DEPARTMENT OF TRANSPORTATION **[4910-EX-P]**

Federal Motor Carrier Safety Administration

[Docket No. FMCSA-2014-0177]

Crash Weighting Analysis

AGENCY: Federal Motor Carrier Safety Administration (FMCSA), DOT.

ACTION: Notice; request for public comment.

SUMMARY: FMCSA announces a study to inform decision making about the feasibility of using a motor carrier's role in crashes as an indicator of future crash risk in response to stakeholder interest and as part of the Agency's commitment to continuous improvement. This study assesses (1) whether Police Accident Reports (PARs) provide sufficient, consistent, and reliable information to support crash weighting determinations; (2) whether a crash weighting determination process would offer an even stronger predictor of crash risk than overall crash involvement and how crash weighting would be implemented in the Agency's Safety Measurement System (SMS); and (3) how FMCSA might manage a process for making crash weighting determinations, including the acceptance of public input. This notice advises the public of the availability of the study report for review and comment, along with a request for feedback on what steps the Agency should take regarding crash and PAR data quality.

DATES: Comments must be received on or before [INSERT DATE 30 DAYS AFTER PUBLICATION IN THE FEDERAL REGISTER].

ADDRESSES: You may submit comments bearing the Federal Docket Management System (FDMS) Docket ID FMCSA-2014-0177 using any of the following methods:

- Federal eRulemaking Portal: Go to www.regulations.gov. Follow the on-line instructions for submitting comments.

- Mail: Docket Management Facility; U.S. Department of Transportation, 1200 New Jersey Avenue, SE, West Building Ground Floor, Room W12-140, Washington, DC 20590-0001.

- Hand Delivery or Courier: West Building Ground Floor, Room W12-140, 1200 New Jersey Avenue, SE, Washington, DC, between 9 a.m. and 5 p.m., ET, Monday through Friday, except Federal Holidays.

- Fax: 1-202-493-2251.

Each submission must include the Agency name and the docket number for this notice. Note that DOT posts all comments received without change to www.regulations.gov, including any personal information included in a comment. Please see the Privacy Act heading below.

Docket: For access to the docket to read background documents or comments, go to www.regulations.gov at any time or visit Room W12-140 on the ground level of the West Building, 1200 New Jersey Avenue, SE, Washington, DC, between 9 a.m. and 5 p.m., ET, Monday through Friday, except Federal holidays. The on-line Federal document management system is available 24 hours each day, 365 days each year. If you want acknowledgment that we received your comments, please include a self-addressed, stamped envelope or postcard or print the acknowledgement page that appears after submitting comments on-line.

Privacy Act: In accordance with 5 USC 553(c), DOT solicits comments from the public to better inform its rulemaking process. DOT posts these comments, without edit, including any personal information the commenter provides, to www.regulations.gov, as described in the system of records notice (DOT/ALL-14 FDMS), which can be reviewed at www.dot.gov/privacy.

FOR FURTHER INFORMATION CONTACT: For information concerning this study, contact Ms. Dee Williams, Chief, Compliance Division, Federal Motor Carrier Safety Administration, 1200 New Jersey Avenue, SE, Washington, DC 20590, Telephone 202-366-1812 or by e-mail: dee.williams@dot.gov. If you have questions on viewing or submitting material to the docket, contact Docket Operations, telephone (202) 366-9826.

SUPPLEMENTARY INFORMATION:

I. Public Participation and Request for Comments

FMCSA encourages you to participate by submitting comments and related materials.

Submitting Comments

If you submit a comment, please include the docket number for this notice (FMCSA-2014-0177), indicate the specific section of this document to which each comment applies, and provide a reason for each suggestion or recommendation. You may submit your comments and material online or by fax, mail, or hand delivery, but please use only one of these means. FMCSA recommends that you include your name and a mailing address, an e-mail address, or a phone number in the body of your document so the Agency can contact you if it has questions regarding your submission.

To submit your comment online, go to http://www.regulations.gov and put the docket number, "FMCSA-2014-0177" in the "Keyword" box, and click "Search." When the new screen appears, click on "Comment Now!" button and type your comment into the text box in the following screen. Choose whether you are submitting your comment as an individual or on behalf of a third party and then submit. . If you submit your comments by mail or hand delivery, submit them in an unbound format, no larger than 8½ by 11 inches, suitable for copying and electronic filing. If you submit comments by

mail and would like to know that they reached the facility, please enclose a stamped, self-addressed postcard or envelope.

FMCSA will consider all comments and material received during the comment period and may change this notice based on your comments.

Viewing Comments and Documents

To view comments, as well as documents mentioned in this preamble as being available in the docket, go to http://www.regulations.gov and insert the docket number, "FMCSA-2014-0177" in the "Keyword" box and click "Search." Next, click "Open Docket Folder" button and choose the document listed to review. If you do not have access to the Internet, you may view the docket online by visiting the Docket Management Facility in Room W12-140 on the ground floor of the DOT West Building, 1200 New Jersey Avenue, SE., Washington, DC 20590, between 9 a.m. and 5 p.m., e.t., Monday through Friday, except Federal holidays.

II. BACKGROUND

The FMCSA is dedicated to reducing crashes, injuries, and fatalities involving large trucks and buses. The Compliance, Safety, Accountability (CSA) program is FMCSA's enforcement model that allows the Agency and State Partners to address motor carrier safety problems before crashes occur. The foundation of CSA is the SMS, which quantifies the on-road safety performance of motor carriers to prioritize enforcement resources.

The SMS uses recordable crash records involving commercial motor vehicles (CMVs) that are submitted by the States through the Agency's Motor Carrier Management Information System (MCMIS) to assess motor carriers' crash risk and prioritize them for safety interventions using the SMS Crash Indicator. To define

recordable crash, the Agency relies on the definition of "accident" found in 49 CFR 390.5, which means (1) except as provided in paragraph (2) of the definition, an occurrence involving a CMV operating on a highway in interstate or intrastate commerce that results in: (i) A fatality; (ii) bodily injury to a person who, as a result of the injury, immediately receives medical treatment away from the scene of the accident; or (iii) one or more motor vehicles incurring disabling damage as a result of the accident, requiring the motor vehicle(s) to be transported away from the scene by a tow truck or other motor vehicle. (2) The term accident does not include: (i) an occurrence involving only boarding and alighting from a stationary motor vehicle; or (ii) an occurrence involving only the loading or unloading of cargo.

A CMV is also defined at 49 CFR 390.5, as any self-propelled or towed motor vehicle used on a highway in interstate commerce to transport passengers or property when the vehicle: (1) Has a gross vehicle weight rating or gross combination weight rating, or gross vehicle weight or gross combination weight, of 4,536 kg (10,001 pounds) or more, whichever is greater; or (2) is designed or used to transport more than eight passengers (including the driver) for compensation; or (3) is designed or used to transport more than 15 passengers, including the driver, and is not used to transport passengers for compensation; or (4) is used in transporting material found by the Secretary of Transportation to be hazardous under 49 U.S.C. 5103 and transported in a quantity requiring placarding under regulations prescribed by the Secretary under 49 CFR, subtitle B, chapter I, subchapter C.

Because the crash data reported to FMCSA by the States does not specify a motor carrier's role in the crash, the Crash Indicator uses all of a motor carrier's recordable crashes, and is not available publicly. The Crash Indicator does weight crashes based on

crash severity, however, with more weight given to fatality and injury crashes than to those that meet the definition of an accident only because one or more vehicles was towed from the scene.

Research on this issue conducted by FMCSA, as well as independent organizations, has demonstrated that crash involvement, regardless of role in the crash, is a strong indicator of future crash risk. In fact, the Crash Indicator is one of the strongest predictors of crashes within the SMS. FMCSA's recently completed SMS Effectiveness Test (ET) shows that motor carriers above the Intervention Threshold in the Crash Indicator have a future crash rate that is 85 percent higher than the national average (https://csa.fmcsa.dot.gov/Documents/CSMS_Effectiveness_Test_Final_Report.pdf). This document and related reports are available in the docket of this notice.

Since FMCSA has implemented the SMS, some stakeholders have expressed concern that the Crash Indicator may not identify the highest risk motor carriers for intervention because it looks at all crashes without regard to the role of the carrier in the crash. In response to stakeholder interest and as part of the Agency's commitment to continuous improvement, FMCSA has completed a study on the feasibility of using a motor carrier's role in crashes as an indicator of future crash risk. The analysis focused only on the three broad questions below addressing the procedural issues surrounding a crash weighting program and the feasibility of implementing such a program; it did not focus on any other implications of the program. The three analysis questions are separate analyses designed to inform Agency decisions.

- Do PARs provide sufficient, consistent, and reliable information to support crash weighting determinations?

- Would a crash weighting determination process offer an even stronger predictor of crash risk than overall crash involvement, and how would crash weighting be implemented in the SMS?
- Depending upon the analysis results for the questions above, how might FMCSA manage the process for making crash weighting determinations, including public input to the process?

The Agency's research plan was posted on the Agency's website at http://csa.fmcsa.dot.gov/documents/CrashWeightingResearchPlan_7-2012.pdf on July 23, 2012. The resulting report is titled "Crash Weighting Analysis" and is in the docket associated with this notice. The draft research was peer reviewed, and the peer review recommendations are also in the docket.

III. SUMMARY OF ANALYSIS

The discussion below summarizes the results of the three questions addressed in this analysis. Each question is addressed independently. The FMCSA seeks comments on the analyses' approaches and results.

Because FMCSA does not receive PARs from the States, the Agency created a database for analysis using 10,892 PARs obtained from two national datasets: the National Highway Traffic Safety Administration (NHTSA) Fatality Analysis Reporting System (FARS) and the National Motor Vehicle Crash Causation Survey (NMVCCS).

Depending upon State procedures, most PARs do not indicate the reason for a crash; therefore, the FMCSA employed a review process based on the process developed for FMCSA's Large Truck Crash Causation Study (LTCCS), particularly the methodology for assigning the "critical event" and the "critical reason" for the critical event. This methodology focuses on pre-crash events, such as vehicle and driver

actions/movements, driver condition, and the environment at the crash scene, to identify the circumstances leading to the crash.[1] The critical event is the event that immediately led to the crash and that put the vehicle or vehicles on a course that made the crash unavoidable. The critical reason is the immediate reason for the critical event or the failure leading to the critical event, for example, if a CMV driver drives too fast for the roadway type.

The FMCSA reviewed the PARs and determined the critical event and critical reason to identify a motor carrier's role in a crash and assign a crash weighting for analysis purposes. In order to derive the most robust analysis of each study question, the Agency used several crash data sources, including PARs, the NMVCCS, and the MCMIS.

Question 1: Do PARs provide sufficient, consistent, and reliable information to support crash weighting determinations?

One of the key questions for this study is whether FMCSA could make reliable crash weighting determinations based solely on PARs, since the PAR is often perceived as the most common and timely record of a crash. This analysis (1) reviewed PAR sufficiency for determining a motor carrier's role in a crash; (2) compared a sample of PARs with other data sets to assess the reliability of the information on the PARs; and (3) assessed the feasibility of identifying (coding) the motor carrier's role for particular types of crash events without reviewing the PAR.

In this study, FMCSA reviewed and coded three years of crash data, a total of 10,892 PARs from the FARS and NMVCCS, to identify the critical reason for the crash. Ninety-one percent of the PARs met the criteria to be reviewed for a critical reason determination (at least one vehicle involved in the crash was a CMV, the CMV was

[1] For details on the LTCCS methodology, go to http://www.ai.fmcsa.dot.gov/ltccs/default.asp?page=method.

regulated by FMCSA, and the crash met the criteria for a recordable crash). Nine percent could not be reviewed because it could not be determined from the PAR that all of these criteria were met. Of the 91 percent of the PARs that could be reviewed, 3 percent could not be coded for a critical reason due to incomplete, inconsistent, or insufficient information.

The PARs were then reviewed to determine how reliably (or accurately) they depicted the circumstances of the crash. Specific fields on the PARs were compared to the information in related fields in the FARS, which provides more robust information than the PAR alone. The FMCSA did not attempt to infer these data fields from the narrative sections of the PAR.

The following table provides an overview of the match rate between PARs and FARS. The Agency was unable, in this type of analysis, to establish which record, the PAR or FARS, was more accurate, but simply identified the fact that the two data sources were not in agreement.

Data Field	PAR/FARS Match	PAR/FARS Non-Match	Missing PAR Data
Driver Contributing Factors	12.6%	5.3%	82.0%
First Harmful Event	46.9%	5.6%	47.5%
Traffic-Way Flow	52.4%	14.9%	32.8%
Weather Conditions	95.7%	3.2%	1.1%
Roadway Surface Conditions	96.7%	2.3%	1.0%

The FMCSA also compared the critical reasons assigned for this study with those assigned in matching records from the NMVCCS, which employs a similar critical reason determination process. The analysis found that the majority of the critical reason determinations, about 90 percent, matched between these two data sources.

The Agency also assessed the practicality of coding crashes for two types of crash events using information available in the MCMIS as an approach to crash weighting that would not require reviewing an actual PAR: (1) single-vehicle crashes deemed to be "attributable" to the motor carrier; and (2) both single- and multiple-vehicle crashes with associated post-crash inspection records indicating a pre-crash out-of-service (OOS) condition on the CMV involved. Single-vehicle attributable crashes are those for which the MCMIS event code description did not indicate a collision with a pedestrian; a motor vehicle in transport; an animal; work zone maintenance equipment; or other/unknown movable object or "other." It was hypothesized that the critical reason for these two types of crashes would be assigned to the CMV if the PARs were reviewed. Analysis results suggest that the coding of single-vehicle crashes without a PAR review is feasible, but is dependent upon accurate data as to the number of vehicles involved. For crashes with a pre-crash OOS condition, PAR reviewers did not assign the critical reason to the

CMV in a majority of cases as they did not consider the post-crash inspection results, but the PAR alone.

Question 2: Would a crash weighting determination process offer an even stronger predictor of crash risk than overall crash involvement, and how would crash weighting be implemented in the SMS?

This portion of the crash weighting analysis assumed PAR sufficiency and reliability and looked at whether a crash weighting methodology in the SMS Crash Indicator BASIC would provide a sharper view of the highest risk motor carriers by identifying motor carriers with higher future crash rates. Crash weights were derived based on (1) the critical reason assignments for the 10,892 PARs that were reviewed; and (2) on 671 single-vehicle attributable crashes identified in the MCMIS.

The Agency employed various statistical and analytical approaches to assess crash weighting benefits. The analysis used crash data from 2009-2010 to define Crash Indicator percentiles, then tracked the future (January 2011 to June 2012) crash rate of motor carriers above the Intervention Threshold.

The analysis applied two approaches for modifying crash weights and analyzed the effect of each on the crash-predictive strength of the current Crash Indicator. The first applied higher severity weights for crashes where the critical reason was assigned to the CMV and for single-vehicle attributable crashes and applied lower weights for crashes that were reviewed but not assigned to the CMV. The second approach simply removed crashes that were reviewed but not assigned to the CMV. Both of these approaches were applied to the same two sets of crashes: all crashes and fatal crashes only.

Results showed that modifying the Crash Indicator by changing the crash weights based on a motor carrier's role in a crash does not appear to improve its ability to predict future crash rates when all crashes are considered. Modifying the Crash Indicator to include crash weighting improves its ability to predict future crash rates when *only fatal* crashes are considered. When the crash weighting methodology was applied, the carriers that were identified for intervention had future crash rates that are 1.8 percent to 5.0 percent higher, when removing crashes not assigned to the CMV during the PAR review. Fatal crashes are, however, less than 3 percent of all crashes in the MCMIS.

Question 3: How might FMCSA manage the process for making crash weighting determinations, including public input to the process?

The objective of this part of the analysis was to identify how a crash weighting process might be structured and, based on this process, estimate the resources required for both start-up and ongoing implementation.

Implementing a crash weighting effort on a national scale requires a method for uniformly acquiring the final PARs for all or a subset of crashes; a process and system for uniform analysis; and a method for receiving and analyzing public input.

It must be noted that FMCSA does not currently receive PARs from the States and that they may be difficult to obtain, due to the requirements for secure data collection and storage, which creates a significant, albeit unknown, cost to the Agency. The annual costs for reviewing and coding PARs, including the acceptance of public input, will vary depending upon the number of PARs reviewed, the number of appeals, and the crash weighting determination process established by the Agency. This analysis estimates potential costs of between $3.9 million and $11.2 million annually.

The analysis also provided some insight into the amount of time it would take to make these determinations. The data provided some indication that the timeframe for the entire crash weighting determination process, from the submission of the crash report through the determination process, could be so significant as to make the value of the determination questionable for the purposes of use in the SMS, given the 24-month analysis period used by the SMS.

IV. REQUEST FOR COMMENTS

The Agency completed the study to inform decision making concerning the feasibility of using a motor carrier's role in crashes as an indicator of future crash risk. Based on the information that is provided, what steps should the Agency take regarding crash and PAR data quality? Are there other data, research, or related materials FMCSA should take into consideration?

Dated: January 16, 2015.

T. F. Scott Darling, III,

Acting Administrator.

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