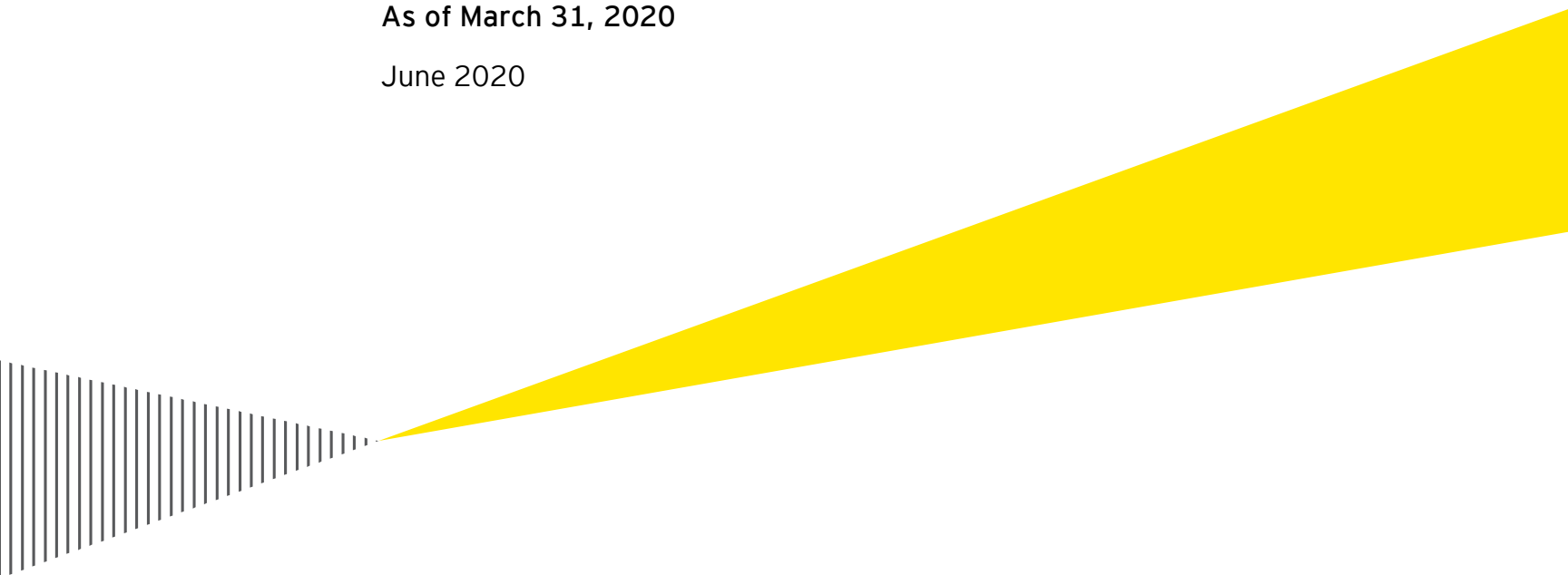


State of Ohio - Office of Risk Management Self-Insured Vehicle Liability Program

Actuarial analysis of
loss and allocated loss adjustment expense reserves

As of March 31, 2020

June 2020



Building a better
working world



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Ms. Traci Heyer, ARM, AU, AINS
Risk Manager, Underwriting & Analytics
Ohio Department of Administrative Services
General Services Division - Office of Risk Management
4200 Surface Road
Columbus, OH 43228

23 June 2020

Dear Ms. Heyer:

We have completed our engagement to provide estimates of the unpaid loss and allocated loss adjustment expenses (“ALAE”) as of March 31, 2020 for the State of Ohio’s self-insurance program (the “Program”), specifically as it relates to its self-insured vehicle liability program, and to provide estimates of the ultimate loss and ALAE for the fiscal year ending June 30, 2021 (“Fiscal/Accident Year 2021”) using data evaluated as of March 31, 2020. Our engagement was performed in accordance with our engagement agreement made effective December 8, 2017 and amended March 29, 2018 and September 1, 2019, and our procedures were limited to those described in that agreement.

Results of our work/Period covered by our procedures/Recommendations

During the period April 2020 through June 2020, Ernst & Young (“EY”) performed an actuarial unpaid claim liability projection for the Program’s self-insured vehicle liability exposures on both an undiscounted and discounted basis, using data through March 31, 2020. Our work also included an ultimate loss and ALAE estimate for the fiscal year ending June 30, 2021. The ultimate loss and ALAE estimate for the upcoming fiscal year was estimated on an undiscounted and discounted basis and includes various levels of confidence. Our findings resulting from our work are provided in this report.

Background

The State of Ohio Office of Risk Management (“ORM”) manages a self-insured vehicle liability program through the Risk Management Reserve Fund (“The Fund”) created under Ohio Revised Code Section 9.823. The Program for vehicle exposures covers liability only; losses related to physical damage are not covered by the Program. The exposures in the Program are from vehicles. Vehicle exposures include passenger vehicles, trucks (light, medium, and heavy weight), emergency vehicles, guest vehicles (buses), mobile equipment (light and heavy), and watercraft.

There are currently 92 state agencies that participate in the Program. In consideration of the agency's premium payment, the ORM agrees to pay liability claims and judgments properly made and rendered against the state, state officers and state employees that arise from the officer's or employee's operation of any state-owned vehicle, provided that the operation of the vehicle was in the course of state business as authorized by the state agency.

The ORM has engaged EY to provide an unpaid claims estimate as of March 31, 2020 and estimates of ultimate loss and ALAE for the upcoming fiscal year. In addition, it is our understanding that the estimates are also to be presented on an undiscounted and discounted basis showing anticipated future cash flows with expected payments per period. Finally, the estimate for the upcoming fiscal year was also requested by the ORM to be allocated to the various agencies participating in the Program ("Premium Allocation").

This report provides a range of expected unpaid claim estimates for vehicle liability claims incurred from July 1, 2004 through March 31, 2020 and evaluated as of March 31, 2020.

The report also provides estimates of the ultimate loss and ALAE for the prospective period July 1, 2020 through June 30, 2021 at retention levels of \$2M and \$5M, as requested by the ORM, and includes these estimates at various levels of confidence. The estimates are then allocated to the agencies expected to participate in the Program in fiscal year July 1, 2020 to June 30, 2021. For more background on the Program, please see Section V of this report.

Scope of our work

As outlined in our engagement agreement, our estimate of total vehicle liability outstanding loss and ALAE as of March 31, 2020 and estimates of ultimate loss and ALAE for the next fiscal year were based on inquiries of, and discussions with, the ORM. We have not sought to confirm the accuracy of the data or the information and explanations provided by the ORM.

This report contains a reasonable range of estimates of the unpaid loss and ALAE limited to the Program's self-insured retentions for fiscal accident years 2005 through 2020, evaluated as of March 31, 2020. These estimates are presented on both an undiscounted and discounted basis utilizing a discount rate provided by the ORM. Also contained within this report is an estimate of ultimate loss and ALAE for the next fiscal year beginning July 1, 2020 and ending June 30, 2021. The expected ultimate loss and ALAE for this year is also shown on an undiscounted and discounted basis, and is estimated for possible future insurance limits of \$2 million and \$5 million, as requested by the ORM. We also provide

the estimate for fiscal/accident year 2021 at various levels of confidence. EY has also allocated the actuarial indications to the agencies the ORM expects to participate in the Program in fiscal year 2021.

Our work has been limited in scope and time and we stress that more detailed procedures may have revealed issues that this engagement has not. The procedures performed throughout this engagement were advisory in nature and were performed under the American Institute of Certified Public Accountants ("AICPA") consulting standards. The procedures performed did not constitute an audit, a review, examination, or other form of attestation or assurance as those terms are defined by the AICPA. Accordingly, we do not express any form of assurance. Any use of the term "review" within this report should be interpreted in the common use of that term, and not in the definition of "review" promulgated by the AICPA. Also, this report/work product does not constitute a legal opinion or advice.

Restrictions on the use of our work product

Our estimate of total vehicle liability outstanding loss and ALAE as of March 31, 2020 and our estimate of ultimate loss and ALAE for the next fiscal year beginning July 1st are intended solely for the information and use of the management of the ORM. They are not intended to be and should not be used by anyone other than these specified parties.

EY personnel responsible for our work product

Kishen Patel, FCAS, MAAA, and Thomas Conway, ACAS, MAAA are responsible for this report. We are members of the American Academy of Actuaries and meet the Qualification Standards of the American Academy of Actuaries to perform this engagement and provide the findings contained herein. Comments or questions regarding this report should be directed to Kishen Patel at 312-879-2988, who is also available to provide supplemental information and/or explanation as requested.

We appreciate the cooperation and assistance provided to us during the course of our work.

Very truly yours,

Ernst + Young LLP

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I. Introduction and scope

Ernst & Young (“EY”) has been retained by The State of Ohio - Office of Risk Management (the “ORM”) to provide an unpaid claim estimate for vehicle liability claims incurred from July 1, 2004 through March 31, 2020 evaluated as of March 31, 2020. Additionally, EY was asked to provide estimates of ultimate loss and allocated loss adjustment expense (“ALAE”) for the fiscal accident year beginning July 1, 2020 and ending June 30, 2021 at limits of \$2 million and \$5 million. These estimates are presented on both an undiscounted and discounted basis. Furthermore, EY has been asked to allocate the estimates for fiscal/accident year 2021 to the agencies that are expected to participate in the Program for fiscal/accident year 2021. For the expected loss and ALAE for the next fiscal year, beginning July 1, 2020, variation from expected results at various confidence levels are presented.

As outlined in our engagement agreement, our estimate of total vehicle liability outstanding loss and ALAE as of March 31, 2020 and estimate of ultimate loss and ALAE for the next fiscal year beginning July 1st were based on inquiries of, and discussions with, the ORM. We have not sought to confirm the accuracy of the data or the information and explanations provided by the ORM.

Our work has been limited in scope and time and we stress that more detailed procedures may have revealed issues that this engagement has not. The procedures performed throughout this engagement were advisory in nature and were performed under the AICPA consulting standards. The procedures performed did not constitute an audit, a review, examination, or other form of attestation or assurance as those terms are defined by the AICPA. Accordingly, we do not express any form of assurance. Any use of the term “review” within this report should be interpreted in the common use of that term, and not in the definition of “review” promulgated by the AICPA. Also, this report/work product does not constitute a legal opinion or advice.

Kishen Patel, FCAS, MAAA and Thomas Conway, ACAS, MAAA are responsible for this report. We are members of the American Academy of Actuaries and meet the Qualification Standards of the American Academy of Actuaries to perform this engagement and provide the findings contained herein. Comments or questions regarding this report should be directed to Kishen Patel at 312-879-2988, who is also available to provide supplemental information and/or explanation as requested.

II. Distribution and use

This report is intended solely for the information and use of the management of the ORM. The report is not intended to be and should not be used by anyone other than these specified parties. This report should not be relied upon for any other purpose. Any other use or distribution of this report without our express written consent is not authorized.

III. Reliances and limitations

Use of the term “review” in our workproduct

The services we performed throughout this engagement were advisory in nature; therefore, this report/work product does not represent an assurance report or opinion, nor does it constitute an audit, review, examination, or other form of attestation as those terms are defined by the American Institute of Certified Public Accountants. Any use of the term “review” within this report should be interpreted in the common use of that term, and not in the definition of “review” promulgated by the AICPA. Also, this report/work product does not constitute a legal opinion or advice.

Data and qualitative information

The report presents an analysis of data, conditions, and practices communicated to EY personnel involved in this engagement and described herein.

In preparing our analysis, we relied on data and qualitative information provided to us under the direction of Ms. Traci Heyer, Risk Manager, Underwriting & Analytics of the State of Ohio - Office of Risk Management. We have relied on the oral and/or written statements of Ms. Heyer regarding the quality, accuracy, and completeness of the data and information supplied to us. Any inaccuracies or inconsistencies in the data could have a significant effect on our results.

We relied on industry benchmarks based on industry aggregated insurance company data, public rate filing information, and some proprietary development data in performing our analysis.

Our analysis considers loss and ALAE on a combined basis. Any reference to loss in this report is intended to include loss and ALAE, unless otherwise indicated.

In accordance with ASOP 23, *Data Quality*, we performed “*an informal examination of the obvious characteristics of the selected data to determine if such data appear reasonable and consistent for purposes of the assignment.*” This “informal examination” did not constitute an audit of data. Rather, the procedures that we performed on the data provided to us were as follows: Compared incurred and paid loss and ALAE and vehicle exposure information to that of data/loss runs as of prior year evaluations for reasonability/consistency purposes. We note that the review procedures performed may not always uncover existing defects, as they did not constitute an audit. Should any defects be found in the data, by management, through the ORM’s financial audit, or through any other external review, we should be notified so that our analysis can be adjusted accordingly.

Evaluation date

The evaluation date is March 31, 2020. Our review considered information provided to us through the date of this report.

Uncertainty or risk

In determining the estimates, EY has used a measure known as the Actuarial Central Estimate. The Actuarial Central Estimate represents an expected value over the range of reasonably possible outcomes. Such a range of reasonably possible outcomes may not include all conceivable outcomes, as, for example, it would not include conceivable extreme events where the contribution of such events to an expected value is not reliably estimable.

The actuarial central estimates in the report are based on assumptions and procedures described in the section of the report entitled “Analysis.” Considerable uncertainty and variability are inherent in the estimation of unpaid claim liabilities. The uncertainty of the findings contained herein is increased by the need to use external/industry data and benchmarks due to the small volume of claims history. As a result, it is possible that actual experience may be different than the estimates promulgated in this report, and such difference may be material. As such, we cannot provide any determination that future experience will be as expected in this report or recorded by the Program.

The level of uncertainty in our actuarial central estimates, for both the unpaid claim liability estimate as of March 31, 2020 and for the ultimate loss and ALAE estimate for the next fiscal year, was increased due to the potential impacts from COVID-19, a coronavirus first identified in December 2019 in Wuhan China and later declared a pandemic by the World Health Organization (“WHO”) on March 11, 2020, and the economic downturn that ensued. Within a week of the WHO declaration, most major economies had announced significant and increasing restrictions on the movement and interaction of people. On March 25, 2020 it was estimated that a quarter of the world’s population was under some form of lockdown or stay-at-home order.

At the time of publication of this report there are many issues arising from COVID-19 that could impact claims incurred by the ORM on or before March 31, 2020. These include:

- A number of states, including Ohio, are under directives to stay-at-home, many courts and arbitration systems are closed, potentially limiting the ability to report claims and the ORM’s ability to settle claims thus causing increases in duration and severity.
- Many elective surgeries have been cancelled and claimants are not able to attend physical therapy appointments, potentially limiting the ORM’s ability to improve outcomes for claimants thus causing increases in duration and severity.

This list of potential effects may not be exhaustive and at this time we are unable to provide any quantification of the impact from COVID-19 on claims incurred as of March 31, 2020.

Other reliances or limitations

The ORM selected a 2.0% discount rate for purpose of discounting its self-insurance vehicle liability reserve. The assumption provided by the ORM in the prior year was 2.5%. EY relied on this discount rate supplied to us by the ORM. An appropriate discount rate should reflect the expected returns on invested assets of similar size and duration as the claim payments, as well as the uncertainty associated with future returns and the timing and amount of eventual payments. Assessing the reasonableness for the Program’s selection of 2.0% is outside the scope of our analysis. The ORM noted that 2.0% was selected based on a longer-term view of the interest rate environment so as not to overreact to the recent volatility and reduction observed in the U.S. treasury yield curve. We note that the comparable duration-matched risk-free rate is 0.20% on the U.S. treasury yield curve rates as of March 31, 2020 based on an estimated duration of payments of 1.5 years, which reflects the lower U.S. treasury yield curve compared to prior years resulting from actions taken by the Federal Reserve to stimulate the economy after the financial downturn from COVID-19.

EY's approach to determine estimates of ultimate loss for the prospective period at different confidence levels was to utilize the Monte Carlo simulation from our March 31, 2018 analysis to estimate the distribution of ultimate claims for this period. This approach estimates the variation of actual results from expected, given a known distribution of aggregate claims (process risk). Though the Program's actual data was used to select the best fit distribution, the actual distribution of ultimate claims is unknown, and selected assumptions such as loss trends and loss development factors were also used; thus, parameter risk still exists.

To allocate the fiscal year 2021 projection period estimates to the participating agencies for purposes of calculating the premium, the fiscal year 2020 query of vehicle counts by agency was used at the guidance of the ORM. This assumes no change in the overall level of exposure for the upcoming fiscal year.

IV. Findings

The EY Summary of total net loss and ALAE reserves for the ORM's self-insured vehicle liability program as of March 31, 2020 is as follows:

	Unpaid Claims Liability (\$)		
	Low	ACE	High
(1) Undiscounted	4,614,171	5,494,948	6,375,725
(2) Discounted at 2.0%	4,484,232	5,340,206	6,196,180

Based on our review, we find the range of reasonable unpaid claim estimates to be from \$4.6M to \$6.4M on an undiscounted basis, and \$4.5M to \$6.2M on a discounted basis. The high and low estimates were determined after consideration of the variability observed across the various ultimate loss indications as well as consideration of the nature of the underlying exposure, the inherent variability in this type of coverage, the magnitude of the liabilities, the limits being retained, and our experience with similar exposures with other clients. The above table is also displayed on Exhibit Auto-1.

We performed an actual versus expected analysis based on the assumptions underlying EY's prior actuarial analysis as of March 31, 2019. On an incurred basis, loss and ALAE emerged by \$1.8M less than expected on fiscal/accident years 2019 and prior. On a paid basis, loss and ALAE emerged by \$1.5M less than expected on fiscal/accident years 2019 and prior. Our estimates imply a decrease in ultimate loss and ALAE estimates on those same years of \$1.7M. These actual versus expected diagnostics are also displayed on Exhibit Auto-19 and 20.

The EY estimate of expected ultimate loss and ALAE for the ORM's self-insured vehicle liability program for fiscal accident year 7/1/2020-6/30/2021 is as follows:

	Ultimate Loss & ALAE (\$)	
	ACE @ 2M	ACE @ 5M
(1) Undiscounted	2,347,270	2,744,065
(2) Discounted at 2.5%	2,231,922	2,609,218

The above estimates are also found on Exhibits Auto-3 and Auto-5. The estimates presented herein are based on the assumption that exposures in fiscal accident year 7/1/2020-6/30/2020 will be comparable to the current exposures observed in the data as of March 31, 2020. Given the level of uncertainty in exposures created by COVID-19, we have assumed a “normal” year and have not made an adjustment for the impacts of COVID-19.

The EY estimate of ultimate loss and ALAE for the ORM's self-insured vehicle liability program for fiscal accident year 7/1/2020-6/30/2021 at various levels of confidence is as follows:

Confidence Level	Undiscounted (\$)		Discounted (\$)	
	\$2,000,000 per Occurrence	\$5,000,000 per Occurrence	\$2,000,000 per Occurrence	\$5,000,000 per Occurrence
ACE	2,347,270	2,744,065	2,231,922	2,609,218
60%	2,326,915	2,548,731	2,212,567	2,423,483
65%	2,495,202	2,727,015	2,372,585	2,593,006
70%	2,700,612	2,947,136	2,567,900	2,802,310
75%	2,966,215	3,221,356	2,820,452	3,063,054
80%	3,262,007	3,553,978	3,101,707	3,379,330
85%	3,569,486	4,032,991	3,394,076	3,834,804
90%	3,971,349	4,860,982	3,776,192	4,622,107
95%	4,642,866	6,508,796	4,414,709	6,188,945

A description of the procedures performed to obtain the various confidence levels shown above can be found within the “Analysis” section of this report.

V. Company background

The State of Ohio - Office of Risk Management (the "ORM") manages a self-insured vehicle liability program through the Risk Management Reserve Fund ("The Fund") created under Ohio Revised Code Section 9.823. The Program for vehicle exposures covers liability only; losses related to physical damage are not covered by the Program. The exposures covered by the Program include all motorized, self-propelling "vehicles" as defined in Ohio Revised Code 9.83, including passenger vehicles, medium and heavy weight trucks, emergency vehicles, guest vehicles (buses), off-road light and heavy equipment and watercraft.

The Program covers all state agencies, boards and commissions, as well as the Legislative and Judicial branches of state government. Pursuant to Ohio Revised Code 9.82, the "state" does not include political subdivisions or institutions of higher education. There are currently 92 entities covered under the Program. Premiums are allocated to and paid by the agencies that own the state "vehicles." The ORM agrees to pay liability claims and judgments properly made and rendered against the state, state officers, or state employees that arise from the officer's or employee's operation of any state-owned vehicle, provided that the operation of the vehicle was in the course of state business as authorized by the state agency. For fiscal year ending June 30, 2020, over two-thirds of the exposures are associated with three state departments; Department of Natural Resources, Department of Public Safety, and the Department of Transportation.

VI. Analysis

General approach

We prepared an independent estimate of net loss and ALAE liabilities for fiscal accident years 2005 through 2020, using data provided by the ORM as of March 31, 2020. Liability estimates were limited to historical self-insured retentions. Additionally, we prepared expected ultimate loss and ALAE projections for the next fiscal accident year beginning July 1, 2020 and ending June 30, 2021 at limits of self-insured liability of \$2 million and \$5 million.

We utilized data provided by the ORM, supplemented with benchmarks derived from industry aggregated data and publicly available Commercial Auto product filings/manuals.

Responsible party for methods and assumptions

EY is responsible for each material assumption and method used in this analysis, except as noted below:

- As discussed above, the data are the responsibility of the ORM
- The discount rate utilized was provided by the ORM
- We relied on industry aggregated insurance company data for consideration of Commercial Auto Liability loss development
- We utilized public rate filing information for consideration of Commercial Auto Liability Increased Limit Factors and Vehicle Classification relativities
- We relied on the current estimates of vehicle counts by agency as the basis for the fiscal year 2021 projection period and premium allocation, as directed by the ORM

Detailed description of analysis

1. Organization of Data

The loss data was analyzed on a combined basis, including both loss and ALAE. The loss data was organized by historical fiscal/accident year, as the coverage was provided on an occurrence basis. Our analysis was based upon data beginning July 1, 2004 through March 31, 2020, evaluated as of March 31, 2020. A fiscal/accident year for the ORM runs from July 1st to June 30th. For example, fiscal accident year 2017 includes all claims that incurred in the period July 1, 2016 to June 30, 2017. Data is presented limited to the historical self-insured retentions, which are \$1 million per occurrence for fiscal/accident years 2005-2008, and \$2 million per claim for all subsequent periods. Our estimates take into account the fact that self-insured retentions are applied to claims after application of deductibles and recognition of salvage and subrogation recoveries. We have not separately estimated the impact of deductibles and recoveries, as such procedures were not outlined in our scope of work.

2. Estimation Methodologies

We computed independent estimates of loss and ALAE liabilities limited to historical retentions by applying the following generally accepted actuarial methods to paid and incurred loss and ALAE data as of March 31, 2020:

1. Paid and Incurred Loss Development Method
2. Paid and Incurred Bornhuetter-Ferguson Method ("BF")
3. IBNR-to-Case Outstanding Method
4. Expected Loss Ratio Method

A description of each of the methodologies used is included in Section VII of this report.

3. Procedures performed

Loss and ALAE liability/reserve estimates

The paid and incurred loss development patterns used in the first three methods listed above are derived from loss development triangles of the Program's historical data provided by the ORM but reflect our own independent view of the loss emergence patterns. The loss development triangles are stated on an unlimited basis and are not limited to historical self-insured retentions. Based on

these triangles, we have first selected paid and incurred development patterns. We supplemented the Program's data with aggregated Commercial Auto Liability ("CAL") benchmarks in coming up with our final loss development factor selections. Selected loss development factors were applied to corresponding limited loss and ALAE by fiscal/accident year at historical retentions to calculate ultimate loss. Please see Exhibits Auto-7 through Auto-9 for details on these methods.

The key assumption for the BF methods is the "a priori" loss estimate. We have derived a set of loss rates based on comparing the ultimate loss indications from the development methods described above to the exposure base (number of vehicles). These loss rates were then trended to the fiscal accident year 2021 for exposure, severity and frequency. We have applied a net trend of 3% for CAL. The trend rate was selected based on the Program's historical data and our knowledge of recent industry development for this type of risk exposure. Since retention levels have varied by year, we adjusted the historical data to be at the most current retention (\$2M) using Increased Limit Factors ("ILF"). Once an expected loss rate was selected at the \$2M retention, we then adjusted the selected loss rate back to historical retention levels for past years (2005- 2008, \$1M) by adjusting with the same ILF. The selected loss rate was also de-trended to the respective accident period to derive the a priori loss estimate by year. Ultimate losses were derived by multiplying the percent unreported (or unpaid) for each accident year, based on our selected loss development patterns, by the a priori loss estimate, and adding reported (or paid) loss and ALAE to date. Thus, this method relies more heavily on the exposure to loss, and our initial expectations, for accident periods where there has not yet been a considerable amount of loss reported (or paid). Please see Exhibits Auto-11 through Auto-13 for detailed calculations for the BF methods.

Ultimate losses were selected for each accident period by giving different weights to the indications produced by the methods described above and detailed further in Section VII. The weights were selected based on actuarial judgement. In general, for immature accident periods, more weight was given to methods that incorporate expectations, such as the BF methods. As accident periods mature, and more claims for that period are reported to date, more weight was given to paid and incurred development methods. Exhibit Auto-5 displays indicated ultimate loss and ALAE from each actuarial method, along with our selected ultimate loss and ALAE.

Actual versus expected analysis (“AvE”)

As part of our review, we have performed hindsight analyses for fiscal/accident periods 2019 and prior by comparing the actual paid and incurred loss emergence since the prior year review at March 31, 2019 to what was expected based on the paid and incurred loss development patterns selected at the time of the prior review. We used this comparison of actual loss development versus expected loss development as a reasonability check for the changes in our current year selected ultimate losses compared to the prior year’s selected ultimate losses for all accident periods 2019 and prior.

For accident periods 2019 and prior, the actual reported loss emergence over the period was \$1.8M less than expected while the actual paid loss emergence over the period was \$1.5M less than expected based on our selected development patterns as of March 31, 2019. Commensurate with the loss emergence observed, we have decreased our overall ultimate loss estimates for accident years 2019 and prior, decreasing them by \$1.7M since March 31, 2019.

Prospective period estimates

The ultimate loss estimate for the next fiscal accident year beginning July 1, 2020 through June 30, 2021 was established using the a priori loss rate selected for the BF method. The initial selected expected loss rate at the fiscal accident year 2021 level was multiplied by the expected number of vehicles (exposures) to be covered under the Program for the coming year. As described above, this estimate was based on an expected loss rate at the most recent year’s self-insured retention of \$2M. To get an estimate of the ultimate loss at the \$5 million retention, we applied an ILF to the ultimate loss. More details on the ILFs can be found in sub-section “4. Assumptions” below.

The ultimate loss estimate for fiscal year 2021 was then allocated for premium calculation purposes to the 92 agencies anticipated to have in-service of vehicles covered under the Program for the upcoming fiscal year. We estimated the allocation giving consideration to two methods. The first method allocated the ultimate loss and ALAE based on the projected vehicle count distribution, by agency, for fiscal/accident year 2021. The second method allocated based on the historical loss and ALAE experience of each agency. Projected vehicles/exposures are based on fiscal/accident year 2020 exposures by agency and vehicle classification, and are adjusted by proposed classification relativities (see Exhibit Auto Premium Allocation-7). The historical agency loss and ALAE experience was developed to ultimate using the selected loss development factors utilized in this review for the aggregate estimate and were trended to the current cost level utilizing the same trend factor as that used in deriving the a priori expected loss rate described above. The ultimate trended losses were then capped at \$250,000 to avoid over-penalizing an agency for an unusually large loss.

Two scenarios were presented for consideration based on the different allocation methods discussed above. The first allocation scenario was based on 50% weight to the vehicle count method and 50% to the historical experience method. These weights were provided by the ORM and are consistent with the weighting used in the prior year analysis. A second scenario was based on using credibility weights that vary the weight given to the historical experience method depending on the size of the fleet for each agency. The following table summarizes the credibility weights statistically calculated and selected by the ORM:

# of Vehicles Range	Statistical Experience Weighting Factor	ORM Selected Experience Weighting Factor	% of Agencies
(0,15]	6%	15%	50%
(15, 100]	16%	15%	18%
(100, 250]	25%	25%	17%
(250, 500]	36%	35%	8%
(500, 1500]	61%	60%	0%
(1500+	87%	75%	7%

The statistical experience weighting factor was calculated as the square root of the # of vehicles divided by the full credibility standard. The full credibility standard was calculated as 3,966 using the standard frequency full credibility sample size of 1,082 converted to an annual number of Class 310 vehicles based on the observed claim frequency of 2.48% and 11 years of historical data used in the experience method. Exhibits Auto Premium Allocation-2 through 7 show the derivation of the final allocation of premium to agency on an undiscounted and discounted basis.

The method EY chose to estimate the variation of the ultimate loss and ALAE of the prospective period was to rely upon the Monte Carlo simulation performed as of March 31, 2018 to estimate the probability distribution for aggregate claims. In this simulation as of March 31, 2018, the bodily injury and property damage portions of claims severity were modeled separately as these coverages have different distributional shapes, specifically at the tail of the distribution. We trended the bodily injury and property damage claim values by 3.0% to the 2021 level and developed all claims to ultimate values. We performed 10,000 simulations for each group, drawing from a Poisson distribution to obtain the number of claims in each simulation, with a mean annual frequency of 0.155% (or 28 claims) for bodily injury and a mean of 2.0% (or 365 claims) for property damage. We ran these simulations simultaneously and developed confidence levels based upon the resulting distribution of simulated results. The results of the March 31, 2018 simulation were then calibrated to our March 31, 2020 ACE.

Discounting

Estimates for the outstanding liability and the ultimate loss for the prospective year are presented on a discounted basis to reflect the time value of money. Exhibits Auto-2 and Auto-3 show the calculation for unpaid claims liability (years 2005-2020) and ultimate loss and ALAE (year 2021), respectively. EY utilized a discount rate of 2.0%, supplied to us by the ORM, and the annual payment pattern implied by our paid loss development factor selections to discount future cash flows from reserves to 3/31/2020, and the future payments associated with the ultimate loss and ALAE of the prospective period back to July 1, 2020 (the beginning of that period). When necessary, interpolation was used to develop cumulative loss development factors at interim ages/maturities not explicitly selected in our analyses.

We make note that actual future rates of return may be greater than or less than the rate of 2.0% supplied to us by the ORM. Additionally, the actual timing of claim payments emanating from the reserves and ultimate loss at 3/31/2020 may be different than the expected timing that is underlying the discounted estimates. An appropriate discount rate should reflect the expected returns on invested assets of similar size and duration as the claim payments, as well as the uncertainty associated with future returns and the timing and amount of eventual payments. An examination of the assets of the Fund and an evaluation of the reasonableness of the discount rate assumption of 2.0% were beyond the scope of the assignment and we are therefore unable to comment on the reasonableness of this assumption. We note that the comparable duration-matched risk-free rate is 0.20% on the U.S. treasury yield curve rates as of March 31, 2020 based on an estimated duration of payments of 1.5 years, which reflects the lower U.S. treasury yield curve compared to prior years resulting from actions taken by the Federal Reserve to stimulate the economy after the financial downturn from COVID-19.

4. Assumptions

We relied on industry benchmarks to supplement our analysis due to the volatility in the Program's own loss history due to the small volume of claims. These benchmarks included industry incurred and paid loss development patterns, public rate and product filing information, and some proprietary development data in performing our analysis. We also relied on a discount rate of 2.0% provided by the ORM.

The industry development patterns were obtained from aggregated CAL data available through an insurance industry data aggregator as of December 31, 2019. Benchmark ILFs for CAL were utilized in our analysis to supplement sparse data at higher value loss points. Benchmarks were based off of top Ohio CAL writers' publicly available rate and product filings, and internal proprietary data from clients with similar exposure.

VII. Description of methods

Loss development methods

The reported (case incurred) loss development method relies on the assumption that, at any given state of maturity, ultimate losses can be predicted by multiplying cumulative reported losses (paid losses plus case OS) by a cumulative development factor. The validity of the results of this method depends on the stability of claim reporting and settlement rates, as well as the consistency of case OS levels. Case OS does not have to be adequately stated for this method to be effective; they only need to have a fairly consistent level of adequacy at all stages of maturity.

Historical "age-to-age" loss development factors ("LDFs") were calculated to measure the relative development of an accident year from one maturity point to the next. We then indicated appropriate age-to-age LDFs based on these historical factors. We used the indicated factors to project the ultimate losses.

The paid loss development method is mechanically identical to the incurred loss development method described above. The paid method does not rely on case OS or claim reporting patterns in making projections.

The validity of the results from using a loss development approach can be affected by many conditions, such as internal claim department processing changes, a shift between single and multiple payments per claim, legal changes, or variations in a company's mix of business from year to year. Also, since the percentage of losses paid for immature years is often low, development factors are volatile. A small variation in the number of claims paid can have a leveraging effect that can lead to significant changes in estimated ultimates. Therefore, ultimate values for immature accident years are often based on alternative estimation techniques.

IBNR-to-Case OS Method

This method requires the estimation of consistent paid and reported (case) incurred loss development patterns and age-to-ultimate factors. These patterns imply a specific expected relationship between IBNR, including both development on known claims (bulk reserve) and losses on true late reported claims, and reported case incurred losses.

This method can be used in a variety of situations. It is appropriate for experience that is mature and possesses a very high ratio of paid losses to reported incurred losses. The strict extrapolation by age-to-ultimate factors may yield unrealistically high estimates of ultimate losses. The method also permits an evaluation of the difference in maturity between the business being reviewed and benchmark development patterns. Depending on the relationship of paid to incurred losses, an estimate of the relative maturity of the business being reviewed can be made and a subsequent estimate driven by the implied IBNR to Case OS ratio at the appropriate maturity can be made. This method is also very useful where experience is incomplete and only the Case OS amounts are determined to be reliable.

Bornhuetter-Ferguson expected loss projection methods

The Bornhuetter-Ferguson expected loss projection method based on reported loss data relies on the assumption that remaining unreported losses are a function of the total expected losses rather than a function of currently reported losses. The expected losses used in this analysis are based on the ultimate estimates of older accident years relative to the number of exposures. The expected losses are multiplied by the unreported percentage to produce expected unreported losses. The unreported percentage is calculated as one minus the reciprocal of the indicated cumulative incurred LDFs. Finally, the expected unreported losses are added to the current reported losses to produce ultimate losses.

The calculations underlying the Bornhuetter-Ferguson expected loss projection method based on paid loss data are similar to the incurred Bornhuetter-Ferguson calculations with the exception that paid losses and unpaid percentages replace reported losses and unreported percentages.

The Bornhuetter-Ferguson method is most useful as an alternative to other models for immature accident years. For these immature years, the amounts reported or paid may be small and unstable and therefore not predictive of future development. Therefore, future development is assumed to follow an expected pattern that is supported by more stable historical data or by emerging trends. This method is also useful when changing reporting patterns or payment patterns distort historical development of losses.

Similar to the development methods, the Bornhuetter-Ferguson method may be applied to loss and ALAE on a combined or separate basis.

Expected Loss Rate/Ratio projection methods

The expected loss rate projections method utilizes only the a-priori expected loss rate and exposure base to determine ultimate loss. The expected losses used in this analysis are based on the ultimate estimates of older accident years, or can be based on plan loss ratios and industry benchmarks. The initial selected expected loss rate is multiplied by the exposures for a given year to arrive at the ultimate loss estimate.

This technique is most often used when there is a lack of appropriate past claims occurrence data due to change in product mix, low volumes of past data, or when there is little to no amount of loss reported to date for immature years on longer-tailed lines.

VIII. Exhibits

Listing of exhibits:

- Exhibit Summary-1: Estimate of Ultimate Loss & ALAE for Accident Year 7/1/2020-6/30/2021
- Exhibit Auto-1: Estimated Unpaid Claims (Accident Years 2005-2020)
- Exhibit Auto-2: Payout and Discounting of Unpaid Claim Liabilities as of 3/31/2020
- Exhibit Auto-3: Payout and Discounting of Ultimate Loss and ALAE 7/1/20-21 Accident Period
- Exhibit Auto-4: Summary of Loss & ALAE Reserves
- Exhibit Auto-5: Comparison of Ultimate Loss & ALAE Estimates
- Exhibit Auto-6: Paid Loss & ALAE Development Method
- Exhibit Auto-7: Paid Loss & ALAE
- Exhibit Auto-8: Incurred Loss & ALAE Development Method
- Exhibit Auto-9: Incurred Loss & ALAE
- Exhibit Auto-10: Incurred IBNR to Case Development Method for Loss & ALAE
- Exhibit Auto-11: Bornhuetter-Ferguson Method Using Paid Loss & ALAE
- Exhibit Auto-12: Bornhuetter-Ferguson Method Using Incurred Loss & ALAE
- Exhibit Auto-13: Loss & ALAE Rate Helper: Selection for Bornhuetter-Ferguson Method
- Exhibit Auto-14 Increased Limits Factors
- Exhibit Auto-15: Summary of Ultimate Number of Claims and Claims Outstanding
- Exhibit Auto-16: Estimates of Ultimate Number of Claims
- Exhibit Auto-17: Non-Zero Claims Reported
- Exhibit Auto-18: Claims Closed w/ Pay
- Exhibit Auto-19: Actual vs Expected - Incurred Loss & ALAE

- Exhibit Auto-20: Actual vs Expected - Paid Loss & ALAE
- Exhibit Auto-21: Actual vs Expected - Reported Non-Zero Counts
- Exhibit Auto Premium Allocation-1-3: Allocation of 7/1/20-21 Ultimate Loss & ALAE by Agency at ACE - \$2M per Occurrence and Undiscounted
- Exhibit Auto Premium Allocation-4-6: Allocation of 7/1/20-21 Ultimate Loss & ALAE by Agency at ACE - \$2M per Occurrence and Discounted 2.0%
- Exhibit Auto Premium Allocation-7: Vehicle Type Classification Relativities

State of Ohio - Office of Risk Management
Auto Liability
March 31, 2020
Estimate of Ultimate Loss & ALAE for Accident Year 7/1/2020-6/30/2021

Confidence Level	Undiscounted (\$)		Discounted (\$)	
	\$2,000,000 per Occurrence	\$5,000,000 per Occurrence	\$2,000,000 per Occurrence	\$5,000,000 per Occurrence
ACE	2,347,270	2,744,065	2,231,922	2,609,218
60%	2,326,915	2,548,731	2,212,567	2,423,483
65%	2,495,202	2,727,015	2,372,585	2,593,006
70%	2,700,612	2,947,136	2,567,900	2,802,310
75%	2,966,215	3,221,356	2,820,452	3,063,054
80%	3,262,007	3,553,978	3,101,707	3,379,330
85%	3,569,486	4,032,991	3,394,076	3,834,804
90%	3,971,349	4,860,982	3,776,192	4,622,107
95%	4,642,866	6,508,796	4,414,709	6,188,945

Notes:

ACE from Exhibit Auto-3

Confidence Level estimates based on Monte Carlo simulation

State of Ohio - Office of Risk Management
 Auto Liability
 March 31, 2020
 Estimated Unpaid Claims (Accident Years 2005-2020)

	Unpaid Claims Liability (\$)		
	Low	ACE	High
(1) Undiscounted	4,614,171	5,494,948	6,375,725
(2) Discounted at 2.0%	4,484,232	5,340,206	6,196,180

Notes:

(1) Exhibit Auto-4

(2) Exhibit Auto-2

Low and High discounted based on average discount for ACE

State of Ohio - Office of Risk Management
 Auto Liability
 March 31, 2020
 Payout and Discounting of Unpaid Claim Liabilities as of 3/31/2020

Accident Period	Reserves at 3/31/2020 (1)	(2) Payments in Calendar Period								
		3/31/20-21	3/31/21-22	3/31/22-23	3/31/23-24	3/31/24-25	3/31/25-26	3/31/26-27	3/31/27-28	
7/1/2011-12	-	-	-	-	-	-	-	-	-	-
7/1/2012-13	203,715	203,715	-	-	-	-	-	-	-	-
7/1/2013-14	64,715	37,086	27,629	-	-	-	-	-	-	-
7/1/2014-15	302,169	195,373	61,202	45,595	-	-	-	-	-	-
7/1/2015-16	545,349	279,233	172,062	53,900	40,155	-	-	-	-	-
7/1/2016-17	203,236	118,577	43,347	26,710	8,367	6,234	-	-	-	-
7/1/2017-18	721,670	393,959	191,202	69,896	43,070	13,492	10,051	-	-	-
7/1/2018-19	2,102,234	1,047,053	576,022	279,564	102,198	62,974	19,727	14,696	-	-
7/1/2019-20	1,351,860	252,363	547,623	301,267	146,216	53,451	32,936	10,317	7,686	-
(2) Calendar Year Payments	5,494,948	2,527,359	1,619,087	776,932	340,005	136,150	62,714	25,014	7,686	-
(3) Duration of Payment		0.5	1.5	2.5	3.5	4.5	5.5	6.5	7.5	-
(4) Discount Rate		2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	-
(5) Discounted Payments	5,340,206	2,502,458	1,571,701	739,406	317,238	124,542	56,243	21,993	6,626	-

Notes:

(1) Exhibit Auto-4

(2) Based on payment pattern applied to (1)

(3) Age of payments in years

(4) Provided by Client

(5) = (2) / [1 + (4)] ^ (3)

State of Ohio - Office of Risk Management
Auto Liability
March 31, 2020
Payout and Discounting of Ultimate Loss and ALAE 7/1/2020-21 Accident Period

Accident Period	Limit (1)	Ultimate (2)	(3) Payments in Calendar Period								
			7/1/20-21	7/1/21-22	7/1/22-23	7/1/23-24	7/1/24-25	7/1/25-26	7/1/26-27	7/1/27-28	7/1/28-29
7/1/2020-21	2M	2,347,270	329,368	510,716	761,012	411,019	192,627	75,661	42,716	15,125	9,026
7/1/2020-21	5M	2,744,065	385,046	597,050	889,658	480,500	225,189	88,451	49,937	17,682	10,552
(4) Duration of Payment (to 7/1/2020)			0.50	1.50	2.50	3.50	4.50	5.50	6.50	7.50	8.50
(5) Discount Rate			2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%
(6) Discounted Payments											
7/1/2020-21	2M	2,231,922	326,122	495,769	724,255	383,496	176,204	67,853	37,557	13,037	7,628
7/1/2020-21	5M	2,609,218	381,252	579,576	846,687	448,325	205,990	79,323	43,906	15,241	8,917

Notes:

(1) Provided by Client

(2) Exhibit Auto-5

(3) Based on payment pattern applied to (2)

(4) Age of payments in years

(5) Provided by Client

(6) $= (2) / [1 + (4)]^{(3)}$

State of Ohio - Office of Risk Management
Auto Liability
March 31, 2020
Summary of Loss & ALAE Reserves

Accident Period Ending 7/1/xxxx	Paid (1)	Incurred (2)	Selected Ultimate (3)	Case Reserve (4)	IBNR Reserve (5)	EY ACE Loss & ALAE Reserve (6)	EY Low Loss & ALAE Reserves (7)	EY High Loss & ALAE Reserves (8)
2005	909,673	909,673	909,673	0	0	0	0	0
2006	727,033	727,033	727,033	0	0	0	0	0
2007	1,578,290	1,578,290	1,578,290	0	0	0	0	0
2008	776,096	776,096	776,096	0	0	0	0	0
2009	1,248,331	1,248,331	1,248,331	0	0	0	0	0
2010	2,632,202	2,632,202	2,632,202	0	0	0	0	0
2011	921,060	921,060	921,060	0	0	0	0	0
2012	1,258,538	1,258,538	1,258,538	0	0	0	0	0
2013	939,799	1,140,283	1,143,514	200,485	3,230	203,715	112,810	294,620
2014	2,209,137	2,257,887	2,273,851	48,750	15,965	64,715	45,328	84,101
2015	2,936,449	3,188,573	3,238,618	252,125	50,045	302,169	220,451	383,887
2016	447,846	957,996	993,195	510,150	35,199	545,349	344,553	746,145
2017	508,609	554,675	711,844	46,067	157,169	203,236	108,771	297,701
2018	1,377,956	1,719,799	2,099,626	341,843	379,827	721,670	675,677	767,662
2019	574,121	1,936,589	2,676,355	1,362,468	739,766	2,102,234	1,905,605	2,298,862
2020 @ 9mo	174,880	504,109	1,526,740	329,230	1,022,630	1,351,860	1,200,974	1,502,746
Total	19,220,018	22,311,135	24,714,966	3,091,117	2,403,831	5,494,948	4,614,171	6,375,725

Notes:

(1) Exhibit Auto-6

(2) Exhibit Auto-8

(3) EY Select - latest year is a partial year estimate

(4) = (2) - (1)

(5) = (3) - (2)

(6) = (4) + (5)

(7) EY Select - latest year is a partial year estimate

(8) EY Select - latest year is a partial year estimate

State of Ohio - Office of Risk Management
 Auto Liability
 March 31, 2020
 Comparison of Ultimate Loss & ALAE Estimates

Accident Period Ending 7/1/xxxx	Exposure (Vehicle Count) (1)	Limited Paid Development (2)	Limited Incurred Development (3)	Limited Paid B-F (4)	Limited Incurred B-F (5)	IBNR to Case OS (6)	Average (7)	Prior Selected Ultimate (8)	EY Selected Ultimate (9)	Change in Ultimate (10)	Ultimate Loss Rate (11)	Low Estimate (12)	High Estimate (13)
2005	15,996	909,673	909,673	909,673	909,673	909,673	909,673	909,673	909,673	0	56.87	909,673	909,673
2006	15,921	727,033	727,033	727,033	727,033	727,033	727,033	727,033	727,033	0	45.67	727,033	727,033
2007	15,952	1,578,290	1,578,290	1,578,290	1,578,290	1,578,290	1,578,290	1,578,290	1,578,290	0	98.94	1,578,290	1,578,290
2008	16,656	776,096	776,096	776,096	776,096	776,096	776,096	776,096	776,096	0	46.60	776,096	776,096
2009	16,732	1,248,331	1,248,331	1,248,331	1,248,331	1,248,331	1,248,331	1,248,331	1,248,331	0	74.61	1,248,331	1,248,331
2010	16,381	2,632,202	2,632,202	2,632,202	2,632,202	2,632,202	2,632,202	2,632,202	2,632,202	0	160.69	2,632,202	2,632,202
2011	16,449	921,060	921,060	921,060	921,060	921,060	921,060	921,060	921,060	0	56.00	921,060	921,060
2012	16,516	1,258,538	1,258,538	1,258,538	1,258,538	1,258,538	1,258,538	1,261,977	1,258,538	(3,439)	76.20	1,258,538	1,258,538
2013	16,383	944,642	1,143,514	947,942	1,144,770	1,386,297	1,113,433	1,144,721	1,143,514	(1,207)	69.80	1,052,609	1,234,419
2014	16,396	2,235,990	2,273,851	2,228,799	2,269,382	2,326,497	2,266,904	2,291,995	2,273,851	(18,144)	138.68	2,254,465	2,293,238
2015	16,403	3,039,739	3,238,618	2,993,775	3,214,643	3,398,854	3,177,126	3,321,286	3,238,618	(82,668)	197.44	3,156,900	3,320,336
2016	17,990	481,365	993,195	580,556	1,025,538	1,486,744	913,480	1,105,297	993,195	(112,102)	55.21	792,399	1,193,991
2017	16,939	610,698	606,193	817,586	711,754	602,313	669,709	1,169,382	711,844	(457,538)	42.02	617,380	806,309
2018	18,228	2,180,761	2,104,760	2,132,116	2,094,492	2,057,341	2,113,894	2,964,053	2,099,626	(864,427)	115.19	2,053,633	2,145,618
2019	18,000	2,153,700	2,835,123	2,102,350	2,596,971	2,973,349	2,532,298	2,873,242	2,676,355	(196,887)	148.69	2,479,726	2,872,983
2020	19,113	1,780,230	1,360,367	2,229,916	1,938,522	1,265,040	1,714,815	2,345,669	2,035,653	(310,016)	106.51	1,834,472	2,236,835
Total	270,055	23,478,348	24,606,844	24,084,263	25,047,295	25,547,658	24,552,882	27,270,306	25,223,880	(2,046,427)	93.40	24,292,807	26,154,952
2021 @\$2M	19,113								2,347,270		122.81		
2021 @\$5M	19,113								2,744,065		143.57		

Notes:

- (1) Provided by Client
- (2) Exhibit Auto-6
- (3) Exhibit Auto-8
- (4) Exhibit Auto-11
- (5) Exhibit Auto-12
- (6) Exhibit Auto-10
- (7) Average (2) through (5)
- (8) Prior EY Analysis
- (9) EY Select
- (10) = (9) - (8)
- (11) = (9) / (1)
- (12) & (13) EY Select

State of Ohio - Office of Risk Management
Auto Liability
March 31, 2020
Paid Loss & ALAE Development Method

Accident Period Ending 7/1/xxxx	Historical Retention (1)	Limited at Historical Retention Paid Loss & ALAE (2)	EY Factor to Ultimate (3)	Limited Ultimate @ Retention (4)
2005	1,000,000	909,673	1.000	909,673
2006	1,000,000	727,033	1.000	727,033
2007	1,000,000	1,578,290	1.000	1,578,290
2008	1,000,000	776,096	1.000	776,096
2009	2,000,000	1,248,331	1.000	1,248,331
2010	2,000,000	2,632,202	1.000	2,632,202
2011	2,000,000	921,060	1.000	921,060
2012	2,000,000	1,258,538	1.000	1,258,538
2013	2,000,000	939,799	1.005	944,642
2014	2,000,000	2,209,137	1.012	2,235,990
2015	2,000,000	2,936,449	1.035	3,039,739
2016	2,000,000	447,846	1.075	481,365
2017	2,000,000	508,609	1.201	610,698
2018	2,000,000	1,377,956	1.583	2,180,761
2019	2,000,000	574,121	3.751	2,153,700
2020	2,000,000	174,880	10.180	1,780,230
Total		19,220,018		23,478,348

Notes:

- (1) *Provided by Client*
(2) *Exhibit Auto-7*
(3) *Exhibit Auto-7, adjusted for retention*
(4) $= (2) \times (3)$

State of Ohio - Office of Risk Management
 Auto Liability
 March 31, 2020
 Paid Loss & ALAE

Accident Period Ending 7/1/xxxx	Months of Development															
	9	21	33	45	57	69	81	93	105	117	129	141	153	165	177	189
2005								909,673	909,673	909,673	909,673	909,673	909,673	909,673	909,673	909,673
2006							727,033	727,033	727,033	727,033	727,033	727,033	727,033	727,033	727,033	727,033
2007						1,578,290	1,578,290	1,578,290	1,578,290	1,578,290	1,578,290	1,578,290	1,578,290	1,578,290	1,578,290	1,578,290
2008					774,546	774,546	775,046	775,046	775,046	776,096	776,096	776,096	776,096	776,096	776,096	776,096
2009				1,194,498	1,212,726	1,246,374	1,246,459	1,246,459	1,248,331	1,248,331	1,248,331	1,248,331	1,248,331	1,248,331	1,248,331	1,248,331
2010			549,387	2,599,797	2,623,790	2,633,958	2,622,635	2,622,635	2,652,820	2,652,820	2,652,820	2,652,820	2,652,820	2,652,820	2,652,820	2,652,820
2011		578,180	935,263	935,438	935,438	934,543	921,060	921,060	921,060	921,060	921,060	921,060	921,060	921,060	921,060	921,060
2012	182,763	321,644	848,350	1,109,465	1,186,890	1,186,890	1,258,538	1,258,538	1,258,538	1,258,538	1,258,538	1,258,538	1,258,538	1,258,538	1,258,538	1,258,538
2013	168,424	285,618	606,474	924,150	924,226	930,283	933,875	939,799	939,799	939,799	939,799	939,799	939,799	939,799	939,799	939,799
2014	197,935	460,548	1,468,696	1,549,043	2,080,316	2,082,673	2,209,137	2,209,137	2,209,137	2,209,137	2,209,137	2,209,137	2,209,137	2,209,137	2,209,137	2,209,137
2015	248,668	404,940	675,931	2,675,618	2,883,423	2,936,884	2,936,884	2,936,884	2,936,884	2,936,884	2,936,884	2,936,884	2,936,884	2,936,884	2,936,884	2,936,884
2016	164,746	303,093	370,030	440,598	447,846	447,846	447,846	447,846	447,846	447,846	447,846	447,846	447,846	447,846	447,846	447,846
2017	158,601	307,742	447,365	508,609	508,609	508,609	508,609	508,609	508,609	508,609	508,609	508,609	508,609	508,609	508,609	508,609
2018	190,113	354,636	1,377,956	1,377,956	1,377,956	1,377,956	1,377,956	1,377,956	1,377,956	1,377,956	1,377,956	1,377,956	1,377,956	1,377,956	1,377,956	1,377,956
2019	185,895	574,121	574,121	574,121	574,121	574,121	574,121	574,121	574,121	574,121	574,121	574,121	574,121	574,121	574,121	574,121
2020	174,880	174,880	174,880	174,880	174,880	174,880	174,880	174,880	174,880	174,880	174,880	174,880	174,880	174,880	174,880	174,880

Period Ending 7/1/xxxx	Development Factors															
	9-21	21-33	33-45	45-57	57-69	69-81	81-93	93-105	105-117	117-129	129-141	141-153	153-165	165-177	177-189	189-201
2005								1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2006							1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2007						1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2008					1.000	1.001	1.000	1.000	1.001	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2009				1.015	1.028	1.000	1.000	1.002	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2010			4.732	1.009	1.004	0.996	1.000	1.012	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2011		1.618	1.000	1.000	0.999	0.986	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2012	1.760	2.638	1.308	1.070	1.000	1.060	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2013	1.696	2.123	1.524	1.000	1.007	1.004	1.006	1.006	1.006	1.006	1.006	1.006	1.006	1.006	1.006	1.006
2014	2.327	3.189	1.055	1.343	1.001	1.061	1.001	1.001	1.001	1.001	1.001	1.001	1.001	1.001	1.001	1.001
2015	1.628	1.669	3.958	1.078	1.019	1.019	1.019	1.019	1.019	1.019	1.019	1.019	1.019	1.019	1.019	1.019
2016	1.840	1.221	1.191	1.016	1.016	1.016	1.016	1.016	1.016	1.016	1.016	1.016	1.016	1.016	1.016	1.016
2017	1.940	1.454	1.137	1.137	1.137	1.137	1.137	1.137	1.137	1.137	1.137	1.137	1.137	1.137	1.137	1.137
2018	1.865	3.886	3.886	3.886	3.886	3.886	3.886	3.886	3.886	3.886	3.886	3.886	3.886	3.886	3.886	3.886
2019	3.088	3.088	3.088	3.088	3.088	3.088	3.088	3.088	3.088	3.088	3.088	3.088	3.088	3.088	3.088	3.088
Avg All	2.018	2.225	1.988	1.066	1.007	1.013	1.001	1.002	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Avg 5	2.072	2.284	1.773	1.101	1.005	1.021	1.001	1.003	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
5 Yr Avg Ex Hi/Lo	1.882	2.104	1.284	1.055	1.003	1.020	1.000	1.001	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Wtd Avg All	2.012	2.231	1.820	1.076	1.008	1.016	1.001	1.003	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Wtd Avg 5	2.051	2.370	1.709	1.123	1.008	1.023	1.001	1.005	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Wtd Avg 3	2.313	2.274	2.427	1.160	1.011	1.048	1.002	1.006	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Industry	3.415	1.592	1.318	1.158	1.068	1.030	1.013	1.007	1.005	1.004	1.003	1.002	1.002	1.007	1.007	1.007
Last	2.580	2.025	1.304	1.117	1.037	1.018	1.007	1.005	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Sel LDF	2.714	2.370	1.318	1.117	1.038	1.023	1.007	1.005	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
CDF	10.180	3.751	1.583	1.201	1.075	1.035	1.012	1.005	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000

State of Ohio - Office of Risk Management
Auto Liability
March 31, 2020
Incurred Loss & ALAE Development Method

Accident Period Ending 7/1/xxxx	Historical Retention (1)	Limited at Historical Retention Incurred Loss & ALAE (2)	EY Factor to Ultimate (3)	Limited Ultimate @ Retention (4)
2005	1,000,000	909,673	1.000	909,673
2006	1,000,000	727,033	1.000	727,033
2007	1,000,000	1,578,290	1.000	1,578,290
2008	1,000,000	776,096	1.000	776,096
2009	2,000,000	1,248,331	1.000	1,248,331
2010	2,000,000	2,632,202	1.000	2,632,202
2011	2,000,000	921,060	1.000	921,060
2012	2,000,000	1,258,538	1.000	1,258,538
2013	2,000,000	1,140,283	1.003	1,143,514
2014	2,000,000	2,257,887	1.007	2,273,851
2015	2,000,000	3,188,573	1.016	3,238,618
2016	2,000,000	957,996	1.037	993,195
2017	2,000,000	554,675	1.093	606,193
2018	2,000,000	1,719,799	1.224	2,104,760
2019	2,000,000	1,936,589	1.464	2,835,123
2020	2,000,000	504,109	2.699	1,360,367
Total		22,311,135		24,606,844

Notes:

- (1) *Provided by Company*
(2) *Exhibit Auto-9*
(3) *Exhibit Auto-9, adjusted for retention*
(4) = (2) x (3)

State of Ohio - Office of Risk Management
 Auto Liability
 March 31, 2020
 Incurred Loss & ALAE

Accident Period Ending 7/1/xxxx	Months of Development															
	9	21	33	45	57	69	81	93	105	117	129	141	153	165	177	189
2005								909,673	909,673	909,673	909,673	909,673	909,673	909,673	909,673	909,673
2006							727,033	727,033	727,033	727,033	727,033	727,033	727,033	727,033	727,033	727,033
2007						1,578,290	1,578,290	1,578,290	1,578,290	1,578,290	1,578,290	1,578,290	1,578,290	1,578,290	1,578,290	1,578,290
2008					794,546	774,546	775,046	775,046	775,046	776,096	776,096	776,096	776,096	776,096	776,096	776,096
2009				1,542,998	1,506,369	1,423,874	1,246,459	1,246,459	1,248,331	1,248,331	1,248,331	1,248,331	1,248,331	1,248,331	1,248,331	1,248,331
2010			3,090,754	2,831,842	2,747,356	2,733,958	2,721,504	2,721,504	2,652,820	2,652,820	2,652,820	2,652,820	2,652,820	2,652,820	2,652,820	2,652,820
2011		1,332,702	985,263	985,438	935,438	934,543	921,060	921,060	921,060	921,060	921,060	921,060	921,060	921,060	921,060	921,060
2012	951,619	1,084,079	1,388,640	1,410,240	1,436,515	1,436,515	1,258,538	1,258,538	1,258,538	1,258,538	1,258,538	1,258,538	1,258,538	1,258,538	1,258,538	1,258,538
2013	638,487	1,256,618	1,491,049	1,220,150	1,154,226	1,135,283	1,137,783	1,140,283	1,137,783	1,140,283	1,137,783	1,140,283	1,137,783	1,140,283	1,137,783	1,140,283
2014	1,156,800	1,298,188	2,350,734	2,437,716	2,285,483	2,260,483	2,257,887	2,257,887	2,257,887	2,257,887	2,257,887	2,257,887	2,257,887	2,257,887	2,257,887	2,257,887
2015	921,324	1,853,078	2,880,022	3,157,773	3,208,925	3,189,008	3,189,008	3,189,008	3,189,008	3,189,008	3,189,008	3,189,008	3,189,008	3,189,008	3,189,008	3,189,008
2016	484,761	537,184	531,350	974,283	957,996	957,996	957,996	957,996	957,996	957,996	957,996	957,996	957,996	957,996	957,996	957,996
2017	368,249	670,920	651,542	554,675	554,675	554,675	554,675	554,675	554,675	554,675	554,675	554,675	554,675	554,675	554,675	554,675
2018	1,002,068	2,203,842	1,719,799	1,719,799	1,719,799	1,719,799	1,719,799	1,719,799	1,719,799	1,719,799	1,719,799	1,719,799	1,719,799	1,719,799	1,719,799	1,719,799
2019	1,792,675	1,936,589	1,936,589	1,936,589	1,936,589	1,936,589	1,936,589	1,936,589	1,936,589	1,936,589	1,936,589	1,936,589	1,936,589	1,936,589	1,936,589	1,936,589
2020	504,109	504,109	504,109	504,109	504,109	504,109	504,109	504,109	504,109	504,109	504,109	504,109	504,109	504,109	504,109	504,109

Period Ending 7/1/xxxx	Development Factors															
	9-21	21-33	33-45	45-57	57-69	69-81	81-93	93-105	105-117	117-129	129-141	141-153	153-165	165-177	177-189	189-201
2005								1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2006							1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2007						1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2008					0.975	1.001	1.000	1.000	1.001	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2009				0.976	0.945	0.875	1.000	1.002	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2010			0.916	0.970	0.995	0.995	1.000	0.975	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2011		0.739	1.000	0.949	0.999	0.986	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2012	1.139	1.281	1.016	1.019	1.000	0.876	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2013	1.968	1.187	0.818	0.946	0.984	1.002	1.002	1.002	1.002	1.002	1.002	1.002	1.002	1.002	1.002	1.002
2014	1.122	1.811	1.037	0.938	0.989	0.999	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2015	2.011	1.554	1.096	1.016	0.994	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2016	1.108	0.989	1.834	0.983	0.983	0.983	0.983	0.983	0.983	0.983	0.983	0.983	0.983	0.983	0.983	0.983
2017	1.822	0.971	0.851	0.851	0.851	0.851	0.851	0.851	0.851	0.851	0.851	0.851	0.851	0.851	0.851	0.851
2018	2.199	0.780	0.780	0.780	0.780	0.780	0.780	0.780	0.780	0.780	0.780	0.780	0.780	0.780	0.780	0.780
2019	1.080	1.080	1.080	1.080	1.080	1.080	1.080	1.080	1.080	1.080	1.080	1.080	1.080	1.080	1.080	1.080
Avg All	1.556	1.164	1.071	0.975	0.985	0.967	1.000	0.997	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Avg 5	1.644	1.221	1.127	0.980	0.993	0.972	1.000	0.995	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
5 Yr Avg Ex Hi/Lo	1.647	1.171	0.995	0.982	0.994	0.993	1.000	0.995	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Wtd Avg All	1.482	1.172	1.015	0.977	0.987	0.969	1.000	0.993	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Wtd Avg 5	1.576	1.239	1.056	0.983	0.993	0.976	1.000	0.990	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Wtd Avg 3	1.521	0.851	1.154	0.982	0.990	0.963	1.001	0.986	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Industry	2.039	1.221	1.120	1.054	1.021	1.009	1.004	1.003	1.002	1.001	1.001	1.001	1.001	1.001	1.002	1.002
Last	1.766	1.243	1.116	1.054	1.021	1.008	1.003	1.003	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Sel LDF	1.843	1.196	1.120	1.054	1.021	1.009	1.004	1.003	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
CDF	2.699	1.464	1.224	1.093	1.037	1.016	1.007	1.003	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000

State of Ohio - Office of Risk Management
Auto Liability
March 31, 2020
Incurred IBNR to Case Development Method for Loss & ALAE

Accident Period Ending 7/1/xxxx	Limited Incurred @ Retention (1)	Limited Paid @ Retention (2)	Outstanding @ Retention (3)	Incurred CDF (4)	Paid CDF (5)	IBNR Factor (6)	IBNR (7)	Limited Ultimate @ Retention (8)
2005	909,673	909,673	0	1.000	1.000	0.000	0	909,673
2006	727,033	727,033	0	1.000	1.000	0.000	0	727,033
2007	1,578,290	1,578,290	0	1.000	1.000	0.000	0	1,578,290
2008	776,096	776,096	0	1.000	1.000	0.000	0	776,096
2009	1,248,331	1,248,331	0	1.000	1.000	0.000	0	1,248,331
2010	2,632,202	2,632,202	0	1.000	1.000	0.000	0	2,632,202
2011	921,060	921,060	0	1.000	1.000	0.000	0	921,060
2012	1,258,538	1,258,538	0	1.000	1.000	0.000	0	1,258,538
2013	1,140,283	939,799	200,485	1.003	1.005	1.227	246,014	1,386,297
2014	2,257,887	2,209,137	48,750	1.007	1.012	1.407	68,610	2,326,497
2015	3,188,573	2,936,449	252,125	1.016	1.035	0.834	210,281	3,398,854
2016	957,996	447,846	510,150	1.037	1.075	1.036	528,749	1,486,744
2017	554,675	508,609	46,067	1.093	1.201	1.034	47,638	602,313
2018	1,719,799	1,377,956	341,843	1.224	1.583	0.987	337,542	2,057,341
2019	1,936,589	574,121	1,362,468	1.464	3.751	0.761	1,036,759	2,973,349
2020	504,109	174,880	329,230	2.699	10.180	2.311	760,930	1,265,040
Total	22,311,135	19,220,018	3,091,117				3,236,523	25,547,658

Notes:

- (1) Exhibit Auto-8
(2) Exhibit Auto-6
(3) = (1) - (2)
(4) Exhibit Auto-8

- (5) Exhibit Auto-6
(6) = $(1 - 1 / (4)) / (1 / (4) - 1 / (5))$
(7) = (3) x (6)
(8) = (1) + (7)

State of Ohio - Office of Risk Management
Auto Liability
March 31, 2020
Bornhuetter-Ferguson Method Using Paid Loss & ALAE

Accident Period Ending 7/1/xxxx	Exposure (Vehicle Count) (1)	Selected A Priori Loss & ALAE Rate (2)	Expected Loss & ALAE (3)	Paid Factor to Ultimate (4)	Unpaid Percent (5)	Expected Unpaid Loss & ALAE (6)	Limited Paid Loss & ALAE (7)	Limited Ultimate Loss & ALAE (8)	Ultimate Loss & ALAE Rate (9)
2005	15,996	67.4	1,077,928	1.000	0.0%	0	909,673	909,673	56.9
2006	15,921	69.4	1,105,061	1.000	0.0%	0	727,033	727,033	45.7
2007	15,952	71.5	1,140,429	1.000	0.0%	0	1,578,290	1,578,290	98.9
2008	16,656	73.6	1,226,481	1.000	0.0%	0	776,096	776,096	46.6
2009	16,732	86.1	1,441,237	1.000	0.0%	0	1,248,331	1,248,331	74.6
2010	16,381	88.7	1,453,333	1.000	0.0%	0	2,632,202	2,632,202	160.7
2011	16,449	91.4	1,503,101	1.000	0.0%	0	921,060	921,060	56.0
2012	16,516	94.1	1,554,547	1.000	0.0%	0	1,258,538	1,258,538	76.2
2013	16,383	96.9	1,588,290	1.005	0.5%	8,144	939,799	947,942	57.9
2014	16,396	99.9	1,637,237	1.012	1.2%	19,663	2,209,137	2,228,799	135.9
2015	16,403	102.9	1,687,074	1.035	3.4%	57,327	2,936,449	2,993,775	182.5
2016	17,990	105.9	1,905,808	1.075	7.0%	132,710	447,846	580,556	32.3
2017	16,939	109.1	1,848,302	1.201	16.7%	308,978	508,609	817,586	48.3
2018	18,228	112.4	2,048,620	1.583	36.8%	754,160	1,377,956	2,132,116	117.0
2019	18,000	115.8	2,083,686	3.751	73.3%	1,528,228	574,121	2,102,350	116.8
2020	19,113	119.2	2,278,903	10.180	90.2%	2,055,036	174,880	2,229,916	116.7
2021	19,113	122.8	2,347,270			2,347,270		2,347,270	122.8
Total	289,168		27,927,305			7,211,514	19,220,018	26,431,533	
Total x2021	270,055		25,580,035			4,864,245	19,220,018	24,084,263	

Notes:

- (1) Provided by Client
(2) EY Select
(3) = (1) x (2)
(4) Exhibit Auto-6

- (5) = 1 - 1 / (4)
(6) = (3) x (5)
(7) Exhibit Auto-6
(8) = (6) + (7)

(9) = (8) / (1)

State of Ohio - Office of Risk Management
Auto Liability
March 31, 2020
Bornhuetter-Ferguson Method Using Incurred Loss & ALAE

Accident Period Ending 7/1/xxxx	Exposure (Vehicle Count) (1)	Selected A Priori Loss & ALAE Rate (2)	Expected Loss & ALAE (3)	Incurred Factor to Ultimate (4)	Unreported Percent (5)	Expected Unreported Loss & ALAE (6)	Limited Incurred Loss & ALAE (7)	Limited Ultimate Loss & ALAE (8)	Ultimate Loss & ALAE Rate (9)
2005	15,996	67.4	1,077,928	1.000	0.0%	0	909,673	909,673	56.9
2006	15,921	69.4	1,105,061	1.000	0.0%	0	727,033	727,033	45.7
2007	15,952	71.5	1,140,429	1.000	0.0%	0	1,578,290	1,578,290	98.9
2008	16,656	73.6	1,226,481	1.000	0.0%	0	776,096	776,096	46.6
2009	16,732	86.1	1,441,237	1.000	0.0%	0	1,248,331	1,248,331	74.6
2010	16,381	88.7	1,453,333	1.000	0.0%	0	2,632,202	2,632,202	160.7
2011	16,449	91.4	1,503,101	1.000	0.0%	0	921,060	921,060	56.0
2012	16,516	94.1	1,554,547	1.000	0.0%	0	1,258,538	1,258,538	76.2
2013	16,383	96.9	1,588,290	1.003	0.3%	4,487	1,140,283	1,144,770	69.9
2014	16,396	99.9	1,637,237	1.007	0.7%	11,495	2,257,887	2,269,382	138.4
2015	16,403	102.9	1,687,074	1.016	1.5%	26,069	3,188,573	3,214,643	196.0
2016	17,990	105.9	1,905,808	1.037	3.5%	67,543	957,996	1,025,538	57.0
2017	16,939	109.1	1,848,302	1.093	8.5%	157,079	554,675	711,754	42.0
2018	18,228	112.4	2,048,620	1.224	18.3%	374,693	1,719,799	2,094,492	114.9
2019	18,000	115.8	2,083,686	1.464	31.7%	660,381	1,936,589	2,596,971	144.3
2020	19,113	119.2	2,278,903	2.699	62.9%	1,434,413	504,109	1,938,522	101.4
2021	19,113	122.8	2,347,270			2,347,270		2,347,270	122.8
Total	289,168		27,927,305			5,083,430	22,311,135	27,394,565	
Total x2021	270,055		25,580,035			2,736,160	22,311,135	25,047,295	

Notes:

- (1) Provided by Client
(2) EY Select
(3) = (1) x (2)
(4) Exhibit Auto-8

- (5) = 1 - 1 / (4)
(6) = (3) x (5)
(7) Exhibit Auto-8
(8) = (6) + (7)

(9) = (8) / (1)

State of Ohio - Office of Risk Management
Auto Liability
March 31, 2020
Loss & ALAE Rate Helper: Selection for Bornhuetter-Ferguson Method

Accident Period Ending 7/1/xxxx	Retention (1)	Exposure (Vehicle Count) (2)	@ Retention Developed Paid (3)	@ Retention Developed Incurred (4)	Initial Selected Developed Ultimate (5)	3.00% Net Trend Rate (6)	ILF to \$2M (7)	@ \$2M		Selected Loss & ALAE Rate @ Hist Ret (10)	Expected Loss & ALAE @ Hist Ret (11)
								Selected Developed Loss & ALAE (8)	Developed Loss & ALAE Rate (9)		
2005	1,000,000	15,996	909,673	909,673	909,673	160%	1.136	1,657,834	103.64	67.4	1,077,928
2006	1,000,000	15,921	727,033	727,033	727,033	156%	1.136	1,286,390	80.8	69.4	1,105,061
2007	1,000,000	15,952	1,578,290	1,578,290	1,578,290	151%	1.136	2,711,240	170.0	71.5	1,140,429
2008	1,000,000	16,656	776,096	776,096	776,096	147%	1.136	1,294,373	77.7	73.6	1,226,481
2009	2,000,000	16,732	1,248,331	1,248,331	1,248,331	143%	1.000	1,779,821	106.4	86.1	1,441,237
2010	2,000,000	16,381	2,632,202	2,632,202	2,632,202	138%	1.000	3,643,583	222.4	88.7	1,453,333
2011	2,000,000	16,449	921,060	921,060	921,060	134%	1.000	1,237,828	75.3	91.4	1,503,101
2012	2,000,000	16,516	1,258,538	1,258,538	1,258,538	130%	1.000	1,642,106	99.4	94.1	1,554,547
2013	2,000,000	16,383	944,642	1,143,514	1,044,078	127%	1.000	1,322,607	80.7	96.9	1,588,290
2014	2,000,000	16,396	2,235,990	2,273,851	2,254,921	123%	1.000	2,773,268	169.1	99.9	1,637,237
2015	2,000,000	16,403	3,039,739	3,238,618	3,139,178	119%	1.000	3,748,343	228.5	102.9	1,687,074
2016	2,000,000	17,990	481,365	993,195	737,280	116%	1.000	854,710	47.5	105.9	1,905,808
2017	2,000,000	16,939	610,698	606,193	608,445	113%	1.000	684,811	40.4	109.1	1,848,302
2018	2,000,000	18,228	2,180,761	2,104,760	2,142,760	109%	1.000	2,341,452	128.5	112.4	2,048,620
2019	2,000,000	18,000	2,153,700	2,835,123	2,494,412	106%	1.000	2,646,321	147.0	115.8	2,083,686
2020	2,000,000	19,113	1,780,230	1,360,367	1,570,299	103%	1.000	1,617,408	84.6	119.2	2,278,903
2021	2,000,000	19,113				100%	1.000			122.8	2,347,270
Total		289,168	23,478,348	24,606,844	24,042,596			31,242,094	115.7		27,927,305

Notes:

- (1) Provided by Client
- (2) Provided by Client
- (3) Exhibit Auto-6
- (4) Exhibit Auto-8
- (5) EY Select based on weighted average of (3) & (4)
- (6) EY Select
- (7) EY Select

- (8) = (5)*(6)*(7)
- (9) = (8)/(2)
- (10) = Selected rate / (6) / (7)
- (11) = (10) / (2)
- (12) EY Select
- (13) Exhibit Auto-14
- (14) EY Select

Average Last 3 Years	120.0
Average Last 5 Years	89.6
Average Last 7 Years x H/L	144.2
Average Last 3 Years x last 2	72.1
Average Last 7 Years x last 2	113.5
Average Last 5 Years x last 2	122.8
Prior Selection Trended 1 Year	134.2
Selected Average @ \$2M Limit (12)	122.8
\$2M to \$5M ILF (13)	1.169
Selected Average @ \$5M Limit (14)	143.6
Ult @ \$2M	2,347,270
	1.169
Ult @ \$5M	2,744,065

State of Ohio - Office of Risk Management
Auto Liability
March 31, 2020
Increased Limits Factors

Limit	Increased Limits Factors							
	Benchmark 1	Benchmark 2	Empirical Data Ultimate	Empirical Data Incurred	Prior EY Selection with \$250K Base	Prior EY Selection Rebased to \$2M	EY Select with \$250K base	EY Select Rebased to \$2M
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
250K	1.000	1.000	1.000	1.000	1.000	0.646	1.000	0.661
1M	1.398	1.301	1.387	1.342	1.361	0.880	1.331	0.881
2M	1.603	1.476	1.554	1.500	1.547	1.000	1.512	1.000
5M	1.888	1.730	1.571	1.502	1.805	1.166	1.767	1.169

Notes:*(1) Proprietary internal client data**(2) From public rate filings information for top CAL writer in Ohio**(3) Based on data provided by client as of 3/31/2019**(4) Based on data provided by client as of 3/31/2019**(5) Prior EY Analysis**(6) Prior EY Analysis**(7) EY Select**(8) = (7)/(7) at \$2M*

State of Ohio - Office of Risk Management
 Auto Liability
 March 31, 2020
Summary of Ultimate Number of Claims and Claims Outstanding

Accident Period	Closed w/Pay Dev Dev Ultimate (1)	Non-Zero Rptd Dev Ultimate (2)	Selected Ultimate (3)	Non-Zero Reported Claims (4)	Closed w/Pay Claims (5)	Outstanding Claims (6)	IBNR Claims (7)	Outstanding + IBNR (8)
2005	536	536	536	536	536	0	0	0
2006	429	429	429	429	429	0	0	0
2007	528	528	528	528	528	0	0	0
2008	543	543	543	543	543	0	0	0
2009	520	520	520	520	520	0	0	0
2010	533	533	533	533	533	0	0	0
2011	542	542	542	542	542	0	0	0
2012	355	355	355	355	355	0	0	0
2013	420	421	421	421	420	1	0	1
2014	593	594	594	594	593	1	0	1
2015	487	488	488	488	486	2	0	2
2016	335	336	336	336	334	2	0	2
2017	300	300	300	300	297	3	0	3
2018	408	407	407	407	396	11	0	11
2019	386	386	386	385	359	26	1	27
2020 @ 9mo	219	235	246	269	153	116	-23	93
Total	7,135	7,154	7,165	7,186	7,024	162	-21	141

Notes:

- (1) Exhibit Auto-16; latest year is a partial year estimate
- (2) Exhibit Auto-16; latest year is a partial year estimate
- (3) Exhibit Auto-16; latest year is a partial year estimate
- (4) Exhibit Auto-17

- (5) Exhibit Auto-18
- (6) = (4) - (5)
- (7) = (3) - (4)
- (8) = (6) + (7)

State of Ohio - Office of Risk Management
 Auto Liability
 March 31, 2020
 Estimates of Ultimate Number of Claims

Accident Period Ending 7/1/xxxx	Non-Zero Reported Claims (1)	Factor to Ultimate (2)	Ultimate Reported Count (3)	Closed Claims (4)	Factor to Ultimate (5)	Ultimate Closed Count (6)	Prior Selected Ultimate (7)	EY Selected Ultimate (8)	Change in Ultimate (9)	Exposure (Vehicle Count) (10)	Selected Ultimate Frequency (11)	Adjusted Exposure (Vehicle Count) (12)	Selected Ultimate Frequency (13)
2005	536	1.000	536	536	1.000	536	536	536	0	15,996	0.034	14,038	0.038
2006	429	1.000	429	429	1.000	429	429	429	0	15,921	0.027	14,040	0.031
2007	528	1.000	528	528	1.000	528	528	528	0	15,952	0.033	14,854	0.036
2008	543	1.000	543	543	1.000	543	543	543	0	16,656	0.033	16,304	0.033
2009	520	1.000	520	520	1.000	520	520	520	0	16,732	0.031	17,345	0.030
2010	533	1.000	533	533	1.000	533	533	533	0	16,381	0.033	16,071	0.033
2011	542	1.000	542	542	1.000	542	542	542	0	16,449	0.033	16,298	0.033
2012	355	1.000	355	355	1.000	355	355	355	0	16,516	0.021	16,525	0.021
2013	421	1.000	421	420	1.000	420	421	421	0	16,383	0.026	16,435	0.026
2014	594	1.000	594	593	1.001	593	594	594	0	16,396	0.036	16,471	0.036
2015	488	1.000	488	486	1.002	487	488	488	0	16,403	0.030	16,536	0.030
2016	336	1.000	336	334	1.004	335	336	336	0	17,990	0.019	16,181	0.021
2017	300	1.000	300	297	1.011	300	299	300	1	16,939	0.018	16,783	0.018
2018	407	1.001	407	396	1.029	408	408	407	(1)	18,228	0.022	17,509	0.023
2019	385	1.003	386	359	1.076	386	428	386	(42)	18,000	0.021	17,949	0.022
2020	269	1.165	313	153	1.906	292		328		19,113	0.017	23,536	0.014
Total	7,186		7,232	7,024		7,208	6,961	7,247	(42)	270,055	0.027	266,875	0.027

Notes:

- (1) Exhibit Auto-17
- (2) Exhibit Auto-17
- (3) = (1) x (2)
- (4) Exhibit Auto-18
- (5) Exhibit Auto-18
- (6) = (4) x (5)
- (7) Prior Analysis Selected
- (8) EY Select
- (9) = (8) · (7)
- (10) Provided by Company
- (11) = (8) / (10)
- (12) = (10) x Relativity
- (13) = (8) / (12)

State of Ohio - Office of Risk Management
 Auto Liability
 March 31, 2020
 Non-Zero Claims Reported

Accident Period Ending 7/1/xxxx	Months of Development															
	9	21	33	45	57	69	81	93	105	117	129	141	153	165	177	189
2005								536	536	536	536	536	536	536	536	536
2006							429	429	429	429	429	429	429	429	429	429
2007						528	528	528	528	528	528	528	528	528	528	528
2008					543	543	543	543	543	543	543	543	543	543	543	543
2009				520	520	520	520	520	520	520	520	520	520	520	520	520
2010			533	533	533	533	533	533	533	533	533	533	533	533	533	533
2011		542	543	543	543	543	543	542	542	542	542	542	542	542	542	542
2012	242	351	355	355	355	355	355	355	355	355	355	355	355	355	355	355
2013	302	421	421	421	421	421	421	421	421	421	421	421	421	421	421	421
2014	500	593	596	595	593	594	594	594	594	594	594	594	594	594	594	594
2015	455	491	491	488	488	488	488	488	488	488	488	488	488	488	488	488
2016	290	334	334	336	336	336	336	336	336	336	336	336	336	336	336	336
2017	244	300	299	300	300	300	300	300	300	300	300	300	300	300	300	300
2018	409	407	407	407	407	407	407	407	407	407	407	407	407	407	407	407
2019	353	385	385	385	385	385	385	385	385	385	385	385	385	385	385	385
2020	269	269	269	269	269	269	269	269	269	269	269	269	269	269	269	269

Period Ending Period	Development Factors															
	9-21	21-33	33-45	45-57	57-69	69-81	81-93	93-105	105-117	117-129	129-141	141-153	153-165	165-177	177-189	189-201
2005								1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2006							1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2007						1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2008					1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2009				1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2010			1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2011		1.002	1.000	1.000	1.000	1.000	0.998	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2012	1.450	1.011	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2013	1.394	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2014	1.186	1.005	0.998	0.997	1.002	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2015	1.079	1.000	0.994	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2016	1.152	1.000	1.006	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2017	1.230	0.997	1.003	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2018	0.995	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2019	1.091	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Avg All	1.197	1.002	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Avg 5	1.109	1.000	1.000	0.999	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
5 Yr Avg Ex Hi/Lo	1.107	1.000	1.001	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Wtd Avg All	1.174	1.002	1.000	0.999	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Wtd Avg 5	1.095	1.001	1.000	0.999	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Wtd Avg 3	1.085	0.999	1.000	0.999	1.001	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Last	1.208	1.002	1.001	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Sel LDF	1.162	1.002	1.001	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
CDF	1.165	1.003	1.001	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000

State of Ohio - Office of Risk Management
 Auto Liability
 March 31, 2020
 Claims Closed w/ Pay

Accident Period	Months of Development																
	9	21	33	45	57	69	81	93	105	117	129	141	153	165	177	189	
2005														536	536	536	536
2006												429	429	429	429		
2007											528	528	528	528			
2008										543	543	543	543				
2009										520	520	520					
2010								532	533	533	533						
2011							542	542	542	542							
2012						354	355	355	355								
2013					419	420	420	420									
2014				586	591	592	593										
2015			479	483	485	486											
2016		309	323	332	334												
2017	145	276	290	297													
2018	222	380	396														
2019	206	359															
2020	153																

Accident Period	Development Factors															
	9-21	21-33	33-45	45-57	57-69	69-81	81-93	93-105	105-117	117-129	129-141	141-153	153-165	165-177	177-189	189-201
2005													1.000	1.000	1.000	
2006												1.000	1.000	1.000		
2007												1.000	1.000	1.000		
2008										1.000	1.000	1.000				
2009									1.000	1.000	1.000					
2010								1.002	1.000	1.000						
2011							1.000	1.000	1.000							
2012						1.003	1.000	1.000								
2013					1.002	1.000	1.000									
2014				1.009	1.002	1.002										
2015			1.008	1.004	1.002											
2016		1.045	1.028	1.006												
2017	1.903	1.051	1.024													
2018	1.712	1.042														
2019	1.743															
Avg All	1.786	1.046	1.020	1.006	1.002	1.002	1.000	1.001	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Wtd Avg All	1.771	1.046	1.018	1.006	1.002	1.001	1.000	1.001	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Wtd Avg 3	1.771	1.046	1.018	1.006	1.002	1.001	1.000	1.001	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Last	1.787	1.048	1.016	1.007	1.002	1.001	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Sel LDF	1.771	1.046	1.018	1.006	1.002	1.001	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
CDF	1.906	1.076	1.029	1.011	1.004	1.002	1.001	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000

State of Ohio - Office of Risk Management
 Auto Liability
 March 31, 2020
 Actual vs Expected - Incurred Loss & ALAE

Accident Period	Exposure (Earned) (1)	Incurred @ 03/31/19 (2)	Incurred @ 03/31/20 (3)	Actual Dev't (4)	CDF @ 03/31/19 (5)	Age-age @ 03/31/19 (6)	Expected Dev't (7)	Variance (8)	Ultimate Loss & ALAE @ 03/31/19 (9)	Ultimate Loss & ALAE @ 03/31/20 (10)	Change from @ 03/31/19 (11)	Paid Loss & ALAE @ 03/31/20 (12)	Total Reserves (13)	Case Reserves (14)	IBNR Reserves (15)
2005	15,996	909,673	909,673	0	1.000	1.000	0	0	909,673	909,673	0	909,673	0	0	0
2006	15,921	727,033	727,033	0	1.000	1.000	0	0	727,033	727,033	0	727,033	0	0	0
2007	15,952	1,578,290	1,578,290	0	1.000	1.000	0	0	1,578,290	1,578,290	0	1,578,290	0	0	0
2008	16,656	776,096	776,096	0	1.000	1.000	0	0	776,096	776,096	0	776,096	0	0	0
2009	16,732	1,248,331	1,248,331	0	1.000	1.000	0	0	1,248,331	1,248,331	0	1,248,331	0	0	0
2010	16,381	2,632,202	2,632,202	0	1.000	1.000	0	0	2,632,202	2,632,202	0	2,632,202	0	0	0
2011	16,449	921,060	921,060	(0)	1.000	1.000	0	(0)	921,060	921,060	(0)	921,060	0	0	0
2012	16,516	1,258,538	1,258,538	0	1.003	1.003	3,439	(3,439)	1,261,977	1,258,538	(3,439)	1,258,538	0	0	0
2013	16,383	1,137,783	1,140,283	2,500	1.006	1.003	3,818	(1,318)	1,144,721	1,143,514	(1,207)	939,799	203,715	200,485	3,230
2014	16,396	2,260,483	2,257,887	(2,597)	1.014	1.008	17,622	(20,219)	2,291,995	2,273,851	(18,144)	2,209,137	64,715	48,750	15,965
2015	16,403	3,208,490	3,188,573	(19,916)	1.035	1.021	67,133	(87,050)	3,321,286	3,238,618	(82,668)	2,936,449	302,169	252,125	50,045
2016	17,990	974,283	957,996	(16,288)	1.091	1.054	77,596	(93,884)	1,105,297	993,195	(112,102)	447,846	545,349	510,150	35,199
2017	16,939	651,542	554,675	(96,866)	1.218	1.116	276,654	(373,520)	1,169,382	711,844	(457,538)	508,609	203,236	46,067	157,169
2018	18,228	2,203,842	1,719,799	(484,043)	1.514	1.243	359,785	(843,828)	2,964,053	2,099,626	(864,427)	1,377,956	721,670	341,843	379,827
2019	18,000	1,792,675	1,936,589	143,914	2.674	1.766	494,484	(350,570)	2,873,242	2,676,355	(196,887)	574,121	2,102,234	1,362,468	739,766
2020	19,113		504,109	504,109			877,302	(373,192)	2,345,669	2,035,653	(310,016)	174,880	1,351,860	329,230	1,022,630
Total	270,055		22,311,135	30,813			2,177,832	(2,147,019)	27,270,306	25,223,880	(2,046,427)	19,220,018	5,494,948	3,091,117	2,403,831
Total ex 2020	250,942	22,280,322	21,807,026	(473,296)			1,300,530	(1,773,827)	24,924,637	23,188,226	(1,736,411)	19,045,139	4,143,088	2,761,887	1,381,201

Notes:

- (1) Provided by Client
- (2) Prior Analysis
- (3) Exhibit Auto-8
- (4) = (3) - (2)
- (5) Prior Analysis
- (6) Prior Analysis
- (7) = [(9) - (2)] * (1/(6) - 1/(5)) / (1 - 1/(5))
- (8) = (4) - (7)

- (9) Prior Analysis
- (10) Exhibit Auto-5
- (11) = (10) - (9)
- (12) Exhibit Auto-6
- (13) = (10) - (12); latest year is a partial year estimate
- (14) = (3) - (12)
- (15) = (13) - (14)

State of Ohio - Office of Risk Management
 Auto Liability
 March 31, 2020
 Actual vs Expected - Paid Loss & ALAE

Accident Period	Exposure (Earned) (1)	Paid @ 03/31/19 (2)	Paid @ 03/31/20 (3)	Actual Dev't (4)	CDF @ 03/31/19 (5)	Age-age @ 03/31/19 (6)	Expected Dev't (7)	Variance (8)	Ultimate Loss & ALAE @ 03/31/19 (9)	Ultimate Loss & ALAE @ 03/31/20 (10)	Change from 03/31/19 (11)	Incurred Loss & ALAE @ 03/31/20 (12)	Total Reserves (13)	Case Reserves (14)	IBNR Reserves (15)
2005	15,996	909,673	909,673	0	1.000	1.000	0	0	909,673	909,673	0	909,673	0	0	0
2006	15,921	727,033	727,033	0	1.000	1.000	0	0	727,033	727,033	0	727,033	0	0	0
2007	15,952	1,578,290	1,578,290	0	1.000	1.000	0	0	1,578,290	1,578,290	0	1,578,290	0	0	0
2008	16,656	776,096	776,096	0	1.000	1.000	0	0	776,096	776,096	0	776,096	0	0	0
2009	16,732	1,248,331	1,248,331	0	1.000	1.000	0	0	1,248,331	1,248,331	0	1,248,331	0	0	0
2010	16,381	2,632,202	2,632,202	0	1.000	1.000	0	0	2,632,202	2,632,202	0	2,632,202	0	0	0
2011	16,449	921,060	921,060	(0)	1.000	1.000	0	(0)	921,060	921,060	(0)	921,060	0	0	0
2012	16,516	1,258,538	1,258,538	0	1.005	1.005	3,439	(3,439)	1,261,977	1,258,538	(3,439)	1,258,538	0	0	0
2013	16,383	933,875	939,799	5,923	1.012	1.007	115,994	(110,071)	1,144,721	1,143,514	(1,207)	1,140,283	203,715	200,485	3,230
2014	16,396	2,082,673	2,209,137	126,464	1.030	1.018	124,164	2,300	2,291,995	2,273,851	(18,144)	2,257,887	64,715	48,750	15,965
2015	16,403	2,882,988	2,936,449	53,461	1.068	1.037	240,020	(186,559)	3,321,286	3,238,618	(82,668)	3,188,573	302,169	252,125	50,045
2016	17,990	440,598	447,846	7,247	1.193	1.117	402,761	(395,514)	1,105,297	993,195	(112,102)	957,996	545,349	510,150	35,199
2017	16,939	447,365	508,609	61,244	1.556	1.304	394,695	(333,451)	1,169,382	711,844	(457,538)	554,675	203,236	46,067	157,169
2018	18,228	354,636	1,377,956	1,023,320	3.152	2.025	1,243,343	(220,023)	2,964,053	2,099,626	(864,427)	1,719,799	721,670	341,843	379,827
2019	18,000	185,895	574,121	388,226	8.131	2.580	595,352	(207,126)	2,873,242	2,676,355	(196,887)	1,936,589	2,102,234	1,362,468	739,766
2020	19,113		174,880	174,880			288,469	(113,589)	2,345,669	2,035,653	(310,016)	504,109	1,351,860	329,230	1,022,630
Total	270,055		19,220,018	1,840,764			3,408,236	(1,567,472)	27,270,306	25,223,880	(2,046,427)	22,311,135	5,494,948	3,091,117	2,403,831
Total ex 2020	250,942	17,379,254	19,045,139	1,665,884			3,119,767	(1,453,883)	24,924,637	23,188,226	(1,736,411)	21,807,026	4,143,088	2,761,887	1,381,201

Notes:

- (1) Provided by Client
- (2) Prior Analysis
- (3) Exhibit Auto-6
- (4) = (3) - (2)
- (5) Prior Analysis
- (6) Prior Analysis
- (7) = [(9) - (2)] * (1/(6) - 1/(5)) / (1 - 1/(5))
- (8) = (4) - (7)

- (9) Prior Analysis
- (10) Exhibit Auto-5
- (11) = (10) - (9)
- (12) Exhibit Auto-6
- (13) = (10) - (3); latest year is a partial year estimate
- (14) = (12) - (3)
- (15) = (13) - (14)

State of Ohio - Office of Risk Management
 Auto Liability
 March 31, 2020
 Actual vs Expected - Reported Non-Zero Counts

Accident Period	Exposure (Vehicle Count) (1)	Non-Zero Count @ 03/13/19 (2)	Non-Zero Count @ 03/31/20 (3)	Actual Dev't (4)	CDF @ 03/13/19 (5)	Age-age @ 03/13/19 (6)	Expected Dev't (7)	Variance (8)	Prior Ultimate Non-Zero Count @ 03/13/19 (9)	EY Ultimate Non-Zero Count @ 03/31/20 (10)	Change from @ 03/13/19 (11)	Closed Non-Zero Count @ 03/31/20 (12)	Total Open + IBNR Counts (13)	Open Counts (14)	IBNR Counts (15)
2005	15,996	536	536	0	1.000	1.000	0	0	536	536	0	536	0	0	0
2006	15,921	429	429	0	1.000	1.000	0	0	429	429	0	429	0	0	0
2007	15,952	528	528	0	1.000	1.000	0	0	528	528	0	528	0	0	0
2008	16,656	543	543	0	1.000	1.000	0	0	543	543	0	543	0	0	0
2009	16,732	520	520	0	1.000	1.000	0	0	520	520	0	520	0	0	0
2010	16,381	533	533	0	1.000	1.000	0	0	533	533	0	533	0	0	0
2011	16,449	542	542	0	1.000	1.000	0	0	542	542	0	542	0	0	0
2012	16,516	355	355	0	1.000	1.000	0	0	355	355	0	355	0	0	0
2013	16,383	421	421	0	1.000	1.000	0	0	421	421	0	420	1	1	0
2014	16,396	594	594	0	1.000	1.000	0	0	594	594	0	593	1	1	0
2015	16,403	488	488	0	1.000	1.000	0	0	488	488	0	486	2	2	0
2016	17,990	336	336	0	1.000	1.000	0	0	336	336	0	334	2	2	0
2017	16,939	299	300	1	1.001	1.001	0	1	299	300	1	297	3	3	0
2018	18,228	407	407	0	1.003	1.002	1	(1)	408	407	(1)	396	11	11	0
2019	18,000	353	385	32	1.212	1.208	73	(41)	428	386	(42)	359	27	26	1
2020	19,113		269							328		153	175	116	59
Total	270,055		7,186						7,247	7,247		7,024	223	162	61
Total ex 2020	250,942	6,884	6,917	33			75	(42)	6,961	6,919	(42)	6,871	48	46	2

Notes:

- (1) Provided by Client
- (2) Prior Analysis
- (3) Exhibit Auto-16
- (4) = (3) - (2)
- (5) Prior Analysis
- (6) Prior Analysis
- (7) = [(9) - (2)] * (1/(6) - 1/(5)) / (1 - 1/(5))
- (8) = (4) - (7)

- (9) Prior Analysis
- (10) Exhibit Auto-16
- (11) = (10) - (9)
- (12) Exhibit Auto-16
- (13) = (10) - (3)
- (14) = (3) - (12)
- (15) = (13) - (14)

State of Ohio - Office of Risk Management
Auto Liability
As of March 31, 2020
Allocation of 7/1/20-21 Ultimate Loss & ALAE by Agency at ACE-52M per Occurrence and Undiscounted

Table with columns: Agency Name, Premium, Vehicle Count, Distribution, and various sub-estimates (Based on Adjusted, Capped Trend, etc.) and Rate per Adjusted Vehicle.

Notes:

- (1) Provided by Client
(2) Vehicle Count x Relativity to Vehicle Class 210
(3) Based on Allocation from Exhibit Auto Premium Allocation-2
(4) Based on Allocation from Exhibit Auto Premium Allocation-2

- (5) Based on Allocation from Exhibit Auto Premium Allocation-2
(6) Based on Allocation from Exhibit Auto Premium Allocation-2
(7) (3)*(1)
(8) (4)*(1)

- (9) = (5)-(1)
(10) = (6)-(1)
(11) = (3)/(2)
(12) = (4)/(2)

- (13) = (5)/(2)
(14) = (6)/(2)
(15) Prior year analysis
(16) Prior year analysis

State of Ohio - Office of Risk Management
Auto Liability
As of March 31, 2020
Allocation of 7/1/20-21 Ultimate Loss & ALAE by Agency at ACE- Undiscounted - Scenario 1: 50/50 Weight

Table with columns (1) through (12) containing agency names, adjusted vehicle counts, capped and estimated trends, experience weighting factors, selected claims, 7/1/20-21 ultimate losses & LAE, prior premium, change in premium, percentage change in premium, and cost per vehicle.

Notes:
(1) = Vehicle Count x Relativity to Vehicle Class 310
(2) = (1)/(1 Total) * (7 Total); (7 Total) from Exhibit Auto-3
(3) Incurred Loss Developed, Truncated to 7/1/2020, and capped at \$250,000
(4) = (3)/(3 Total) * (7 Total); (7 Total) from Exhibit Auto-3
(5) Weights provided by the ORM
(6) Based on weighted average of (2) and (4); weights provided by the ORM
(7) = (6) * (7 Total); (7 Total) from Exhibit Auto-3
(8) = (6) * (8 Total); (8 Total) from Exhibit Auto-3
(9) Provided by ORM
(10) =(7)-(9)
(11) =(7)/(9)-1
(12) =(7)/(1)

State of Ohio - Office of Risk Management
Auto Liability
As of March 31, 2020
Allocation of 7/1/20-21 Ultimate Loss & ALAE by Agency at ACE-Discounted (2.0%) - Scenario 2: Credibility Weight

Table with 13 columns: (1) Agency Name, (2) Adjusted Vehicle Count, (3) Capped Trended Ult. LLAEE FY 2010-2020, (4) Estimate Using Capped Trended Ult. LLAEE FY 2010-2020, (5) Experience Weighting Factor, (6) Weighted Cost, (7) Selected Claims Distribution, (8) 7/1/20-21 Ultimate Losses & LAE \$2,000,000 per Occurrence, (9) 7/1/20-21 Ultimate Losses & LAE \$5,000,000 per Occurrence, (10) Prior Premium, (11) Change in Premium, (12) Percentage Change in Premium, (13) Cost per Vehicle. Rows include various agencies like ACC, ADJ, AGE, etc.

Notes:

- (1) = Vehicle Count x Relativity to Vehicle Class 310
(2) = (1) / (1 Total) * (8 Total) / (8 Total) from Exhibit Auto-3
(3) Incurred Loss developed, trended to 7/1/2020, and capped at \$250,000
(4) = (3) / (3 Total) * (8 Total) / (8 Total) from Exhibit Auto-3
(5) Weights based on the size of the agency
(6) = (4) * (5) * (2) * (1 - (5))
(7) = (6) / (6 Total)
(8) = (7) * (8 Total) / (8 Total) from Exhibit Auto-3
(9) = (7) * (9 Total) / (9 Total) from Exhibit Auto-3
(10) Provided by ORM
(11) = (8) - (10)
(12) = (8) / (10) - 1
(13) = (8) / (11)

State of Ohio - Office of Risk Management
 Auto Liability
 As of March 31, 2020
 Vehicle Type Classification Relativities

Vehicle Class	Vehicle Type Description	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
		FY 2010 - 2020 Vehicles	FY 2010 - 2020 Trended Ult Loss & ALAE Uncapped	Ult Loss & ALAE Capped @ 250K	Average Loss & ALAE Per Vehicle		Relativity to Base Class 310		Current	Selected
					Uncapped	Capped @ 250K	Uncapped	Capped @ 250K		
310	Passenger Vehicles & Light Trucks	94,335	8,133,055	4,570,280	86.2	48.4	1.000	1.000	1.000	1.000
311	Medium Weight Trucks	17,257	757,237	757,237	43.9	43.9	0.509	0.906	1.100	1.100
312	Heavy Weight Trucks	10,642	4,447,344	3,666,278	417.9	344.5	4.847	7.111	2.500	2.750
313	Emergency Vehicles	19,275	7,226,825	2,974,165	374.9	154.3	4.349	3.185	2.500	2.750
314	Guest Vehicle	490	60,483	60,483	123.6	123.6	1.433	2.550	1.000	1.000
315	Light Equipment	28,160	1,123,802	1,123,802	39.9	39.9	0.463	0.824	0.700	0.700
316	Heavy Equipment	13,112	631,856	501,112	48.2	38.2	0.559	0.789	1.120	1.100
317	Watercraft	5,528	3,432	3,432	0.6	0.6	0.007	0.013	0.100	0.100
Total		188,798	22,384,034	13,656,789	118.6	72.3				

Notes:

- (1) Provided by Client
- (2) Incurred Loss developed and trended to 7/1/2020
- (3) Incurred Loss developed, trended to 7/1/2020, and capped at \$250,000
- (4) = (2)/(1)
- (5) = (3)/(1)
- (6) = (4)/(4 for class 310)
- (7) = (5)/(5 for class 310)
- (8) Provided by Client
- (9) EY Select

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