

**Department of Transportation  
Federal Motor Carrier Safety Administration**

**SUPPORTING STATEMENT PART B  
Trucking Fleet Concept of Operations (CONOPS) for Managing Mixed Fleets**

**INTRODUCTION**

This is to request the Office of Management and Budget's (OMB's) review and approval of a new Federal Motor Carrier Safety Administration (FMCSA) information collection request (ICR) titled Trucking Fleet Concept of Operations (CONOPS) for Managing Mixed Fleets.

**Part B. Collections of Information Employing Statistical Methods**

**1. DESCRIBE POTENTIAL RESPONDENT UNIVERSE AND ANY SAMPLING SELECTION METHOD TO BE USED.**

Anyone attending the roadshow 18 years of age and older is eligible to participate in the questionnaires. FMCSA expects that those attending the roadshow will be those employed or interested in the trucking industry. The questionnaires will be distributed at up to four VTTI roadshows to obtain a convenience sample. We are expecting approximately 500 participants will fill out the questionnaires at each of the four roadshows; thus, obtain 2,000 total participants.

The roadshows will coincide with large conferences, for example, the Technology Maintenance Council (TMC) Annual Meeting, North American Commercial Vehicle Show, SAE Commercial Vehicle Engineering Congress, and Automated Vehicle Symposium. The data collected in Phase I of the study (pre-roadshow) will allow us to gather baseline opinions regarding ADS technologies. Once they participate in the hands-on demonstrations at the roadshow, we will see if their opinions on the technologies have changed (Phase 2 or post-roadshow). Potential respondents can participate in the roadshow for free and there is no obligation to complete the Phases 1 and 2 questionnaires.

We anticipate a convenience sample of 500 participants in each of the four roadshows (2,000 total respondents). Below is a breakdown of potential survey respondents at each roadshow:

- TMC Annual Meeting (500 respondents)
  - 50% CMV fleet managers, 30% industry engineers, 10% CMV sales personnel, and 10% State and Federal government
- North American Commercial Vehicle Show (500 respondents)
  - 50% CMV fleet managers, 10% industry engineers, 20% CMV sales personnel, 20% CMV drivers
- SAE COMVEC (500 respondents)
  - 25% CMV fleet managers, 50% industry engineers, and 25% State and Federal government
- Automated Vehicle Symposium (500 respondents)
  - 30% researchers, 30% State and Federal government, 30% industry engineers,

and 10% CMV fleet managers

**2. DESCRIBE PROCEDURES FOR COLLECTING INFORMATION, INCLUDING STATISTICAL METHODOLOGY FOR STRATIFICATION AND SAMPLE SELECTION, ESTIMATION PROCEDURES, DEGREE OF ACCURACY NEEDED, AND LESS THAN ANNUAL PERIODIC DATA CYCLES.**

VTTI will organize up to four roadshows, which will each include multiple hands-on demonstrations, as part of this project. The roadshows will be held at various truck shows and conference across the U.S. such as the TMC Annual Meeting, North American Commercial Vehicle Show, SAE COMVEC, and Automated Vehicle Symposium, all of which have strong participation from the trucking industry. During these roadshows, technology vendors will provide hands-on demonstrations of their ADS technology such as in-vehicle demonstrations and closed-course scenarios. Attendees of the truck shows and conferences will be invited to participate in the hands-on demonstrations, during which the questionnaires will be distributed.

The research team will use a questionnaire to collect data for the study. Questionnaires will be loaded onto VTTI owned cell phones (no cellular service or wi-fi capabilities) which will be handed to participants at the start of the roadshow. The resulting sample of participants in this study will be from convenience sampling. Prior to the start of the roadshow, participants will be asked to complete a pre-roadshow questionnaire (Attachment G). After the roadshow is complete, participants will be asked to complete a post-roadshow questionnaire (Attachment H). Questionnaires will be downloaded from the cell phones to VTTI secure servers after the roadshow is complete using a wired connection.

Participants will provide implied consent by completing the questionnaires. They will be asked to create an anonymous ID (e.g., first two letters of first name, first two letters of last name, and day of birth) and enter that ID on each questionnaire so questionnaires may be tied together. Pre- and post-roadshow data will be analyzed using non-parametric analysis techniques to determine whether experiencing hands-on demonstrations with various ADS technologies impacts the opinions of members of the trucking industry. The questionnaire data will be analyzed with a mix of descriptive statistics, chi-square statistics with frequency count data, and t-tests (e.g., pre-roadshow vs. post-roadshow) where appropriate. Open ended questions will be valued using a content analysis. Content analysis is a research tool used to determine the presence of certain words, themes, or concepts within some given qualitative data (i.e., text). Using content analysis, researchers can quantify and analyze the presence, meanings and relationships of such certain words, themes, or concepts.

**3. DESCRIBE METHODS TO MAXIMIZE RESPONSE RATE AND TO DEAL WITH THE ISSUES OF NON-RESPONSE.**

No personally identifying information is being collected for this study to maximize response rates. Due to this anonymous convenience sampling, non-responses will not be contacted further. Non-response data points will not be included in the analysis. We are also collecting data at up to four different roadshows. This will also reduce non-response bias associated with the pool of potential respondents at any one roadshow.

**4. DESCRIBE TESTS OF PROCEDURES OR METHODS TO BE UNDERTAKEN.**

The demographic questions have been successfully used and tested in prior VTTI studies.<sup>(1,2)</sup> Moreover, the questions pertaining to ADS acceptance were taken from a validated survey for the assessment of acceptance of advanced transport telematics (see Van der Laan).<sup>(1)</sup>

FMCSA conducted a pilot test with some of the proposed end-users. This pilot test included six end users: 2 researchers, 1 government employee, 1 commercial motor vehicle fleet representative, and two commercial driver's license holders. Participants completed the Pre-Roadshow Questionnaire and Post-Roadshow Questionnaire, timing completion of each and reviewing for content and/or comprehension issues. FMCSA revised both the Pre-Roadshow Questionnaire and Post-Roadshow Questionnaire based on the results of the pilot test. Pilot test participants indicated mean completion times of 3.5 minutes and 4.4 minutes for the Pre-Roadshow Questionnaire and Post Roadshow Questionnaire, respectively.

There will be weighting of responses in the analysis. Survey responses will be summarized and reported using bar charts, plots, and tables that will provide visual comparisons of respondent responses on the ADS Acceptance items, stratified by age, industry, prior ADS experience, and roadshow demonstrations. A content analysis will be used to summarize responses to open-ended questions (e.g., "Of the demonstrations you participated in today, which do you believe are most ready for deployment today?"). Survey responses will be summarized and reported using calculated summary statistics (e.g., means, medians, ranges). Calculated summary statistics (ANOVA) will be tabulated by age, industry, prior ADS experience, and roadshow demonstrations.

**5. PROVIDE NAME AND TELEPHONE NUMBER OF INDIVIDUALS WHO WERE CONSULTED ON STATISTICAL ASPECTS OF THE INFORMATION COLLECTION AND WHO WILL ACTUALLY COLLECT AND/OR ANALYZE THE INFORMATION.**

**Project Leads for this information collection request:**

Susan Soccolich  
Statistician  
Virginia Tech Transportation Institute  
3500 Transportation Research Plaza  
Blacksburg, VA 24061  
(540) 231-1032  
[ssoccolich@vtti.vt.edu](mailto:ssoccolich@vtti.vt.edu)

<sup>1</sup> Hickman, J.S., Mabry, J.E., Glenn, L., Guo, F., Mao, H., Hanowski, R.J., Whiteman, J., Herbert, W. (2020). *Commercial Driver Safety Risk Factors (CDSRF)*. Report# FMCSA-RRR-17-014. Washington, DC: Federal Motor Carrier Safety Administration.

<sup>2</sup> Grove, K., Atwood, J., Hill, P., Fitch, G., Blanco, M., Guo, F., ... & Richards, T. (2016, June). Field study of heavy-vehicle crash avoidance systems. (Final report. Report No. DOT HS 812 280). Washington, DC: National Highway Traffic Safety Administration