: 4910-59-P]

DEPARTMENT OF TRANSPORTATION

National Highway Traffic Safety Administration

[Docket No. NHTSA-2024-0070]

Agency Information Collection Activities; Submission to the Office of Management and Budget for Review and Approval; Request for Comment; Crash Avoidance Warning System Human-Machine Interface Research

AGENCY: National Highway Traffic Safety Administration (NHTSA), Department of Transportation (DOT).

ACTION: Notice and request for comments on a request for approval of a new information collection.

SUMMARY: In compliance with the Paperwork Reduction Act of 1995 (PRA), this notice announces that the Information Collection Request (ICR) summarized below will be submitted to the Office of Management and Budget (OMB) for review and approval. The ICR describes the nature of the information collection titled "Crash Avoidance Warning System Human-Machine Interface Research" and its expected burden. This ICR is to request approval to conduct 6 new voluntary information collections as part of a one-time research study of drivers' interactions with crash avoidance technology with different human-machine interface (HMI) characteristics. This research will inform NHTSA's vehicle safety efforts and decisions regarding rulemaking activities. A Federal Register Notice with a 60-day comment period soliciting comments on the following information collection was published on November 7, 2024. Two comments were received during the comment period: one in full support of the collection, the other acknowledging the exclusion of motorcycles and requesting future studies include non-4-wheeled vehicles. This notice includes a discussion of the comments and responses. No changes to the study nor burden calculations are necessary as a result of the comments.

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

ADDRESSES: Written comments and recommendations for the proposed information collection, including suggestions for reducing burden, should be submitted to the Office of Management and Budget at www.reginfo.gov/public/do/PRAMain. To find this particular information collection, select "Currently under Review – Open for Public Comment" or use the search function.

FOR FURTHER INFORMATION CONTACT: For additional information or access to background documents, contact Alexandria Rossi-Alvarez, PhD, Office of Vehicle Safety Research, Applied Crash Avoidance Research Division NSR-120, Vehicle Research & Test Center, 10820 State Route 347, East Liberty, OH 43319; a.rossi-alvarez@dot.gov**;** 937-666-3322.

SUPPLEMENTARY INFORMATION: Under the PRA (44 U.S.C. 3501 *et seq.*), a Federal agency must receive approval from OMB before it collects certain information from the public, and a person is not required to respond to a collection of information by a Federal agency unless the collection displays a valid OMB control number. In compliance with these requirements, this notice announces that the following information collection request will be submitted to OMB.

Title: Crash Avoidance Warning System Human-Machine Interface Research

OMB Control Number: New

Form Number: NHTSA Form 2006: Interest Response Form; NHTSA Form 2007: Candidate Screening Questions; NHTSA Form 2008: Appointment Scheduling; NHTSA Form 2009: Participant Informed Consent Form; and NHTSA Form 2010: Post-Drive Questionnaire.

Type of Request: New information collection

Type of Review Requested: Regular

Length of Approval Requested: Three years from date of approval

Summary of the Collection of Information:

NHTSA is seeking approval for this new ICR to conduct 6 new voluntary information collections as part of a one-time research program examining drivers' interactions with crash avoidance technology with different HMI characteristics. This research will inform NHTSA's vehicle safety efforts and decisions regarding rulemaking activities.

Crash avoidance warning systems aid vehicle drivers in avoiding crashes by presenting alerts and warnings to inform drivers of situations in which the system has determined, via sensor information, that a crash is possible or imminent, depending on the situation. These systems communicate the occurrence of such conditions to drivers via sensory modalities, such as visual or auditory signals or vibration of the seat or steering wheel. This research seeks to improve NHTSA's understanding of how crash avoidance warning system HMI characteristics affect system effectiveness and potential safety impacts.

The objective of this research is to examine driver behavior while using crash avoidance warning systems and to assess effects of human-machine interface characteristics on drivers' behavior and driver response in crash-imminent scenarios. The research will involve driver behavior observation while driving on a test track, public roads, or in a simulated environment (i.e., driving simulator). Data collection may also involve stationary laboratory measurements relating to crash avoidance warning signal characteristics, such as stationary laboratory measurements of individuals' visual angles when gazing at in-vehicle visual signals (e.g., instrument panel symbols) and displays. Test vehicles will be equipped, as needed, with instrumentation for recording driver eye glance behavior, vehicle control inputs (steering wheel, accelerator pedal, and brake pedal inputs), vehicle position and speed, and turn signal status. During dynamic testing, sensors will determine and record the distances between the test vehicle and surrounding vehicles, as appropriate.

Description of the Need for the Information and Proposed Use of the Information:

As driver assistance technologies advance, they have the potential to dramatically reduce the number of motor vehicle crashes and injuries, as well as the associated economic costs. The

safety and effectiveness of the crash avoidance warning systems depend on drivers understanding the capabilities and constraints of the systems, and the meaning of visual and auditory alerts or warnings provided.

Drivers successfully perceiving and understanding crash avoidance warnings is important for crash avoidance system effectiveness and crash mitigation. In particular, drivers must comprehend the situation and respond quickly when a crash avoidance warning system indicates an imminent collision is likely. This research aims to assess the effects of crash avoidance warning system HMI characteristics on driver behavior, on driver response in crash-imminent scenarios, and on crash avoidance success. The research will compare various crash avoidance warning system HMI characteristics and examine participants' responses to the alerts and/or warnings.

60-Day Notice:

A Federal Register notice with a 60-day comment period soliciting public comments on the following information collection was published on November 7, 2024 (89 FR 88342). NHTSA received two comments during the public comment period for the 60-day notice. Neither comment challenged the burden calculations.

The National Association of Mutual Insurance Companies (NAMIC) commented, "NAMIC strongly supports this effort by NHTSA. There is no question that the proposed collection of information is necessary for the proper performance of the functions of the agency, and that the information will have practical utility. We believe that the results of the information collection will help NHTSA better understand and ensure vehicle safety." *Response:* NHTSA appreciates the review, consideration, and support of the research. No changes to the collection were necessary as a result of the NAMIC comment.

Zero Motorcycles, Inc. noted that the current information collection does not consider crash avoidance systems on motorcycles or "non-4+ wheeled" vehicles. They stated that motorcycles offer these types of systems and that including them in a future study would be

beneficial. *Response:* The scope of the current research effort is focused on light passenger vehicles. NHTSA continues to stay abreast of advancing motorcycle crash avoidance technologies and has other current research projects examining the performance of such technologies.

Affected Public:

Research participants will be volunteers from the Columbus, OH area who are licensed drivers aged 25-65 years (inclusive), drive at least 11,000 miles annually, are in good health, and do not require assistive devices to safely operate a vehicle and drive continuously for a period of up to 2 hours.

Estimated Number of Respondents:

Candidate participant recruitment information will be collected in an incremental fashion to permit the determination of which individuals meet the criteria for research participation. All interested candidates (estimate: 250 annually) will complete the Interest Response Form. A subset of individuals (estimate: 125 annually) meeting the criteria for the Interest Response Form will be asked to complete Candidate Screening Questions. Those who complete and are eligible based on the Candidate Screening Questions will be contacted for Appointment Scheduling to be study participants, with a goal of 67 participants annually. These same 67 participants will also complete the Experimental Data Collection and the Post-Drive Questionnaire.

Frequency: Once

This research will be conducted once in phases corresponding to the different crash avoidance warning system types to be examined (i.e., forward, lateral, and rear crash avoidance).

Estimated Number of Responses: 643 responses

Estimated Annual Burden Hours: 239 hours

The annual estimated burden for the information collection is 239 hours. This is the aggregate of the estimated annual burden for 6 information collections that would be part of the one-time study. The 6 information collections include: (1) Interest Response Form to be

administered to up to 250 potential research respondents; (2) Candidate Screening Questions to be administered to up to 125 research participants; (3) Appointment Scheduling to be administered to up to 67 research participants; (4) Participant Informed Consent Form to be administered to up to 67 research participants; (5) Experimental Data Collection; and (6) Post-Drive Questionnaire to be administered to up to 67 research participants.

The study will begin with a screening process to identify eligible participants. As stated above, the research team intends to identify 250 eligible participants to account for potential attrition to ensure that the target sample of 67 participants is achieved. Participant recruitment will be accomplished via online, print advertisements, and as needed, mailings to registered Ohio vehicle owners. Individuals interested in participation will respond to the recruitment advertisement by visiting a secure website containing a brief study description. The study description includes a web link that interested candidate participants can follow to begin the screening process. NHTSA estimates that the Interest Response Form takes, on average, 5 minutes to complete. Therefore, NHTSA estimates the annual burden for Interest Response Form to be 21 hours (5 minutes × 250 respondents).

Individuals whose responses meet participation requirements will be selected to take the Candidate Screening Questions. The research team intends to identify 125 eligible participants to account for potential attrition to ensure that the target sample of 67 participants is achieved. Candidate participants are emailed a link to the electronically presented question set hosted on a secure website. NHTSA estimates that the Candidate Screening Questions takes, on average, 7 minutes to complete. Therefore, NHTSA estimates the annual burden for Candidate Screening Questions to be 15 hours (7 minutes × 125 respondents).

Upon review of response data for the Candidate Screening Questions, candidates meeting the criteria will be contacted to schedule the study participation appointment. The research team intends to identify 67 eligible candidates. NHTSA estimates that the Appointment Scheduling

takes, on average, 2 minutes to complete. Therefore, NHTSA estimates the annual burden for Appointment Scheduling to be 2 hours (2 minutes × 67 respondents).

Each respondent will begin with a consenting process, which is completed on-site at the testing facility at the beginning of the study session. This consenting process includes an overview of the study and an explanation of the Informed Consent Form. This consenting process is expected to take 35 minutes. Therefore, NHTSA estimates the total burden for obtaining informed consent to be 39 hours (35 minutes × 67 respondents).

Following consent, the participant will receive instructions on the study protocol. For driving data collection, the participant will be shown the vehicle, seated in the driver seat, and an eye-tracking system calibration will be performed. Driving will then commence while data are recorded to document vehicle performance and driver behavior. For stationary measurements, the individual would be seated in a stationary vehicle and asked to look at and/or listen to different crash avoidance warnings and provide verbal feedback as appropriate. This Experimental Data Collection will be conducted once and take approximately 130 minutes. Therefore, NHTSA estimates that the total burden for the Experimental Data Collection to be 145 hours (130 minutes × 67 respondents).

At the end, participants will complete a Post-Drive Questionnaire, estimated to take approximately 15 minutes. The total burden for the Post-Drive Questionnaire is estimated to be 17 hours (15 minutes × 67 respondents). The total annual burden for the entire study is estimated to be 239 hours.

The estimated annual burden time is summarized in Table 1 below. The number of respondents and time to complete each question set are estimated as provided.

Table 1: Annual Burden Estimates

Information Collection	Annual Number of Respondents	Frequency of Response	Annual Responses	Time per Response (min)	Annual Estimated Burden

					Hours (Rounded)
Interest Response Form	250	1	250	5	21
Candidate Screening Questions	125	1	125	7	15
Appointment Scheduling	67	1	67	2	2
Participant Informed Consent Form	67	1	67	35	39
Experimental Data Collection	67	1	67	130	145
Post-Drive Questionnaire	67	1	67	15	17
Total Annual Burden			**643**		**239**

Estimated Total Annual Burden Cost: $0

There is no cost to respondents for this information collection. The costs associated with travel are minimal and expected to be offset by the compensation that will be provided to the research participants.

Public Comments Invited: You are asked to comment on any aspects of this information collection, including (a) whether the proposed collection of information is necessary for the proper performance of the functions of the agency, including whether the information will have practical utility; (b) the accuracy of the agency's estimate of the burden of the proposed collection of information, including the validity of the methodology and assumptions used; (c) ways to enhance the quality, utility and clarity of the information to be collected; and (d) ways to minimize the burden of the collection of information on respondents, including the use of appropriate automated, electronic, mechanical, or other technological collection techniques or other forms of information technology, e.g., permitting electronic submission of responses.

Authority: The Paperwork Reduction Act of 1995; 44 U.S.C. chapter 35, as amended; 49 CFR 1.49; and DOT Order 1351.29A.

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