOSS COSTS PER EARNED RISK (5)/(4)	318.263
(7)	AGGREGATE LOSS COSTS FOR 100% CREDIBILITY (3) X (6)	1,465,693,411
(8)	STATEWIDE CREDIBILITY ((5)/(7))**(.5)	41.6%

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TABLE 33A - BASIC GROUP II STATEWIDE CREDIBILITY CALCULATION

(1) FULL CREDIBILITY CLAIMS STANDARD	30,000
(2) MULTISTATE TEN YEAR RATIO OF EARNED RISKS TO CLAIMS	144.328
(3) FULL CREDIBILITY EARNED RISKS STANDARD (1)X(2)	4,329,840
(4) TEN YEAR STATEWIDE EARNED RISKS	1,542,611
(5) TEN YEAR AGGREGATE LOSS COSTS	183,653,241
(6) AGGREGATE LOSS COSTS PER EARNED RISK (5)/(4)	119.054
(7) AGGREGATE LOSS COSTS FOR 100% CREDIBILITY (3) X (6)	515,484,771
(8) STATEWIDE CREDIBILITY ((5)/(7))**(.5)	59.7%

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TABLE 34 - SPECIAL CAUSES OF LOSS STATEWIDE CREDIBILITY CALCULATION

(1) FULL CREDIBILITY CLAIMS STANDARD	25,000
(2) MULTISTATE FIVE YEAR RATIO OF EARNED RISKS TO CLAIMS	181.539
(3) FULL CREDIBILITY EARNED RISKS STANDARD (1)X(2)	4,538,475
(4) FIVE YEAR STATEWIDE EARNED RISKS	770,812
(5) FIVE YEAR AGGREGATE LOSS COSTS	138,224,383
(6) AGGREGATE LOSS COSTS PER EARNED RISK (5)/(4)	179.323
(7) AGGREGATE LOSS COSTS FOR 100% CREDIBILITY (3) X (6)	813,852,952
(8) STATEWIDE CREDIBILITY ((5)/(7))**(.5)	41.2%

EXPLANATORY NOTES TO TABLES 33, 33A AND 34

BASIC GROUP I, BASIC GROUP II, AND SPECIAL CAUSES OF LOSS  
STATEWIDE CREDIBILITY CALCULATION

LINE (1a)  
(BGI only)

Full Credibility Claims Standard of Frequency

Based on a Poisson distribution, the minimum sample size of claims is determined such that the probability that the actual number of claims will be within 5% of the expected number of claims is greater than 95%.

LINE (1b)  
(BGI only)

Severity Modification Factor

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

LINE (1c) - BGI  
LINE (1) - BGII, SCL

Full Credibility Claims Standard

For Basic Group I, this standard is the product of the frequency standard in line (1a) and the severity modification factor in line (1b). For Basic Group II and Special Causes of Loss, standards for full credibility of 30,000 claims for BGII and 25,000 claims for SCL were selected to balance stability and responsiveness.

LINE (2)

Multistate Experience Period Ratio of Earned Risks to Claims

This ratio was determined based on Commercial Statistical Plan data for the latest experience period (Five years for Basic Group I and Special Causes of Loss; Ten years for Basic Group II).

LINE (3)

Full Credibility Earned Risks Standard

To translate the claims standard to an equivalent standard based on earned risks, the claims standard (line (1c) for BGI, (1) for BGII and SCL) is multiplied by the multistate experience period ratio of earned risks to claims (line (2)).

LINE (4)

Experience Period Statewide Earned Risks

This is the number of earned risks in the state for the experience period.

EXPLANATORY NOTES TO TABLE 33, 33A, AND 34 (cont'd)

LINE (5) Experience Period Aggregate Loss Costs

These are the state's experience period adjusted aggregate loss costs.

LINE (6) Statewide Experience Period Ratio of Aggregate Loss Costs to Earned Risks

This ratio is determined by dividing the state's experience period adjusted aggregate loss costs by its experience period earned risks.

LINE (7) Full Credibility Aggregate Loss Costs Standard

To translate the risk standard into an aggregate loss cost standard on a state by state basis, the ratio (line (6)) is multiplied by the full credibility earned risks standard (line (3)).

LINE (8) Credibility

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

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

where Z = credibility,  
P = statewide five-year adjusted aggregate loss costs (line (5)), and  
C = full credibility aggregate loss costs standard (line (7)).

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COMMERCIAL PROPERTY INSURANCE

SECTION D - ADDITIONAL SUPPORTING MATERIAL

Basic Group I Rating Group Definitions (Table 36) .....D2-6

Special Causes of Loss Category Definitions (Table 37) .....D7-9

Unadjusted Loss Costs, Incurred Losses,  
Experience Ratios (Tables 38 - 40) .....D10-12

Loss Adjustment Expense Factors (Table 41) .....D13-14

TABLE 36

BASIC GROUP I RATING GROUP DEFINITIONS

THE FOLLOWING CSP CLASSES COMPRISE THE BASIC GROUP I RATING GROUPS

01 APARTMENTS

- 0311 Apartments without Mercantile Occupancies - Up to 10 Units
- 0312 Apartments without Mercantile Occupancies - 11 to 30 Units
- 0313 Apartments without Mercantile Occupancies - Over 30 Units
- 0321 Apartments with Mercantile Occupancies - Up to 10 Units
- 0322 Apartments with Mercantile Occupancies - 11 to 30 Units
- 0323 Apartments with Mercantile Occupancies - Over 30 Units
- 0331 Residential Condominiums without Mercantile Occupancies - Up to 10 Units
- 0332 Residential Condominiums without Mercantile Occupancies - 11 to 30 Units
- 0333 Residential Condominiums without Mercantile Occupancies - Over 30 Units
- 0341 Residential Condominiums with Mercantile Occupancies - Up to 10 Units
- 0342 Residential Condominiums with Mercantile Occupancies - 11 to 30 Units
- 0343 Residential Condominiums with Mercantile Occupancies - Over 30 Units

02 OTHER HABITATIONAL

- 0074 Boarding and Lodging Houses, Rooming Houses, Fraternities and Sororities, Dormitories - Up to 10 Units
- 0075 Boarding and Lodging Houses, Rooming Houses, Fraternities and Sororities, Dormitories - 11 to 30 Units
- 0076 Boarding and Lodging Houses, Rooming Houses, Fraternities and Sororities, Dormitories - Over 30 Units
- 0077 Convents, Monasteries and Rectories, Orphan Homes, Nurses' Homes, Sisters' Homes - Up to 10 Units
- 0078 Convents, Monasteries and Rectories, Orphan Homes, Nurses' Homes, Sisters' Homes - 11 to 30 Units
- 0079 Convents, Monasteries and Rectories, Orphan Homes, Nurses' Homes, Sisters' Homes - Over 30 Units
- 0196 Dwellings Written in Conjunction with Commercial Risks from the Commercial Lines Manual - 1 Family
- 0197 Dwellings Written in Conjunction with Commercial Risks from the Commercial Lines Manual - 2 Family
- 0198 Dwellings Written in Conjunction with Commercial Risks from the Commercial Lines Manual - 3 and 4 Family
- 0300 Large Area Housing Developments (Special Rating Treatment)

03 RESTAURANTS & BARS

- 0541 Bars and Taverns
- 0542 Restaurants with Commercial Cooking
- 0545 Restaurants with Limited Cooking

#### 04 OTHER MERCANTILES

- 0431 Sole Occupancy Mercantile, Over 15,000 Square Feet, Building Coverage, Other than Food Risks
- 0432 Sole Occupancy Mercantile, Over 15,000 Square Feet, Food Risks, Buildings and Personal Property
- 0433 Multiple Occupancy Mercantile, Over 15,000 Square Feet, Building Coverage Only, Not Fire Class Rated
- 0434 Multiple Occupancy Mercantile, Less than 15,000 Square Feet, Building Coverage Only, Not Fire Class Rated
- 0511 Risks Having Low Susceptibility Personal Property, NOC
- 0512 Tire, Battery and Accessory Dealers Without Tire Recapping and Vulcanizing
- 0520 Wearing Apparel, Textiles, Shoes
- 0531 Alcoholic Beverages other than Bars
- 0532 Food Products including Retail Bakeries (no baking and no cooking on premises; sales only); Beverages other than Alcoholic
- 0533 Retail Bakeries - Baking on Premises (No delivery to other outlets)
- 0534 Food Products with Limited Cooking, Excluding Bakeries
- 0550 Motor Vehicle (Auto, Aircraft, Marine) Sales, No Repair
- 0561 Boat and Marine Supply Dealers
- 0562 Drugs
- 0563 Electrical Goods, Hardware and Machinery
- 0564 Furniture and Home Furnishings other than Appliances
- 0565 Jewelry
- 0566 Sporting Goods
- 0567 Risks Having Moderate Susceptibility Personal Property, NOC
- 0570 Risks Having High Susceptibility Personal Property, NOC
- 0580 Greenhouses
- 0581 Multiple Occupancy Mercantile, Fire Class Rated, without furniture Occupant
- 0582 Multiple Occupancy Mercantile, Fire Class Rated, with furniture Occupant

#### 05 PUBLIC BUILDINGS

- 0701 Governmental Offices
- 1000 Penal Institutions
- 1051 Museums, Libraries, Art Galleries (non-profit)
- 1070 Other Public Buildings, Fire Dept., Police, Water/Sewer

#### 06 CHURCHES

- 0900 Churches and Synagogues

#### 07 SCHOOLS

- 1052 Schools, Academic

#### 08 OFFICE AND BANKS

- 0702 Non-Governmental Offices and Banks

09 RECREATIONAL FACILITIES

- 0755 Golf Clubs, Tennis Clubs and Similar Sports Facilities with Cooking
- 0756 Golf Clubs, Tennis Clubs and Similar Sports Facilities without Cooking
- 0757 Clubs, NOC, Including Fraternal and Union Halls
- 0831 Motion Picture Studios
- 0832 Theaters
- 0833 Drive-in Theaters
- 0834 Skating Rinks--Roller Rinks
- 0841 Bowling Alleys
- 0843 Halls and Auditoriums
- 0844 Recreational Facilities, NOC
- 0845 Boys' and Girls' Camps
- 0846 Dance Halls, Ballrooms & Discotheques
- 0951 Gambling Casinos with Restaurants
- 0952 Gambling Casinos without Restaurants

10 HOTELS & MOTELS

- 0742 Motels and Hotels with Restaurant - Up to 10 Units
- 0743 Motels and Hotels with Restaurant - 11 to 30 Units
- 0744 Motels and Hotels with Restaurant - Over 30 Units
- 0745 Motels and Hotels without Restaurant - Up to 10 Units
- 0746 Motels and Hotels without Restaurant - 11 to 30 Units
- 0747 Motels and Hotels without Restaurant - Over 30 Units

11 HOSPITALS & NURSING HOMES

- 0851 Hospitals
- 0852 Nursing and Convalescent Homes

12 BUILDINGS UNDER CONSTRUCTION

- 1150 Buildings Under Construction

13 MOTOR VEHICLE RISKS

- 0931 Auto Parking Garages, Car Washes
- 0932 Gasoline Service Stations
- 0933 Aircraft Hangars with Repairing, Motor Vehicle Repairing Including Auto Body Shops, with or without Sales
- 0934 Tire Recapping and Vulcanizing with or without Sales
- 0940 Aircraft Hangars without Repairing

14 OTHER NON-MANUFACTURING

- 0911 Dry Cleaner and Dyeing Plants, other than Self-Service
- 0912 Laundries, other than Self-Service
- 0913 Self-Service Laundries and Dry Cleaners
- 0921 Light Hazard Service Occupancies
- 0922 Services Occupancies, Other than Light Hazard, NOC
- 0923 Funeral Homes
- 1180 Vacant Buildings
- 1185 Billboards and Signs
- 1190 Yard Property, NOC, Including Property in the Open

15 STORAGE

- 1200 Piers, Wharves, Bridges
- 1211 Freight Terminals
- 1212 General Storage Warehouses - Bailee
- 1213 Miscellaneous Products Storage - (other than Retail or Wholesale or Cold Storage)
- 1220 Household Goods Storage
- 1230 Cold Storage Warehouses
- 1251 Farm Products (other than Grain, Cotton, Tobacco)
- 1252 Grain, Seed, Bean Warehouses
- 1300 Cotton Compresses and Storage
- 1400 Waste and Reclaimed Material, including Yards
- 1450 Whiskey and Liquor Warehouses in Connection with Distilleries
- 1501 Tobacco Warehouses, Storage
- 1502 Tobacco Sales Warehouses
- 1550 Grain Elevators - Terminal
- 1610 Grain Elevators - Country
- 1650 Building Supply Yards, including Retail Lumberyards, Coal and Coke Yards
- 1700 Mill Yards
- 1751 Oil Distributing, Oil Terminals and LPG Tank Farms, Including Stock
- 1752 Oil Distributing, Oil Terminals and LPG Tank Farms, Excluding Stock

17 FOOD MANUFACTURING

- 2000 Dairy Products
- 2059 Meat, Poultry and Fish Products
- 2150 Grain Milling, Including Feed, Stock, Flour Mills
- 2200 Bakeries and Bakery Products
- 2250 Fruit, Nut and Vegetable Products
- 2300 Sugar, Molasses and Syrup Refining
- 2350 Beverages excluding Alcoholic Beverages
- 2400 Breweries
- 2459 Distilleries and Wineries
- 2550 Tobacco and Tobacco Products
- 2600 Food Products, NOC

18 WOOD MANUFACTURING

- 3809 Basic Wood Production including Veneer and Plywood Plants
- 3959 Furniture and Other Wood Products, NOC

19 WEARING APPAREL

- 2800 Textile Mill Products - Natural and Synthetic
- 3009 Clothing and Apparel including Furs and Finished Products

20 CHEMICAL MANUFACTURING

- 5000 Chemicals and Pharmaceuticals - Low Hazard
- 5050 Chemicals and Pharmaceuticals - Moderate Hazard
- 5100 Chemicals and Pharmaceuticals - High Hazard

21 METAL MANUFACTURING

- 6810 Heavy Metalworking including Basic Metalwork
- 6850 Metalworking, NOC

22 OTHER MANUFACTURING

- 2750 Cotton Gins
- 3409 Leather and Leather Products
- 4400 Paper Manufacturing
- 4450 Paper and Paper Products Processing
- 4809 Printing
- 5500 Plastic Products
- 5759 Rubber Products
- 6009 Stone, Glass, Concrete, Gypsum, Brick, Tile and Clay Products, Abrasives, Plaster and Other Mineral, NOC
- 6210 Mining Other than Coal
- 6250 Coal Mining
- 6900 Precision Products, Electronic, Radio and Television Manufacturing

TABLE 37

SPECIAL CAUSES OF LOSS CATEGORY DEFINITIONS

CATEGORY 01 - BUILDING AND TIME ELEMENT COVERAGE

CATEGORY 02 - APARTMENT AND CONDOMINIUM CONTENTS COVERAGE

CATEGORY 03 - OFFICE CONTENTS COVERAGE

CATEGORIES 04, 05, & 06 - MERCANTILE CONTENTS COVERAGE

An establishment in which the principal business is the retail or wholesale buying or selling of goods, wares and merchandise. Included are bars, grills and restaurants.

CATEGORY 04 - MERCANTILE CONTENTS COVERAGE (HIGH)

Occupancy classes 0511, 0520, 0550, 0562, 0566, 0567, 0581, 0702, 1180, 1185, 1190, 1200, 1211, 1212, 1213, 1251, 1300, 1400, 1751, or 1752

CATEGORY 05 - MERCANTILE CONTENTS COVERAGE (MEDIUM)

Occupancy classes not listed in Category 04 or Category 06

CATEGORY 06 - MERCANTILE CONTENTS COVERAGE (LOW)

Occupancy classes 0512, 0541, 0563, 0921, 0922, 0933, 0940, or 1230

CATEGORY 07 - MOTEL & HOTEL CONTENTS COVERAGE

Hotels, motels, motor inns, motor lodges, tourist courts and similar risks whose business is principally the providing of lodging accommodations for transients, including premises and operations necessary or incidental to such lodging accommodations.

TABLE 37

SPECIAL CAUSES OF LOSS CATEGORY DEFINITIONS

CATEGORIES 08 & 09 - INSTITUTIONAL CONTENTS COVERAGE

An establishment principally occupied by an educational, religious, sanitary, charitable or governmental organization. It does not include buildings containing manufacturing of any kind, or sale, storage, processing, or repair of clothing or furniture, or paper or rag storage, or sorting or supplying of food or lodging to itinerants.

CATEGORY 08 - INSTITUTIONAL CONTENTS COVERAGE (HIGH)

Occupancy classes 0701, 0702, 0851, 0921, 1051, or 1052

CATEGORY 09 - INSTITUTIONAL CONTENTS COVERAGE (LOW)

Occupancy classes not listed in Category 08

CATEGORIES 10 & 11 - INDUSTRIAL & PROCESSING CONTENTS COVERAGE

An establishment in which the principal activity is the manufacturing of goods and wares or processing of raw materials or finished goods.

CATEGORY 10 - INDUSTRIAL & PROCESSING CONTENTS COVERAGE (HIGH)

Occupancy classes 1252, 1300, 1400, 1700, 2000, 2059, 2150, 2200, 2250, 2300, 2350, 2400, 2459, 2550, 2600, 2750, 2800, 2805, 3009, 3409, 3809, 3959, or 4400

CATEGORY 11 - INDUSTRIAL & PROCESSING CONTENTS COVERAGE (LOW)

Occupancy classes not listed in Category 10

TABLE 37

SPECIAL CAUSES OF LOSS CATEGORY DEFINITIONS

CATEGORIES 12 & 13 - SERVICE CONTENTS COVERAGE

An establishment in which the principal operation is the providing of a personal or commercial service. Included are establishments providing entertainment or recreation; warehousing of property of others; and automobile risks, such as service, repair or garaging of automobiles and parking lots.

CATEGORY 12 - SERVICE CONTENTS COVERAGE (HIGH)

Occupancy classes 0520, 0542, 0545, 0550, 0567, 0702, 0755, 0831, 0832, 0911, 0912, 0913, 0921, 0931, 0932, 0934, 1213, or 4809

CATEGORY 13 - SERVICE CONTENTS COVERAGE (LOW)

Occupancy classes not listed in Category 12

CATEGORY 14 - CONTRACTOR CONTENTS COVERAGE

An establishment in which the principal operation is that of installation, construction, demolition or maintenance. This includes any owner/contractor, general contractor or sub-contractor whether or not he or she actually performs any part of such work or has employees on the site.

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TABLE 38

BASIC GROUP I

UNADJUSTED AGGREGATE LOSS COSTS, LOSSES, AND EXPERIENCE RATIOS

---

YEAR	TOTAL UNADJUSTED LOSS COSTS	TOTAL UNADJUSTED INCURRED LOSSES	EXPERIENCE RATIO
2014	24,396,734	75,965,239	3.114
2015	26,523,409	41,854,739	1.578
2016	28,037,211	32,365,076	1.154
2017	28,882,046	48,798,446	1.690
2018	28,977,978	66,400,515	2.291

MICHIGAN  
TABLE 39

BASIC GROUP II

UNADJUSTED AGGREGATE LOSS COSTS, LOSSES, AND EXPERIENCE RATIOS

YEAR	TOTAL UNADJUSTED LOSS COSTS	TOTAL UNADJUSTED INCURRED LOSSES	EXPERIENCE RATIO
2009	10,997,336	10,051,697	0.914
2010	10,780,752	7,814,128	0.725
2011	10,193,242	12,363,271	1.213
2012	10,280,205	8,931,808	0.869
2013	11,194,553	9,273,644	0.828
2014	12,776,605	11,410,292	0.893
2015	13,988,839	11,887,289	0.850
2016	14,800,774	10,019,061	0.677
2017	15,028,469	30,056,275	2.000
2018	14,989,907	8,558,840	0.571

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TABLE 40

SPECIAL CAUSES OF LOSS

UNADJUSTED AGGREGATE LOSS COSTS, LOSSES, AND EXPERIENCE RATIOS

---

YEAR	TOTAL UNADJUSTED LOSS COSTS	TOTAL UNADJUSTED INCURRED LOSSES	EXPERIENCE RATIO
2014	14,333,169	49,490,098	3.453
2015	15,677,084	20,666,224	1.318
2016	16,746,684	12,186,917	0.728
2017	17,337,056	14,740,576	0.850
2018	17,765,576	17,927,422	1.009

## OVERVIEW

### 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 41 for the underlying data).
EXPERIENCE INCLUDED	Fire and Allied Lines incurred loss and loss adjustment expense experience for 2013-2017 is displayed on Table 41. The experience is based on Insurance Expense Exhibit information compiled by A.M. Best. For Allied Lines, the loss adjustment expense ratios [Table 41, line (3)(b)] for a few years are distorted by unusual catastrophe-related losses and loss adjustment expenses. The selected Allied Lines loss adjustment expense factor used for this review was selected after consideration of this distortion and based on a review of average loss adjustment expense ratios over a longer time period.
SELECTED FACTORS	The following factors have been used in this review to load incurred losses for all loss adjustment expenses:

Basic Group I	1.100
Basic Group II	1.125
Special Causes of Loss	1.125

TABLE 41

FIRE AND ALLIED LINES INSURANCE  
COUNTRYWIDE LOSS ADJUSTMENT EXPENSE EXPERIENCE (A)

	<u>2013</u>	<u>2014</u>	<u>2015</u>	<u>2016</u>	<u>2017</u>	<u>Selected</u>
(1) Fire						
(a) Direct Losses Incurred	4,684,461	5,449,566	5,303,941	5,626,602	7,720,282	
(b) Direct Loss Adjustment Expense Incurred	466,590	540,067	520,392	540,922	688,647	
(2) Allied Lines						
(a) Direct Losses Incurred	4,800,449	4,486,897	4,725,289	6,319,875	17,490,979	
(b) Direct Loss Adjustment Expense Incurred	700,795	617,569	650,048	707,895	1,112,736	
(3) Loss Adjustment Expense as a Ratio to Losses						
(a) Fire (1b) / (1a)	10.0%	9.9%	9.8%	9.6%	8.9%	10.0%
(b) Allied Lines (2b) / (2a)	14.6%	13.8%	13.8%	11.2%	6.4%	12.5%

NOTE: All dollar amounts are displayed in thousands.

(A) Items (1) and (2) are based on Insurance Expense Exhibit information compiled by A. M. Best.

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COMMERCIAL PROPERTY INSURANCE

SECTION E - REVISED LOSS COST PAGES

Basic Group II Loss Costs.....	E2
Special Causes of Loss Loss Costs.....	E3
Basic Group I Loss Costs.....	E4-14

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**70. CAUSES OF LOSS – BASIC FORM**

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**E. Rating Procedure****2. Property Damage – Group II Causes Of Loss****e. Loss Costs**

- (1) Determine the Basic Group II symbol from the specific publication or from Rule **70.E.2.a**.
- (2) For Symbols **AA**, **A**, **AB** and **B**, use the applicable rate.
- (3) For symbols with numerical prefixes, multiply the applicable rate by the prefix shown in Rule **70.E.2.a**.

<b>Symbol</b>	<b>Building Loss Cost</b>	<b>Contents Loss Cost</b>
<b>AA</b>	<u>-.032.030</u>	<u>-.042.040</u>
<b>A</b>	<u>-.034.032</u>	<u>-.049.046</u>
<b>AB</b>	<u>-.045.043</u>	<u>-.057.054</u>
<b>B</b>	<u>-.054.051</u>	<u>-.063.060</u>

**72. CAUSES OF LOSS – SPECIAL FORM**

**E.2. Rating Procedure – Property Damage – Other Than Builders' Risk**

**b.(1) Building Coverage – Loss Cost: -046,048**

**c.(2) Personal Property Coverage – Loss Costs**

<b>Occupancy Category</b>	<b>Loss Cost</b>
Residential Apartments and Condominiums	<u>-129,134</u>
Offices	<u>-135,139</u>
Mercantile – High	<u>-255,266</u>
Mercantile – Medium	<u>-204,206</u>
Mercantile – Low	<u>-150,151</u>
Motels and Hotels	<u>-112,115</u>
Institutional – High	<u>-066,069</u>
Institutional – Low	<u>-040,041</u>
Industrial and Processing – High	<u>-153,158</u>
Industrial and Processing – Low	<u>-155,157</u>
Service – High	<u>-153,155</u>
Service – Low	<u>-110,113</u>
Contractors	<u>-318,331</u>
<b>Territory (County)</b>	<b>Territorial Multiplier</b>
Wayne	1.590
Remainder of State	1.000

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**85. BASIC GROUP I CLASS LOSS COSTS**

All rates are subject to protection class and territorial multipliers.

<b>CSP Class Codes And Description</b>						
<b>0074</b>	Boarding and Lodging Houses, Rooming Houses, Fraternities and Sororities, Dormitories – Up to 10 Units					
<b>0075</b>	Boarding and Lodging Houses, Rooming Houses, Fraternities and Sororities, Dormitories – 11 to 30 Units					
<b>0076</b>	Boarding and Lodging Houses, Rooming Houses, Fraternities and Sororities, Dormitories – Over 30 Units					
<b>0077</b>	Convents, Monasteries and Rectories, Orphan Homes, Nurses' Homes, Sisters' Homes – Up to 10 Units					
<b>0078</b>	Convents, Monasteries and Rectories, Orphan Homes, Nurses' Homes, Sisters' Homes – 11 to 30 Units					
<b>0079</b>	Convents, Monasteries and Rectories, Orphan Homes, Nurses' Homes, Sisters' Homes – Over 30 Units					
<b>0196</b>	1 Family Dwellings (Lessor's Risk)					
<b>0197</b>	2 Family Dwellings (Lessor's Risk)					
<b>0198</b>	3 or 4 Family Dwellings (Lessor's Risk)					
<b>0311</b>	Apartments without Mercantile Occupancies – Up to 10 Units					
<b>0312</b>	Apartments without Mercantile Occupancies – 11 to 30 Units					
<b>CSP Class Code</b>	<b>Coverage</b>	<b>Construction (Code)</b>				
		<b>Frame (1)</b>	<b>Joisted Masonry (2)</b>	<b>Non-Comb. (3)</b>	<b>Mas. Non-Comb. (4)</b>	<b>Mod. F.R. (5) Or Fire Res. (6)</b>
<b>0074</b>	<b>Building (1)</b>	0.172	0.155	0.138	0.110	0.102
	<b>Contents (2)</b>	0.173	0.156	0.147	0.129	0.122
<b>0075</b>	<b>Building (1)</b>	0.172	0.155	0.138	0.110	0.102
	<b>Contents (2)</b>	0.173	0.156	0.147	0.129	0.122
<b>0076</b>	<b>Building (1)</b>	0.172	0.155	0.138	0.110	0.102
	<b>Contents (2)</b>	0.173	0.156	0.147	0.129	0.122
<b>0077</b>	<b>Building (1)</b>	0.157	0.142	0.126	0.101	0.094
	<b>Contents (2)</b>	0.163	0.147	0.140	0.123	0.116
<b>0078</b>	<b>Building (1)</b>	0.157	0.142	0.126	0.101	0.094
	<b>Contents (2)</b>	0.163	0.147	0.140	0.123	0.116
<b>0079</b>	<b>Building (1)</b>	0.157	0.142	0.126	0.101	0.094
	<b>Contents (2)</b>	0.163	0.147	0.140	0.123	0.116
<b>0196</b>	<b>Building (1)</b>	0.105	0.095	0.085	0.069	0.062
	<b>Contents (2)</b>	0.117	0.105	0.099	0.087	0.084
<b>0197</b>	<b>Building (1)</b>	0.105	0.095	0.085	0.069	0.062
	<b>Contents (2)</b>	0.117	0.105	0.099	0.087	0.084
<b>0198</b>	<b>Building (1)</b>	0.105	0.095	0.085	0.069	0.062
	<b>Contents (2)</b>	0.117	0.105	0.099	0.087	0.084
<b>0311</b>	<b>Building (1)</b>	0.261	0.236	0.209	0.168	0.156
	<b>Contents (2)</b>	0.294	0.267	0.249	0.225	0.207
<b>0312</b>	<b>Building (1)</b>	0.261	0.236	0.209	0.168	0.156
	<b>Contents (2)</b>	0.294	0.267	0.249	0.225	0.207
<b>Territory</b>					<b>Territorial Multiplier</b>	
Detroit					3.596	
Balance of State (Michigan)					1.000	

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**85. BASIC GROUP I CLASS LOSS COSTS (Cont'd)**

All rates are subject to protection class and territorial multipliers.

<b>CSP Class Codes And Description</b>						
<b>0313</b>	Apartments without Mercantile Occupancies – Over 30 Units					
<b>0321</b>	Apartments with Mercantile Occupancies – Up to 10 Units					
<b>0322</b>	Apartments with Mercantile Occupancies – 11 to 30 Units					
<b>0323</b>	Apartments with Mercantile Occupancies – Over 30 Units					
<b>0331</b>	Residential Condominiums without Mercantile Occupancies – Up to 10 Units					
<b>0332</b>	Residential Condominiums without Mercantile Occupancies – 11 to 30 Units					
<b>0333</b>	Residential Condominiums without Mercantile Occupancies – Over 30 Units					
CSP Class Code	Coverage	Construction (Code)				
		Frame (1)	Joisted Masonry (2)	Non-Comb. (3)	Mas. Non-Comb. (4)	Mod. F.R. (5) Or Fire Res. (6)
<b>0313</b>	<b>Building (1)</b>	0.261	0.236	0.209	0.168	0.156
	<b>Contents (2)</b>	0.294	0.267	0.249	0.225	0.207
<b>0321</b>	<b>Building (1)</b>	0.402	0.362	0.320	0.261	0.239
	<b>Contents (2)</b>					
	<b>A</b>	0.597	0.538	0.509	0.450	0.419
	<b>B&amp;C</b>	0.699	0.628	0.595	0.525	0.493
<b>0322</b>	<b>Building (1)</b>	0.402	0.362	0.320	0.261	0.239
	<b>Contents (2)</b>					
	<b>A</b>	0.597	0.538	0.509	0.450	0.419
	<b>B&amp;C</b>	0.699	0.628	0.595	0.525	0.493
<b>0323</b>	<b>Building (1)</b>	0.402	0.362	0.320	0.261	0.239
	<b>Contents (2)</b>					
	<b>A</b>	0.597	0.538	0.509	0.450	0.419
	<b>B&amp;C</b>	0.699	0.628	0.595	0.525	0.493
<b>0331</b>	<b>Building (1)</b>	0.147	0.132	0.116	0.093	0.086
	<b>Contents (2)</b>	0.127	0.115	0.107	0.095	0.086
<b>0332</b>	<b>Building (1)</b>	0.147	0.132	0.116	0.093	0.086
	<b>Contents (2)</b>	0.127	0.115	0.107	0.095	0.086
<b>0333</b>	<b>Building (1)</b>	0.147	0.132	0.116	0.093	0.086
	<b>Contents (2)</b>	0.127	0.115	0.107	0.095	0.086
<b>Territory</b>					<b>Territorial Multiplier</b>	
Detroit					3.596	
Balance of State (Michigan)					1.000	

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**85. BASIC GROUP I CLASS LOSS COSTS (Cont'd)**

All rates are subject to protection class and territorial multipliers.

<b>CSP Class Codes And Description</b>						
<b>0341</b>	Residential Condominiums with Mercantile Occupancies – Up to 10 Units					
<b>0342</b>	Residential Condominiums with Mercantile Occupancies – 11 to 30 Units					
<b>0343</b>	Residential Condominiums with Mercantile Occupancies – Over 30 Units					
<b>0511</b>	Mercantile – Sole Occupancy Only – Not Otherwise Classified – Low Susceptibility					
<b>0512</b>	Mercantile – Sole Occupancy Only – Tire, Battery and Accessory Dealers without Tire Recapping and Vulcanizing					
<b>0520</b>	Mercantile – Sole Occupancy Only – Wearing Apparel, Textiles, Shoes					
<b>0531</b>	Mercantile – Sole Occupancy Only – Alcoholic Beverages other than Bars					
CSP Class Code	Coverage	Construction (Code)				
		Frame (1)	Joisted Masonry (2)	Non-Comb. (3)	Mas. Non-Comb. (4)	Mod. F.R. (5) Or Fire Res. (6)
<b>0341</b>	<b>Building (1)</b>	0.228	0.204	0.184	0.150	0.137
	<b>Contents (2)</b>					
	<b>A</b>	0.259	0.233	0.220	0.194	0.181
	<b>B&amp;C</b>	0.304	0.271	0.259	0.228	0.211
<b>0342</b>	<b>Building (1)</b>	0.228	0.204	0.184	0.150	0.137
	<b>Contents (2)</b>					
	<b>A</b>	0.259	0.233	0.220	0.194	0.181
	<b>B&amp;C</b>	0.304	0.271	0.259	0.228	0.211
<b>0343</b>	<b>Building (1)</b>	0.228	0.204	0.184	0.150	0.137
	<b>Contents (2)</b>					
	<b>A</b>	0.259	0.233	0.220	0.194	0.181
	<b>B&amp;C</b>	0.304	0.271	0.259	0.228	0.211
<b>0511</b>	<b>Building (1)</b>	0.123	0.112	0.098	0.080	0.078
	<b>Contents (2)</b>	0.215	0.197	0.185	0.162	0.150
<b>0512</b>	<b>Building (1)</b>	0.119	0.106	0.096	0.079	0.067
	<b>Contents (2)</b>	0.196	0.176	0.164	0.147	0.136
<b>0520</b>	<b>Building (1)</b>	0.147	0.133	0.119	0.097	0.089
	<b>Contents (2)</b>	0.283	0.255	0.244	0.213	0.198
<b>0531</b>	<b>Building (1)</b>	0.123	0.114	0.103	0.082	0.078
	<b>Contents (2)</b>	0.231	0.209	0.196	0.173	0.161
Territory					Territorial Multiplier	
Detroit					3.596	
Balance of State (Michigan)					1.000	

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**85. BASIC GROUP I CLASS LOSS COSTS (Cont'd)**

All rates are subject to protection class and territorial multipliers.

<b>CSP Class Codes And Description</b>						
<b>0532</b>	Merc – Sole Occy Only – Food Products Inc. Retail Bakeries; Non-Alcoholic Beverages (Sales Only – No Baking or Cooking)					
<b>0533</b>	Mercantile – Sole Occupancy Only – Baking on Premises, No Delivery to Outlets					
<b>0534</b>	Mercantile – Sole Occupancy Only – Food Products with Limited Cooking, Excluding Bakeries					
<b>0541</b>	Mercantile – Sole Occupancy Only – Bars and Taverns					
<b>0545</b>	Mercantile – Sole Occupancy Only – Restaurants with Limited Cooking					
<b>0550</b>	Mercantile – Sole Occupancy Only – Motor Vehicles, No Repair					
<b>0561</b>	Mercantile – Sole Occupancy Only – Boat and Marine Supply Dealers					
<b>0562</b>	Mercantile – Sole Occupancy Only – Drugs					
<b>0563</b>	Mercantile – Sole Occupancy Only – Electrical Goods, Hardware and Machinery					
<b>0564</b>	Mercantile – Sole Occupancy Only – Furniture and Home Furnishings other than Appliances					
CSP Class Code	Coverage	Construction (Code)				
		Frame (1)	Joisted Masonry (2)	Non-Comb. (3)	Mas. Non-Comb. (4)	Mod. F.R. (5) Or Fire Res. (6)
<b>0532</b>	<b>Building (1)</b>	0.188	0.171	0.150	0.123	0.116
	<b>Contents (2)</b>	0.283	0.255	0.244	0.213	0.198
<b>0533</b>	<b>Building (1)</b>	0.148	0.135	0.121	0.097	0.091
	<b>Contents (2)</b>	0.230	0.203	0.192	0.171	0.160
<b>0534</b>	<b>Building (1)</b>	0.211	0.187	0.169	0.136	0.125
	<b>Contents (2)</b>	0.238	0.213	0.202	0.178	0.169
<b>0541</b>	<b>Building (1)</b>	0.164	0.149	0.132	0.106	0.100
	<b>Contents (2)</b>	0.175	0.160	0.151	0.132	0.125
<b>0545</b>	<b>Building (1)</b>	0.197	0.175	0.158	0.126	0.119
	<b>Contents (2)</b>	0.221	0.198	0.188	0.164	0.154
<b>0550</b>	<b>Building (1)</b>	0.114	0.103	0.091	0.071	0.065
	<b>Contents (2)</b>	0.237	0.213	0.201	0.177	0.164
<b>0561</b>	<b>Building (1)</b>	0.121	0.108	0.096	0.079	0.070
	<b>Contents (2)</b>	0.237	0.213	0.201	0.177	0.164
<b>0562</b>	<b>Building (1)</b>	0.135	0.122	0.108	0.089	0.082
	<b>Contents (2)</b>	0.262	0.237	0.223	0.197	0.184
<b>0563</b>	<b>Building (1)</b>	0.135	0.121	0.108	0.087	0.080
	<b>Contents (2)</b>	0.196	0.176	0.164	0.147	0.136
<b>0564</b>	<b>Building (1)</b>	0.185	0.164	0.147	0.121	0.109
	<b>Contents (2)</b>	0.343	0.310	0.293	0.258	0.241
<b>Territory</b>					<b>Territorial Multiplier</b>	
Detroit					3.596	
Balance of State (Michigan)					1.000	

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**85. BASIC GROUP I CLASS LOSS COSTS (Cont'd)**

All rates are subject to protection class and territorial multipliers.

<b>CSP Class Codes And Description</b>						
<b>0565</b>	Mercantile – Sole Occupancy Only – Jewelry					
<b>0566</b>	Mercantile – Sole Occupancy Only – Sporting Goods					
<b>0567</b>	Mercantile – Sole Occupancy Only – Not Otherwise Classified – Moderate Susceptibility					
<b>0570</b>	Mercantile – Sole Occupancy Only – Not Otherwise Classified – High Susceptibility					
<b>0580</b>	Greenhouses – Sole Occupancy Only					
<b>0581</b>	Mercantile – Multiple Occupancy without 0564 Occupant					
<b>0582</b>	Mercantile – Multiple Occupancy with 0564 Occupant					
CSP Class Code	Coverage	Construction (Code)				
		Frame (1)	Joisted Masonry (2)	Non-Comb. (3)	Mas. Non-Comb. (4)	Mod. F.R. (5) Or Fire Res. (6)
<b>0565</b>	<b>Building (1)</b>	0.122	0.109	0.098	0.080	0.071
	<b>Contents (2)</b>	0.188	0.171	0.161	0.145	0.135
<b>0566</b>	<b>Building (1)</b>	0.138	0.123	0.112	0.091	0.083
	<b>Contents (2)</b>	0.258	0.234	0.215	0.192	0.178
<b>0567</b>	<b>Building (1)</b>	0.123	0.112	0.098	0.080	0.078
	<b>Contents (2)</b>	0.215	0.197	0.185	0.162	0.150
<b>0570</b>	<b>Building (1)</b>	0.123	0.112	0.098	0.080	0.078
	<b>Contents (2)</b>	0.231	0.209	0.196	0.173	0.161
<b>0580</b>	<b>Building (1)</b>	0.123	0.112	0.098	0.080	0.078
	<b>Contents (2)</b>	0.241	0.214	0.203	0.178	0.170
<b>0581</b>	<b>Building (1)</b>	0.133	0.119	0.106	0.087	0.080
	<b>Contents (2)</b>					
	<b>A</b>	0.231	0.209	0.196	0.173	0.161
	<b>B</b>	0.279	0.251	0.238	0.212	0.197
<b>0582</b>	<b>Contents (2)</b>	0.253	0.230	0.214	0.188	0.177
	<b>Building (1)</b>	0.145	0.132	0.116	0.096	0.087
	<b>A</b>	0.203	0.185	0.176	0.150	0.145
	<b>B</b>	0.251	0.228	0.213	0.187	0.176
	<b>C</b>	0.230	0.203	0.192	0.171	0.160
<b>Territory</b>					<b>Territorial Multiplier</b>	
Detroit					3.596	
Balance of State (Michigan)					1.000	

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**85. BASIC GROUP I CLASS LOSS COSTS (Cont'd)**

All rates are subject to protection class and territorial multipliers.

<b>CSP Class Codes And Description</b>						
<b>0701</b>	Government Offices					
<b>0702</b>	Banks and Offices other than Governmental					
<b>0742</b>	Motels and Hotels with Limited Cooking Restaurant – Up to 10 Units					
<b>0743</b>	Motels and Hotels with Limited Cooking Restaurant – 11 to 30 Units					
<b>0744</b>	Motels and Hotels with Limited Cooking Restaurant – Over 30 Units					
<b>0745</b>	Motels and Hotels without Restaurant – Up to 10 Units					
<b>0746</b>	Motels and Hotels without Restaurant – 11 to 30 Units					
<b>0747</b>	Motels and Hotels without Restaurant – Over 30 Units					
CSP Class Code	Coverage	Construction (Code)				
		Frame (1)	Joisted Masonry (2)	Non-Comb. (3)	Mas. Non-Comb. (4)	Mod. F.R. (5) Or Fire Res. (6)
<b>0701</b>	<b>Building (1)</b>	0.025	0.024	0.021	0.018	0.016
	<b>Contents (2)</b>					
	<b>A</b>	0.027	0.025	0.024	0.022	0.021
	<b>B</b>	0.042	0.038	0.036	0.034	0.033
	<b>C</b>	0.035	0.033	0.027	0.025	0.024
<b>0702</b>	<b>Building (1)</b>	0.101	0.090	0.080	0.066	0.061
	<b>Contents (2)</b>					
	<b>A</b>	0.121	0.109	0.101	0.089	0.082
	<b>B</b>	0.168	0.149	0.140	0.125	0.115
	<b>C</b>	0.147	0.133	0.127	0.111	0.105
<b>0742</b>	<b>Building (1)</b>	0.507	0.457	0.406	0.328	0.306
	<b>Contents (2)</b>	0.558	0.503	0.472	0.419	0.390
<b>0743</b>	<b>Building (1)</b>	0.507	0.457	0.406	0.328	0.306
	<b>Contents (2)</b>	0.558	0.503	0.472	0.419	0.390
<b>0744</b>	<b>Building (1)</b>	0.507	0.457	0.406	0.328	0.306
	<b>Contents (2)</b>	0.558	0.503	0.472	0.419	0.390
<b>0745</b>	<b>Building (1)</b>	0.220	0.197	0.175	0.143	0.132
	<b>Contents (2)</b>	0.240	0.217	0.204	0.177	0.166
<b>0746</b>	<b>Building (1)</b>	0.220	0.197	0.175	0.143	0.132
	<b>Contents (2)</b>	0.240	0.217	0.204	0.177	0.166
<b>0747</b>	<b>Building (1)</b>	0.220	0.197	0.175	0.143	0.132
	<b>Contents (2)</b>	0.240	0.217	0.204	0.177	0.166
Territory					Territorial Multiplier	
Detroit					3.596	
Balance of State (Michigan)					1.000	

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**85. BASIC GROUP I CLASS LOSS COSTS (Cont'd)**

All rates are subject to protection class and territorial multipliers.

<b>CSP Class Codes And Description</b>						
<b>0755</b>	Golf, Tennis and Similar Sport Facilities with Limited Cooking					
<b>0756</b>	Golf, Tennis and Similar Sport Facilities without Cooking					
<b>0757</b>	Clubs, Not Otherwise Classified, Including Fraternal and Union Halls					
<b>0831</b>	Motion Picture Studios					
<b>0832</b>	Theaters Excluding Drive-in Theaters					
<b>0833</b>	Drive-in Theaters					
<b>0834</b>	Skating Rinks – Roller Rinks					
<b>0841</b>	Bowling Alleys without Cooking					
<b>0843</b>	Halls and Auditoriums					
<b>0844</b>	Recreational Facilities, Not Otherwise Classified					
<b>0845</b>	Boys' and Girls' Camps					
CSP Class Code	Coverage	Construction (Code)				
		Frame (1)	Joisted Masonry (2)	Non-Comb. (3)	Mas. Non-Comb. (4)	Mod. F.R. (5) Or Fire Res. (6)
<b>0755</b>	<b>Building (1)</b>	0.307	0.277	0.248	0.199	0.185
	<b>Contents (2)</b>	0.353	0.318	0.301	0.264	0.250
<b>0756</b>	<b>Building (1)</b>	0.128	0.113	0.100	0.084	0.076
	<b>Contents (2)</b>	0.142	0.131	0.120	0.110	0.100
<b>0757</b>	<b>Building (1)</b>	0.134	0.120	0.110	0.087	0.084
	<b>Contents (2)</b>	0.142	0.131	0.120	0.110	0.100
<b>0831</b>	<b>Building (1)</b>	0.105	0.096	0.086	0.072	0.063
	<b>Contents (2)</b>	0.120	0.110	0.101	0.092	0.086
<b>0832</b>	<b>Building (1)</b>	0.134	0.120	0.110	0.087	0.078
	<b>Contents (2)</b>	0.142	0.131	0.120	0.110	0.100
<b>0833</b>	<b>Building (1)</b>	0.113	0.101	0.092	0.076	0.072
	<b>Contents (2)</b>	0.132	0.118	0.113	0.100	0.092
<b>0834</b>	<b>Building (1)</b>	0.183	0.165	0.147	0.118	0.111
	<b>Contents (2)</b>	0.185	0.167	0.161	0.139	0.131
<b>0841</b>	<b>Building (1)</b>	0.185	0.167	0.150	0.120	0.111
	<b>Contents (2)</b>	0.194	0.176	0.166	0.143	0.136
<b>0843</b>	<b>Building (1)</b>	0.092	0.086	0.076	0.060	0.054
	<b>Contents (2)</b>	0.098	0.089	0.086	0.076	0.072
<b>0844</b>	<b>Building (1)</b>	0.128	0.113	0.100	0.084	0.076
	<b>Contents (2)</b>	0.136	0.123	0.118	0.101	0.096
<b>0845</b>	<b>Building (1)</b>	0.084	0.076	0.068	0.053	0.050
	<b>Contents (2)</b>	0.096	0.086	0.084	0.073	0.068
Territory					Territorial Multiplier	
Detroit					3.596	
Balance of State (Michigan)					1.000	

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**85. BASIC GROUP I CLASS LOSS COSTS (Cont'd)**

All rates are subject to protection class and territorial multipliers.

<b>CSP Class Codes And Description</b>						
<b>0846</b>	Dance Halls, Ballrooms and Discotheques					
<b>0851</b>	Hospitals					
<b>0852</b>	Nursing and Convalescent Homes					
<b>0900</b>	Churches and Synagogues					
<b>0911</b>	Dry Cleaners and Dyeing Plants, other than Self-Service					
<b>0912</b>	Laundries, other than Self-Service					
<b>0913</b>	Self-Service Laundries and Dry Cleaners					
<b>0921</b>	Light Hazard Service Occupancies					
<b>0922</b>	Service Occupancies, other than Light Hazard					
<b>0923</b>	Funeral Homes					
<b>0931</b>	Auto Parking Garages, Car Washes					
CSP Class Code	Coverage	Construction (Code)				
		Frame (1)	Joisted Masonry (2)	Non-Comb. (3)	Mas. Non-Comb. (4)	Mod. F.R. (5) Or Fire Res. (6)
<b>0846</b>	<b>Building (1)</b>	0.175	0.152	0.136	0.113	0.101
	<b>Contents (2)</b>	0.172	0.151	0.143	0.129	0.118
<b>0851</b>	<b>Building (1)</b>	0.067	0.062	0.053	0.045	0.040
	<b>Contents (2)</b>	0.078	0.070	0.067	0.061	0.056
<b>0852</b>	<b>Building (1)</b>	0.070	0.064	0.056	0.048	0.042
	<b>Contents (2)</b>	0.080	0.073	0.068	0.062	0.059
<b>0900</b>	<b>Building (1)</b>	0.072	0.064	0.057	0.046	0.044
	<b>Contents (2)</b>	0.076	0.069	0.064	0.057	0.052
<b>0911</b>	<b>Building (1)</b>	0.209	0.188	0.167	0.136	0.123
	<b>Contents (2)</b>	0.249	0.221	0.209	0.185	0.170
<b>0912</b>	<b>Building (1)</b>	0.275	0.250	0.220	0.176	0.166
	<b>Contents (2)</b>	0.341	0.309	0.292	0.253	0.238
<b>0913</b>	<b>Building (1)</b>	0.182	0.162	0.144	0.118	0.107
	<b>Contents (2)</b>	0.212	0.191	0.179	0.158	0.149
<b>0921</b>	<b>Building (1)</b>	0.107	0.098	0.089	0.072	0.065
	<b>Contents (2)</b>	0.125	0.116	0.107	0.095	0.092
<b>0922</b>	<b>Building (1)</b>	0.119	0.107	0.095	0.079	0.074
	<b>Contents (2)</b>	0.146	0.132	0.123	0.110	0.104
<b>0923</b>	<b>Building (1)</b>	0.081	0.074	0.065	0.051	0.049
	<b>Contents (2)</b>	0.089	0.077	0.074	0.065	0.060
<b>0931</b>	<b>Building (1)</b>	0.108	0.097	0.084	0.071	0.064
	<b>Contents (2)</b>	0.126	0.113	0.108	0.096	0.086
Territory					Territorial Multiplier	
Detroit					3.596	
Balance of State (Michigan)					1.000	

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**85. BASIC GROUP I CLASS LOSS COSTS (Cont'd)**

All rates are subject to protection class and territorial multipliers.

<b>CSP Class Codes And Description</b>						
<b>0932</b>	Gasoline Service Stations					
<b>0933</b>	Motor Vehicle and Aircraft Repair, with or without Sales					
<b>0934</b>	Tire Recapping and Vulcanizing, with or without Sales					
<b>0940</b>	Aircraft Hangars without Repair					
<b>0951</b>	Gambling Casinos with Limited Cooking Restaurants					
<b>0952</b>	Gambling Casinos without Restaurants					
<b>1000</b>	Penal Institutions					
<b>1051</b>	Museums, Libraries, Art Galleries (Non-Profit)					
<b>1052</b>	Schools, Academic					
<b>1070</b>	Fire Departments, Police, Sewage, Water Works and Other Public Buildings					
CSP Class Code	Coverage	Construction (Code)				
		Frame (1)	Joisted Masonry (2)	Non-Comb. (3)	Mas. Non-Comb. (4)	Mod. F.R. (5) Or Fire Res. (6)
<b>0932</b>	<b>Building (1)</b>	0.154	0.136	0.122	0.100	0.089
	<b>Contents (2)</b>	0.185	0.167	0.159	0.141	0.130
<b>0933</b>	<b>Building (1)</b>	0.130	0.116	0.103	0.083	0.076
	<b>Contents (2)</b>	0.165	0.147	0.136	0.122	0.115
<b>0934</b>	<b>Building (1)</b>	0.167	0.153	0.135	0.110	0.101
	<b>Contents (2)</b>	0.200	0.178	0.168	0.152	0.141
<b>0940</b>	<b>Building (1)</b>	0.081	0.073	0.068	0.054	0.049
	<b>Contents (2)</b>	0.101	0.089	0.084	0.075	0.073
<b>0951</b>	<b>Building (1)</b>	0.360	0.323	0.287	0.231	0.214
	<b>Contents (2)</b>	0.395	0.356	0.339	0.299	0.277
<b>0952</b>	<b>Building (1)</b>	0.120	0.110	0.098	0.078	0.073
	<b>Contents (2)</b>	0.175	0.156	0.147	0.131	0.120
<b>1000</b>	<b>Building (1)</b>	0.025	0.022	0.021	0.018	0.016
	<b>Contents (2)</b>	0.022	0.021	0.020	0.018	0.016
<b>1051</b>	<b>Building (1)</b>	0.016	0.013	0.013	0.011	0.011
	<b>Contents (2)</b>	0.021	0.020	0.018	0.016	0.013
<b>1052</b>	<b>Building (1)</b>	0.064	0.058	0.051	0.041	0.039
	<b>Contents (2)</b>	0.072	0.064	0.062	0.053	0.051
<b>1070</b>	<b>Building (1)</b>	0.024	0.022	0.021	0.016	0.016
	<b>Contents (2)</b>	0.027	0.025	0.025	0.022	0.021
<b>Territory</b>					<b>Territorial Multiplier</b>	
Detroit					3.596	
Balance of State (Michigan)					1.000	

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**85. BASIC GROUP I CLASS LOSS COSTS (Cont'd)**

All rates are subject to protection class and territorial multipliers.

<b>CSP Class Codes And Description</b>						
<b>1150</b>	Builders' Risk					
<b>1180</b>	Vacant Buildings – See CSP Class Code of previous or intended occupancy. Add loss cost of .015 unless Class Code of previous or intended occupancy is 0580, 0742-0747, 0833, 0834, 0841, 0843, 0844, 0846, 0900, 0951, 0952, 1051 or 1052.					
<b>1211</b>	Freight Terminals					
<b>1212</b>	General Storage Warehouses – Bailee					
<b>1213</b>	Miscellaneous Products Storage – (Other Than Retail Or Wholesale Or Cold Storage)					
<b>1220</b>	Household Goods Storage					
<b>1230</b>	Cold Storage Warehouses					
<b>1400</b>	Waste and Reclaimed Materials Including Yards					
<b>1650</b>	Building Supply Yards, Including Retail Lumberyards, Coal and Coke Yards					
CSP Class Code	Coverage	Construction (Code)				
		Frame (1)	Joisted Masonry (2)	Non-Comb. (3)	Mas. Non-Comb. (4)	Mod. F.R. (5) Or Fire Res. (6)
<b>1150</b>	<b>Building (1)</b>	0.194	0.174	0.154	0.124	0.116
<b>1211</b>	<b>Building (1)</b>	0.114	0.102	0.092	0.074	0.069
	<b>Contents (2)</b>	0.132	0.122	0.114	0.100	0.094
<b>1212</b>	<b>Building (1)</b>	0.091	0.082	0.073	0.058	0.056
	<b>Contents (2)</b>	0.112	0.100	0.094	0.083	0.079
<b>1213</b>	<b>Building (1)</b>	0.081	0.072	0.062	0.054	0.049
	<b>Contents (2)</b>	0.105	0.095	0.091	0.081	0.074
<b>1220</b>	<b>Building (1)</b>	0.095	0.085	0.078	0.061	0.058
	<b>Contents (2)</b>	0.115	0.104	0.097	0.087	0.082
<b>1230</b>	<b>Building (1)</b>	0.083	0.074	0.066	0.056	0.050
	<b>Contents (2)</b>	0.113	0.101	0.095	0.084	0.079
<b>1400</b>	<b>Building (1)</b>	0.245	0.220	0.197	0.160	0.149
	<b>Contents (2)</b>	0.298	0.270	0.255	0.224	0.209
	<b>Yard</b>	0.371		0.038		
<b>1650</b>	<b>Building (1)</b>	0.147	0.132	0.118	0.095	0.089
	<b>Contents (2)</b>	0.187	0.168	0.159	0.140	0.131
	<b>Yard</b>	0.102		0.013		
<b>Territory</b>					<b>Territorial Multiplier</b>	
Detroit					3.596	
Balance of State (Michigan)					1.000	

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**85. BASIC GROUP I CLASS LOSS COSTS (Cont'd)**

All rates are subject to protection class and territorial multipliers.

<b>CSP Class Codes And Description</b>						
<b>1700</b>	Mill Yards					
<b>1751</b>	Oil Distributing, Oil Terminals and LPG Tank Farms – Including Stock					
<b>1752</b>	Oil Distributing, Oil Terminals and LPG Tank Farms – Excluding Stock					
<b>2200</b>	Baking on Premises, Delivery to Outlets					
<b>2350</b>	Beverage Bottlers Excluding Alcoholic Beverages					
<b>2459</b>	Distilleries and Wineries					
<b>2800</b>	Textile Mill Products					
<b>3409</b>	Leather and Leather Products					
<b>4809</b>	Printing					
CSP Class Code	Coverage	Construction (Code)				
		Frame (1)	Joisted Masonry (2)	Non-Comb. (3)	Mas. Non-Comb. (4)	Mod. F.R. (5) Or Fire Res. (6)
<b>1700</b>	<b>Building (1)</b>	0.122	0.107	0.095	0.079	0.072
	<b>Contents (2) Yard</b>	0.184 0.100	0.165	0.155 0.011	0.138	0.129
<b>1751</b>	<b>Building (1)</b>	0.078	0.071	0.061	0.050	0.048
	<b>Contents (2)</b>	0.100	0.091	0.085	0.078	0.071
<b>1752</b>	<b>Building (1)</b>	0.073	0.065	0.058	0.049	0.044
	<b>Contents (2)</b>	0.072	0.065	0.060	0.056	0.050
<b>2200</b>	<b>Building (1)</b>	0.455	0.414	0.367	0.300	0.275
	<b>Contents (2)</b>	0.545	0.491	0.459	0.407	0.381
<b>2350</b>	<b>Building (1)</b>	0.296	0.264	0.236	0.193	0.175
	<b>Contents (2)</b>	0.349	0.316	0.296	0.261	0.244
<b>2459</b>	<b>Building (1)</b>	0.193	0.172	0.152	0.124	0.113
	<b>Contents (2)</b>	0.244	0.220	0.212	0.187	0.172
<b>2800</b>	<b>Building (1)</b>	0.545	0.492	0.441	0.356	0.332
	<b>Contents (2)</b>	0.719	0.649	0.609	0.537	0.504
<b>3409</b>	<b>Building (1)</b>	0.336	0.304	0.268	0.217	0.201
	<b>Contents (2)</b>	0.390	0.350	0.330	0.290	0.271
<b>4809</b>	<b>Building (1)</b>	0.259	0.232	0.203	0.165	0.154
	<b>Contents (2)</b>	0.312	0.281	0.267	0.236	0.221
<b>Territory</b>					<b>Territorial Multiplier</b>	
Detroit					3.596	
Balance of State (Michigan)					1.000	

MICHIGAN  
COMMERCIAL PROPERTY  
LOSS COST LEVEL REVIEW  
ACTUARIAL ANALYSIS SUPPLEMENT

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PURPOSE                      This document provides discussion and analysis of changes in the experience and adjustments used to derive the advisory prospective loss cost level indications.

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MONOLINE                      The indicated statewide monoline changes are:  
INDICATIONS

<u>Subline</u>	<u>Current Review</u>	<u>Prior Review</u>
Basic Group I	+11.6%	+9.5%
Basic Group II	-5.3%	+0.2%
Special Causes of Loss	+3.3%	+4.1%
All Coverages Combined	+5.9%	+6.1%

The prior review's indications were filed and implemented. There has been a change in the Implicit Package Modification Factors since the prior review.

Given below is a brief discussion and comparison of the multistate factors (premium and loss trend, loss adjustment expense, and loss development) used in this year's and last year's reviews. The discussion is followed by a state specific analysis by subline and a list of events occurring during the experience period in this state that have been identified as catastrophes by ISO's Property Claims Services.

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IMPACT OF  
LIMIT OF  
INSURANCE (LOI)  
FACTOR  
IMPLEMENTATION

Instructions for companies that have not adopted the Limit of Insurance Curves or revised rating for Special Causes of Loss

Class-rated Loss Costs

The loss costs contained in this filing reflect the introduction of limit of insurance (LOI) curves and revised rating for Special Causes of Loss. For those companies which have not adopted those changes, the loss costs in effect immediately prior to the introduction of the LOI curves and revised SCL rating can be adjusted by applying the loss cost changes in Section A of this filing. These changes are changes from the current loss cost level; therefore, any other loss cost level changes effective subsequent to the introduction of LOI should also be applied. The loss cost changes based on this filing for Special Causes of Loss on an old category basis are given below. For Basic Group II, the loss cost changes by territory (not coverage and symbol) should be applied to the pre-LOI loss costs, since the loss cost changes by coverage and symbol reflect revised coverage and symbol relativities based on the introduction of the LOI curves.

Please note that the Basic Group I and Basic Group II loss costs in this filing reflect revised class, construction, and coverage (building and contents) relativities associated with the introduction of LOI curves in addition to the LOI curves themselves. Therefore, dividing the revised loss costs in this filing by the off-balance factors found in Section A of filing CF-2009-RLC09, Commercial Fire and Allied Lines Loss Cost Revision for the Introduction of Limit of Insurance Curves, will not result in the same loss costs as the procedure described above.

Schedule-rated Loss Costs

Section A of filing CF-2009-RLC09, Commercial Fire and Allied Lines Loss Cost Revision for the Introduction of Limit of Insurance Curves, displayed off-balance factors that are being applied to specifically-rated loss costs to reflect the introduction of LOI curves. Those off-balance factors can be divided out of the schedule-rated loss costs effective after the implementation of the LOI curves to bring them to a level appropriate for use without the application of LOI factors.

Special Causes of Loss (SCL) Indications on an Old Category Basis

Given below are the current SCL review indications on an old category basis for those companies that have not yet adopted the current SCL rating that was introduced in conjunction with the limit of insurance curves.

<u>Category</u>	<u>Loss Cost Change</u>
01 Buildings	+3.7%
02 Apartment and Condominium Contents	+4.0%
03 Office Contents	+3.0%
04 Mercantile, Motel-Hotel, and Institutional Contents	+2.8%
05 Service, Industrial-Processing and Contractors Contents	+1.8%
Personal Property (Contents) Excluding Theft	+2.5%

IMPACT OF  
LIMIT OF  
INSURANCE (LOI)  
FACTOR  
IMPLEMENTATION (cont'd)

Limit of Insurance Transition Rule and Public Protection Class Factors

The transition rule, which caps rate changes for renewal policies due to the implementation of limit of insurance curves and revised rating, does not apply to rate changes produced by changes in protection class, deductible level, coinsurance level and/or optional coverages. Protection class factors for specifically-rated properties are included in the Basic Group I loss cost quote. In order to measure the impact of a change in protection class for specifically-rated properties, the public protection class factors are given below.

Protection Class	Non-Sprinklered <u>Schedule Rated</u>		<u>Sprinklered</u>
	Const. <u>1-3 *</u>	Const. <u>4-6 **</u>	All <u>Const.</u>
1	0.88	0.90	0.65
2	0.92	0.94	0.67
3	0.96	0.97	0.68
4	0.98	0.98	0.69
5	1.00	1.00	0.70
6	1.06	1.05	0.72
7	1.18	1.14	0.77
8	1.30	1.24	0.82
8B	1.35	1.28	0.84
9	1.42	1.34	0.88
10	1.72	1.58	1.00
1X - 5X	1.14	1.09	0.75
6X - 7X	1.35	1.28	0.84
8X	1.42	1.34	0.88
1Y - 5Y	1.14	1.09	0.75
6Y - 8Y	1.35	1.28	0.84
10W	1.63	1.51	0.97

\* Frame, Joisted Masonry and Non-combustible

\*\* Masonry Non-combustible, Modified Fire Resistive and Fire Resistive

Protection class factors for class-rated risks can be found in Rule **85.M** of the Commercial Lines manual.

DATA QUALITY

Statistical plan data reported to ISO is first processed through a system of rigorous automated data verification processes so that only valid data is used for ratemaking. Subsequent to this initial data submission review, additional analyses involving an even more customized data review for this line were performed by staff. During these processes, various data records were excluded from the review, corrected or adjusted. Specifically, an on-leveling approach was used to determine aggregate loss costs at current level rather than the extension-of-exposures method for some reported exposures, and various loss cost multipliers have been adjusted prior to their use in the calculations. The ISO staff responsible for this loss cost review also reviewed the data for reasonableness.

LOSS  
ADJUSTMENT  
EXPENSE/LOSS  
DEVELOPMENT  
FACTORS

Loss adjustment expense factors have remained the same at 1.100 for BG I and 1.125 for BG II and SCL. Loss development factors changed slightly but are still relatively close to unity for all sublines and years.

LOSS TREND  
FACTORS

Given below is a comparison of the external trend factors, loss trend adjustments (LTAs) and total loss trend factors for the current and prior reviews.

External Trend

The prospective annual rates of change based on the external indices (Xactware for Buildings, PPI for Contents, and IMSEP/RSALLES for Time Element) for the current and prior year reviews are:

<u>Coverage</u>	<u>Current Review</u>	<u>Prior Review</u>	<u>Change</u>
Buildings	+3.0%	+2.5%	+0.5%
Contents	+1.9%	+1.2%	+0.7%
Time Element	+0.9%	-0.1%	+1.0%

Loss Trend Adjustments (LTAs)

The loss trend adjustment factors underlying the current and prior reviews are:

<u>Subline</u>	<u>Current Review</u>			<u>Prior Review</u>		
	<u>Bldg.</u>	<u>Cnts.</u>	<u>TE</u>	<u>Bldg.</u>	<u>Cnts.</u>	<u>TE</u>
Basic Group I	-0.3%	+0.7%	+2.8%	-0.4%	+0.5%	+2.5%
Basic Group II	+0.2%	+0.6%	+2.6%	+0.5%	+0.8%	+2.2%
Special Causes of Loss	+0.2%	0.0%	+2.8%	+0.3%	+0.5%	+2.5%

Total Annual Loss Trend

The prospective total annual loss trend factors are given below and are calculated as the product of the external trend factors and loss trend adjustment factors.

<u>Subline</u>	<u>Current Review</u>			<u>Prior Review</u>		
	<u>Bldg.</u>	<u>Cnts.</u>	<u>TE</u>	<u>Bldg.</u>	<u>Cnts.</u>	<u>TE</u>
Basic Group I	+2.7%	+2.6%	+3.7%	+2.1%	+1.7%	+2.4%
Basic Group II	+3.2%	+2.5%	+3.5%	+3.0%	+2.0%	+2.8%
Special Causes of Loss	+3.2%	+1.9%	+3.7%	+2.8%	+1.7%	+2.4%

CHANGE IN  
AVERAGE LOSS  
TREND

The changes in average loss trend from current year to prior year are:

<u>Subline</u>	<u>Change in Average Trend</u>
Basic Group I	+2.1%
Basic Group II	+0.2%
Special Causes of Loss	+0.5%

Average loss trend is calculated as a weighted average of the total loss trend from the midpoint of the experience year to one year past the assumed effective date for each year in the experience period based on the statewide loss cost level review year weights (.10, .15, .20, .25, .30 for BG I and SCL, and 0.10 for all years for BG II). Total loss trend includes the effect of Current Cost Factors to bring losses to the latest level of external cost information, Loss Projection Factors to project from the external cost level to one year past the assumed effective date, and Loss Trend Adjustment factors over the entire trend period.

PREMIUM TREND  
FACTORS

The prospective annual premium trend factors, based on annual changes in amounts of insurance written, for the current and prior reviews are:

<u>Coverage</u>	<u>Current Review</u>	<u>Prior Review</u>	<u>Change</u>
Buildings	+2.6%	+2.0%	+0.6%
Contents	+1.6%	+1.7%	-0.1%
Time Element	+0.6%	+1.0%	-0.4%

NET TREND

The prospective annual net (loss ÷ premium) trend factors for the current and prior year reviews are:

<u>Subline</u>	<u>Current Review</u>	<u>Prior Review</u>	<u>Change</u>
Basic Group I	+0.6%	+0.2%	+0.4%
Basic Group II	+0.8%	+0.8%	0.0%
Special Causes of Loss	+0.6%	+0.5%	+0.1%

BASIC GROUP I

The statewide five year weighted average experience ratio, before credibility weighting, increased by 1.7%, from 1.125 in the prior review to 1.144 in the current review. The increase is due to a lower-than-average experience ratio of 0.820 for 2013 exiting the experience period, a higher-than-average experience ratio of 1.177 for 2018 entering the experience period, a 3.6% decrease in average Implicit Package Modification Factors (IPMFs), and a 1.9% increase in Average Loss Trend Factors (LTFs). These factors were partially offset by the implementation of last year's 9.5% monoline increase. The monoline relativity increased by 0.9%.

Statewide Loss Cost Level Review

	<u>Current Review</u>	<u>Prior Review</u>	<u>Ratio</u>
Weighted Experience Ratio	1.144	1.125	1.017
Credibility	0.416	0.412	1.010
Expected Experience Ratio	1.009	1.002	1.007
Coverage Change	1.065	1.053	1.011
Monoline Relativity	1.048	1.039	1.009
Monoline Change	1.116	1.095	1.019

**BASIC GROUP II**

The statewide ten year weighted average experience ratio, before credibility weighting, decreased by 12.9%, from 1.140 in the prior review to 0.993 in the current review. The decrease is due to a higher-than-average experience ratio of 1.160 for 2008 exiting the experience period, a lower-than-average experience ratio of 0.723 for 2018 entering the experience period, a 7.9% increase in average Implicit Package Modification Factors (IPMFs), and the implementation of last year's 0.2% monoline increase. The monoline relativity increased by 2.7%, reflecting the 7.9% increase in average IPMFs and a lower than average monoline experience ratio of 0.456 for 2018 entering the experience period.

Statewide Loss Cost Level Review

	<u>Current Review</u>	<u>Prior Review</u>	<u>Ratio</u>
Weighted Experience Ratio	0.993	1.140	0.871
Credibility	0.597	0.60	0.995
Expected Experience Ratio	1.014	1.008	1.006
Coverage Change	1.001	1.087	0.921
Monoline Relativity	0.9464	0.9214	1.027
Monoline Change	0.947	1.002	0.945

**SPECIAL CAUSES OF LOSS**

The statewide five year weighted average experience ratio, before credibility weighting, increased by 1.0%, from 0.842 in the prior review to 0.850 in the current review. The increase is due to a lower-than-average experience ratio of 0.765 for 2013 exiting the experience period, a 10.0% decrease in average Implicit Package Modification Factors (IPMFs), and a 0.4% increase in Average Loss Trend Factors (LTFs). It was partially offset by the implementation of last year's 4.1% monoline increase. The monoline relativity decreased by 1.6%, reflecting the decrease in average IPMFs since last year's review and a lower-than-overall monoline experience of 0.540 for 2018 entering the experience period.

Statewide Loss Cost Level Review

	<u>Current Review</u>	<u>Prior Review</u>	<u>Ratio</u>
Weighted Experience Ratio	0.850	0.842	1.010
Credibility	0.412	0.420	0.981
Expected Experience Ratio	1.012	1.005	1.007
Coverage Change	0.945	0.937	1.009
Monoline Relativity	1.093	1.111	0.984
Monoline Change	1.033	1.041	0.992

**PROPERTY CLAIMS SERVICES INFORMATION**

The following events have been identified by Property Claims Services as catastrophes occurring in this state from 1/1/1990 through 12/31/2018.

<u>Date From</u>	<u>Date To</u>	<u>Perils</u>
3/26/91	3/28/91	Wind, Hail, Tornadoes, Flooding
7/7/91	7/8/91	Wind, Hail, Tornadoes, Flooding
6/14/92	6/19/92	Wind, Hail, Tornadoes, Flooding
7/13/95	7/16/95	Wind, Hail, Tornadoes, Flooding
1/31/96	2/6/96	Wind, Snow, Ice, Tornadoes, Flooding
3/16/96	3/21/96	Wind, Hail, Tornadoes, Flooding
4/12/96	4/16/96	Wind, Hail, Tornadoes, Flooding
3/13/97	3/14/97	Wind, Snow, Ice, Flooding
4/5/97	4/6/97	Wind, Hail, Tornadoes, Snow, Flooding
7/1/97	7/3/97	Wind, Hail, Tornadoes, Flooding

10/25/97	10/28/97	Wind, Hail, Tornadoes, Snow, Flooding
5/30/98	6/1/98	Hail, Wind, Tornadoes
6/11/98	6/15/98	Hail, Wind, Flooding, Tornadoes
6/18/98	6/19/98	Hail, Wind, Flooding, Tornadoes
6/24/98	6/30/98	Hail, Wind, Flooding, Tornadoes
7/19/98	7/21/98	Hail, Wind, Flooding
8/5/98	8/8/98	Wind, Flooding
8/22/98	8/25/98	Hail, Wind, Tornadoes
9/6/98	9/8/98	Hail, Wind, Flooding, Tornadoes
11/9/98	11/11/98	Hail, Wind, Flooding, Tornadoes
1/13/99	1/16/99	Ice, Hail, Snow, Wind, Flooding, Freezing
5/16/99	5/17/99	Hail, Wind, Flooding, Tornadoes
6/10/99	6/14/99	Hail, Wind, Flooding, Tornadoes
7/1/99	7/5/99	Hail, Wind, Flooding, Tornadoes
7/23/99	7/26/99	Hail, Wind, Flooding
7/28/99	7/29/99	Hail, Wind, Flooding
7/30/99	8/1/99	Hail, Wind
5/8/00	5/11/00	Hail, Wind, Flooding, Tornadoes
9/10/00	9/12/00	Hail, Wind, Flooding, Tornadoes
12/11/00	12/12/00	Snow, Wind, Freezing
4/6/01	4/12/01	Hail, Wind, Flooding, Tornadoes
5/13/01	5/15/01	Hail, Wind, Flooding
6/9/01	6/12/01	Hail, Wind, Flooding, Tornadoes
10/12/01	10/16/01	Hail, Wind, Flooding, Tornadoes
10/23/01	10/24/01	Hail, Wind, Flooding, Tornadoes
3/8/02	3/10/02	Hail, Tornadoes, Wind
5/30/02	6/1/02	Flooding, Hail, Tornadoes, Wind
4/4/03	4/8/03	Flooding, Freezing, Hail, Ice, Snow, Tornadoes, Wind
7/4/03	7/10/03	Flooding, Hail, Tornadoes, Wind
7/21/03	7/23/03	Flooding, Hail, Tornadoes, Wind
8/14/03	8/17/03	Power Outage
11/12/03	11/14/03	Flooding, Hail, Tornadoes, Wind
5/21/04	5/27/04	Flooding, Hail, Tornadoes, Wind
6/8/04	6/9/04	Flooding, Hail, Tornadoes, Wind
7/17/06	7/19/06	Flooding, Hail, Wind
10/2/06	10/4/06	Flooding, Hail, Tornadoes, Wind
7/16/07	7/18/07	Flooding, Hail, Tornadoes, Wind
8/23/07	8/24/07	Flooding, Hail, Tornadoes, Wind
1/4/2008	1/9/2008	Flooding, Freezing, Hail, Ice, Snow, Tornadoes, Wind
6/5/2008	6/8/2008	Flooding, Hail, Tornadoes, Wind
6/15/2008	6/16/2008	Flooding, Hail, Wind
7/2/2008	7/3/2008	Flooding, Hail, Tornadoes, Wind
4/24/2009	4/28/2009	Flooding, Hail, Tornadoes, Wind
6/25/2009	6/26/2009	Flooding, Hail, Tornadoes, Wind
8/7/2009	8/10/2009	Flooding, Hail, Tornadoes, Wind
4/4/2010	4/6/2010	Flooding, Hail, Tornadoes, Wind
6/4/2010	6/6/2010	Flooding, Hail, Tornadoes, Wind
6/17/2010	6/20/2010	Flooding, Hail, Tornadoes, Wind
10/26/2010	10/28/2010	Flooding, Hail, Tornadoes, Wind
5/20/2011	5/27/2011	Flooding, Hail, Tornadoes, Wind
5/29/2011	6/1/2011	Flooding, Hail, Tornadoes, Wind
6/16/2011	6/22/2011	Flooding, Hail, Tornadoes, Wind
7/10/2011	7/14/2011	Flooding, Hail, Tornadoes, Wind
9/1/2011	9/3/2011	Flooding, Hail, Wind

3/14/2012	3/15/2012	Hail, Tornadoes, Wind
7/2/2012	7/4/2012	Flooding, Hail, Wind
7/19/2013	7/21/2013	Flooding, Hail, Tornadoes, Wind
11/17/2013	11/18/2013	Flooding, Hail, Tornadoes, Wind
12/20/2013	12/23/2013	Freezing, Ice, Snow, Wind
1/5/2014	1/8/2014	Freezing, Ice, Snow, Wind
4/12/2014	4/14/2014	Flooding, Hail, Tornadoes, Wind
6/29/2014	7/1/2014	Flooding, Hail, Tornadoes, Wind
7/26/2014	7/28/2014	Flooding, Hail, Tornadoes, Wind
8/11/2014	8/13/2014	Flooding, Wind
2/1/2015	2/4/2015	Freezing, Ice, Snow, Wind
2/16/2015	2/22/2015	Freezing, Ice, Snow, Wind
4/7/2015	4/10/2015	Flooding, Hail, Tornadoes, Wind
6/21/2015	6/25/2015	Flooding, Hail, Tornadoes, Wind
8/2/2015	8/4/2015	Flooding, Hail, Tornadoes, Wind
2/19/2016	2/20/2016	Wind
7/7/2016	7/9/2016	Flooding, Hail, Wind
2/28/2017	3/2/2017	Flooding, Hail, Tornadoes, Wind
3/6/2017	3/9/2017	Flooding, Hail, Tornadoes, Wind
2/19/2018	2/22/2018	Flooding, Freezing, Hail, Ice, Wind
4/13/2018	4/17/2018	Flooding, Hail, Ice, Snow, Tornadoes, Wind
4/28/2018	5/5/2018	Flooding, Hail, Tornadoes, Wind
8/27/2018	8/28/2018	Flooding, Hail, Tornadoes, Wind

PROPERTY  
CLAIMS SERVICES  
INFORMATION  
(cont'd)

ISO's Property Claims Services defines a catastrophe as an event that:

- reaches a threshold dollar amount of total insured property losses, and
- affects a significant number of property and casualty insurance policyholders and property and casualty insurers.

From 1949 to 1981, the threshold was \$1 million. From 1982 to 1996, it was \$5 million, and since January 1, 1997, the threshold has been \$25 million.

All of the events listed above may not have resulted in unexpected loss experience for commercial property coverage in this state since catastrophes are defined based on total insured property losses spreading across state lines and lines of business.

For more information concerning Catastrophe Claims Services, please see "Persons to Contact" in the circular cover letter.