

## **ATTACHMENT III**

### **Complementary Group Rating**

**ALLSTATE FIRE AND CASUALTY COMPANY  
PRIVATE PASSENGER AUTOMOBILE  
OHIO**

**COMPLEMENTARY GROUP RATING**

With this filing Allstate is updating the identifier used to assign CGR groups to policyholders. The current micro-segment identifier used to assign CGR groups to policyholders is being updated to include an additional characteristic to specify colliders, which occur when multiple policyholders share all four current micro-segment characteristics. The updated micro-segments will be referred to as enhanced micro-segments. This updated table assigns a CGR group by enhanced micro-segment based on the following logic:

- Each policyholder's current micro-segment was identified as of 11/21/2017.
- Policies expected to renew between the effective dates of filing R31531 (2/22/2018) and this filing (4/12/2018) will have enhanced micro-segments assigned to the same CGR group as their current micro-segment.
- Policies that are expected to renew after the effective date of this filing will have enhanced micro-segments assigned to CGR groups as described below (Attachment III, Page 2).

**Complementary Group Rating (CGR) Structure**

The CGR structure enables Allstate to adjust the current rate relativity in the direction of the calculated rate relativity from the Pollux model while also mitigating large premium changes at renewal. In the CGR structure, each policy belongs to a single granular unit known as an enhanced micro-segment. Enhanced micro-segments are then mapped to complementary groups which reflect the appropriate rating factor.

**Enhanced Micro-Segment Definition**

Within CGR, the enhanced micro-segment structure is composed of each possible unique combination of the following characteristics:

- Territory
- Birth Date of Oldest Operator
- Years with Prior Carrier (YPC)
- Gender of Oldest Operator
- Collider Identifier

In addition to the characteristics listed in filing R31531, enhanced micro-segments now include an additional characteristic to specify colliders, which occur when multiple policyholders share all four current micro-segment characteristics. Below is a table of Collider Identifier values and the number of enhanced micro-segments with each value. Collider Identifier values are determined by sorting the list of all populated Allstate Fire and Casualty Insurance Company, Allstate Property and Casualty Insurance Company, Allstate Insurance Company, Allstate Northbrook Indemnity Company, and Allstate Indemnity Company enhanced micro-segments by

the original four micro-segment characteristics, and then assigning a letter of A-D by sorting a systems code from smallest to largest. This allows for consistency in enhanced micro-segment values for each Complementary Group Rating data pull date.

Collider Identifier Value	Number of Enhanced Micro-Segments
A	385,338
B	2,126
C	34
D	1

The unique combinations of these five variables are used only as identifiers for Complementary Group assignment within this rating structure. In this instance, the combination of these five variables (the enhanced micro-segment) is not being used as a loss cost factor. Each enhanced micro-segment will be assigned to a complementary group using a loss cost, class-based analysis, as described below. All current Ohio Allstate Fire and Casualty Insurance Company, Allstate Insurance Company, Allstate Property and Casualty Insurance Company, Allstate Indemnity Company, and Allstate Northbrook Indemnity Company customers have enhanced micro-segments in the Complementary Group Assignment Table included in Attachment IV. Any enhanced micro-segment not explicitly shown in Attachment IV is addressed on Attachment IV, Exhibit 1, Page 2550.

### **Complementary Groups**

Enhanced micro-segments will be rated using a factor in the process described in detail below (Attachment III, Page 2). To facilitate and track the application of this factor we have given each value in a wide array of 1,000 factors a unique label known as a *complementary group*. The complementary group factors are in 0.5% increments. By assigning enhanced micro-segments to the appropriate complementary group, each policy will receive the appropriate rating factor. Attachment IV is in a format showing assigned CGR groups for each coverage. Allstate does not currently vary complementary groups by coverage; however, the structure exists for the potential to do so in the future.

### **Complementary Group Rating – Assignment of Enhanced Micro-Segments to Complementary Groups: Limited Selection Approach**

For this filing, the purpose of the update is simply to apply the same analysis used in R31531 to account for policyholders written through 11/21/2017. Complementary group assignments for micro-segments with policyholders expected to renew onto rates in filing R31531 are unchanged, though the micro-segment identifier has been updated to enhanced micro-segment with the addition of the collider indicator. A loss cost, class-based analysis is used to develop the complementary group assignment for each policy expected to renew after the effective date of this filing based on Allstate Fire and Casualty Insurance Company data as of 11/21/2017. In this analysis, we first determine an actuarially sound range of CGR factors for each enhanced micro-segment. The actuarially sound range is defined from the CGR factor that would result in no

change to the current rate relativity for the enhanced micro-segment to the factor that would result in charging the full calculated rate relativity determined by the Pollux loss model as described in filing R31531. Every enhanced micro-segment will receive a CGR factor within the actuarially sound range.

Once the actuarially sound range has been determined for each enhanced micro-segment based on the Pollux loss model, Allstate will assign complementary groups that move enhanced micro-segments toward their calculated rate relativities. In this filing, instead of using a class-based retention model, we have used a limited selection approach. This limited selection approach will be reevaluated with each subsequent CGR table filing.

Enhanced micro-segments with a current total premium relativity below their total Pollux premium relativity will increase up to 1.0% (if within the actuarially sound range), plus an additional 8% of the amount above 1.0% (subject to a 5.0% maximum increase) toward their Pollux premium relativity. The parameters for the limited selection approach are selected to achieve the desired aggregate premium level. Enhanced micro-segments with a current total premium relativity above their total Pollux premium relativity will decrease up to 1.0% toward their Pollux premium relativity. Below are three examples of how the final factor selection will be within the actuarially sound range.

Example #1: If an enhanced micro-segment's total Pollux premium is 0.5% above their total current premium, the enhanced micro-segment would see a 0.5% increase. [0.5% is both >0.0% and <1.0%]

Example #2: If an enhanced micro-segment's total Pollux premium is 15.0% above their total current premium, the enhanced micro-segment would see a 2.1% increase. [2.1% = 1.0% + (15.0% - 1.0%) \* 8%]

Example #3: If an enhanced micro-segment's total Pollux premium is 2.0% below their total current premium, the enhanced micro-segment would see a 1.0% decrease. [-1.0% = max(Percent Difference, -1.0%)]

Given this approach to final factor selection, the overall rate change due to the assignment of CGR factors results in an overall rate neutral change. This process will operate to mitigate policyholder disruption by tempering movement towards the updated estimate of loss costs, based on the Pollux loss model, within the actuarially sound range of factors.

As noted above, the assignment process is subject to the constraint that the assignment to a complementary group will only be used to guide the movement of premium in the direction of the updated estimated rate relativity. Furthermore, the structure also has a control that ensures any two policies with identical loss characteristics as reflected in this rating plan including the updated Pollux loss model will be assigned to the same complementary group and receive the same rate. Allstate has not yet found any identical risks in Ohio. This is not an unexpected result, since the large number of possible price points when combining the SRM6 rating plan characteristics and the same Pollux-based loss model characteristics for each coverage make it extremely unlikely for identical risks to occur.

After completing the above process for current Allstate Fire and Casualty Insurance Company customers, the remaining Complementary Group assignments were determined as follows: first, group FSI, which has an associated factor of 1.000 was assigned for enhanced micro-segments reflective of current Ohio Allstate Insurance Company, Allstate Property and Casualty Insurance Company, Allstate Indemnity Company, or Allstate Northbrook Indemnity Company customers. Finally, Complementary Group O4R, which has an associated factor of 0.8277, will apply to any enhanced micro-segments not already accounted for in the process above.

**ALLSTATE FIRE AND CASUALTY COMPANY  
PRIVATE PASSENGER AUTOMOBILE  
OHIO**

**COMPLEMENTARY GROUP RATING STRUCTURE**

As described in Attachment I, the cover memo for this filing, Complementary Group Rating is simply another rating calculation step added to Allstate’s current rating structure. See the table below for an example of how a policy will be rated with this additional rating step.

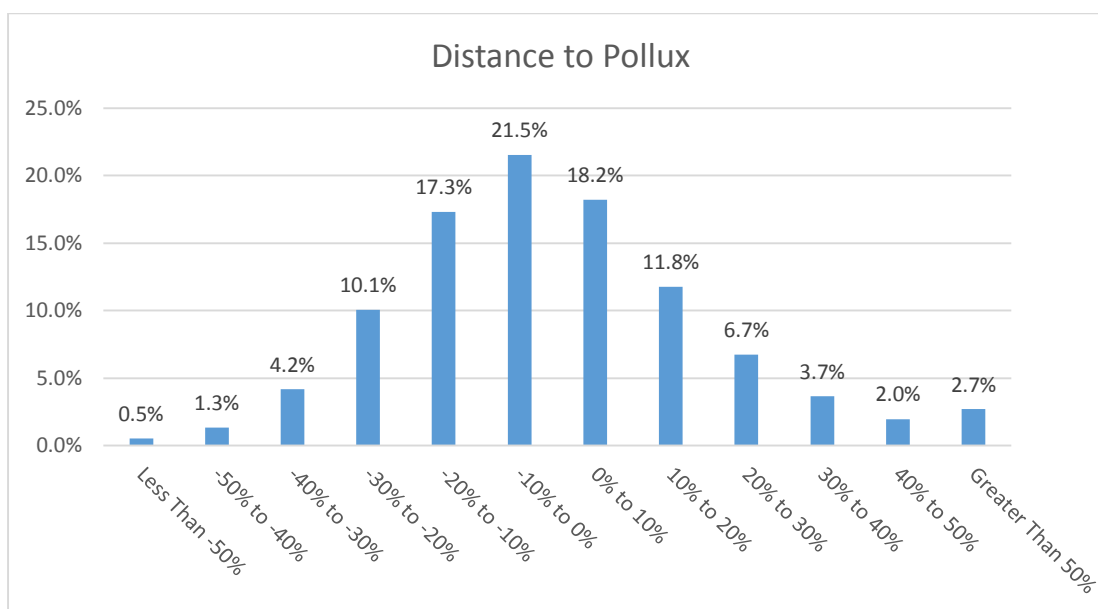
Using the proposed base rates and rating factors, and noting the Complementary Group assignment of 7F7, the rating calculating is as follows:

Step #	Rating Plan	AA	BB	CC	DD	HH	SS (Single – Car)
1	<b>Territorial Base Rate Adjustment</b>	\$170.40	\$226.82	\$44.87	\$184.01	\$24.07	\$23.29
2	<b>Rate Adjustment Factor</b>	2.0716	2.2078	1.6011	1.1095	1.0831	0.8753
3	<b>Increased Limit Factor/Addend</b>	x _____	+ _____	x _____			x _____
...	...	...	...	...	...	...	...
...	...	...	...	...	...	...	...
42	<b>Complementary Group Rating (CGR) Factor</b>	1.0050	1.0050	1.0050	1.0050	1.0050	1.0050
<b>Final Premium</b>		= \$170.40 * 2.0716 * ... * 1.0050	= \$226.82 * 2.2078 + ... * 1.0050	= \$44.87 * 1.6011 * ... * 1.0050	= \$184.01 * 1.1095 * ... * 1.0050	= \$24.07 * 1.0831 * ... * 1.0050	= \$23.29 * 0.8753 * ... * 1.0050

**ALLSTATE FIRE AND CASUALTY COMPANY  
PRIVATE PASSENGER AUTOMOBILE  
OHIO**

**POLLUX PREMIUM IMPACTS**

Below is a histogram comparing Pollux premium to the current premium the policyholder will have just prior to the 4/12/2018 renewal effective date of this filing. The distance to Pollux is determined as follows: Distance = (Pollux Premium / Current Premium) – 1.



<b>Distance to Pollux</b>	<b>Frequency</b>	<b>% of Policies</b>
Less than -50%	1386	0.5%
-50% to -40%	3655	1.3%
-40% to -30%	11431	4.2%
-30% to -20%	27605	10.1%
-20% to -10%	47435	17.3%
-10% to 0%	59016	21.5%
0% to 10%	49966	18.2%
10% to 20%	32269	11.8%
20% to 30%	18410	6.7%
30% to 40%	10029	3.7%
40% to 50%	5389	2.0%
Greater than 50%	7383	2.7%

**ALLSTATE FIRE AND CASUALTY COMPANY  
PRIVATE PASSENGER AUTOMOBILE  
OHIO**

**COMPLEMENTARY GROUP RATING FACTOR DISTRIBUTION**

Below is the frequency distribution by CGR factor ranges. Please note that the CGR factor is designed to allow for selection of premium between current and Pollux.

<b>Complementary Group Rating Factor Range</b>	<b>Policy Count</b>	<b>% of Policies</b>
Less Than 0.5	19	0.0%
0.5 - 0.6	41	0.0%
0.6 - 0.7	183	0.1%
0.7 - 0.8	717	0.3%
0.8 - 0.9	36114	13.2%
0.9 - 1.0	126487	46.2%
1.0 - 1.1	74832	27.3%
1.1 - 1.2	28655	10.5%
1.2 - 1.3	5818	2.1%
1.3 - 1.4	887	0.3%
1.4 - 1.5	150	0.1%
1.5 - 1.6	52	0.0%
Greater Than 1.6	19	0.0%



**ALLSTATE FIRE AND CASUALTY COMPANY  
PRIVATE PASSENGER AUTOMOBILE  
OHIO**

**PREMIUM IMPACTS BY ENHANCED MICRO-SEGMENT**

Included in Attachment V, Exhibit 1, are Current, Pollux, and Final premium relativities for all the populated enhanced micro-segments as of the data snapshot of 11/21/2017. Due to the granular nature of this information, each enhanced micro-segment has been relabeled to protect our competitive position. EMS1 through EMS-273974 represent all populated enhanced micro-segments currently in Allstate Fire and Casualty Insurance Company. This format allows every enhanced micro-segment to be reviewed, but with its identity disguised, as to not expose sensitive information to competitors. This allows any intended evaluation that our current premiums are moving the specified amount toward their Pollux calculated premiums.

**ALLSTATE FIRE AND CASUALTY COMPANY  
PRIVATE PASSENGER AUTOMOBILE  
OHIO**

**IDENTICAL RISKS**

Allstate has a process in place to ensure that two renewal policyholders with the same identical risk will receive the same final rates. Allstate defines identical risks as discrete, separate risks having the same rating plan characteristics as identified by both the underlying rating plan characteristics (rating plan steps 1-42) and the same GLM-based loss model characteristics (used in the evaluation of CGR) for each coverage. Utilizing this interpretation, it is possible that two identical risks could receive a different CGR factor. To account for and address such a possibility now and in the future, during the CGR table creating process, a check is performed to verify that any identical risks will be charged the same premium. Allstate has not yet found any identical risks in Ohio. This is not an unexpected result, since the large number of possible price points when combining the proposed rating plan characteristics and the same GLM-based loss model characteristics for each coverage make it extremely unlikely for identical risks to occur.

To further illustrate that rating at this granular level is not something new with CGR and has been happening for years, Allstate looked at the current SRM6 rating plan (steps 1-42) without consideration of the CGR step. The data used in this filing for the creation of the Ohio CGR Table 1 with new business effective 3/12/2018, and a data snapshot date of 11/21/2017, resulted in no identical risks being found.