

**Department of Transportation
National Highway Traffic Safety Administration
Information Collection Request Supporting Statements: Part A
Crash Avoidance Warning System Human-Machine Interface (HMI) Research
OMB Control No. 2127--New**

Abstract:¹

The National Highway Traffic Safety Administration (NHTSA) is seeking approval for this new information collection request (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 human-machine interface (HMI) characteristics. 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. These systems communicate the occurrence of such conditions to drivers via different sensory modalities, such as visual or auditory signals or vibration of the seat or steering wheel. The research will examine how the characteristics of the visual, auditory, and/or haptic (i.e., touch) signals presented by the system may affect the driver's response to a crash-imminent situation. This research will help inform NHTSA's rulemaking activities relating to crash avoidance technologies.

The research will involve driver behavior observation while driving on a test track, public road, or in a simulated environment (i.e., driving simulator) as means of collecting needed data. 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. Experimental data collection will include measurements such as those relating to driving performance, vehicle control metrics, and eye glance behavior.

Study participants are members of the general public and include licensed car and/or commercial truck drivers aged 25 to 65 who are healthy and able to drive without assistive devices. The full information collection request includes six information collections: Interest Response Form, Candidate Screening Questions, Experimental Data Collection, and Post-Drive Questionnaire.

Data collection will begin upon receipt of PRA clearance. Response to this information collection is voluntary and will be conducted in phases corresponding to the different crash avoidance warning system types to be examined (i.e., forward, lateral, and rear crash avoidance).

This is a new information collection that is estimated at 239 annual burden hours and \$7,200 annual opportunity costs.

¹ The Abstract must include the following information: (1) whether responding to the collection is mandatory, voluntary, or required to obtain or retain a benefit; (2) a description of the entities who must respond; (3) whether the collection is reporting (indicate if a survey), recordkeeping, and/or disclosure; (4) the frequency of the collection (e.g., bi-annual, annual, monthly, weekly, as needed); (5) a description of the information that would be reported, maintained in records, or disclosed; (6) a description of who would receive the information; (7) if the information collection involves approval by an institutional review board, include a statement to that effect; (8) the purpose of the collection; and (9) if a revision, a description of the revision and the change in burden.

A. Justification

- 1. Explain the circumstances that make the collection of information necessary. Identify any legal and administrative requirements that necessitate the collection. Attach a copy of the appropriate section of each statute and regulation mandating or authorizing the collection of information.**

Subchapter V of Chapter 301 of Title 49 of the United States Code (U.S.C.) authorizes the Secretary of Transportation to conduct “motor vehicle safety research, development, and testing programs and activities, including activities related to new and emerging technologies that impact or may impact motor vehicle safety.” 49 U.S.C. 30182. Pursuant to Section 1.95 of Title 49 of the Code of Federal Regulations (CFR), the Secretary has delegated this authority to the NHTSA.

NHTSA’s mission is to save lives, prevent injuries, and reduce the economic costs of road traffic crashes through education, research, safety standards, and enforcement activity. This research supports NHTSA’s mission by gathering information regarding how crash avoidance warning system HMI characteristics affect driver behavior and response in conflict situations. 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. These systems communicate the occurrence of such conditions to drivers via different sensory modalities, such as visual or auditory signals or vibration of the seat or steering wheel. They may also actively intervene via braking or steering input to mitigate or avoid crashes. This research will seek to improve NHTSA’s understanding of how crash avoidance warning system HMI characteristics affect system effectiveness and potential safety impacts. This research is a part of NHTSA’s vehicle safety research efforts and will support potential future rulemaking actions.

The information collection components for the research and the information collected are listed below.

- 2. Indicate how, by whom, and for what purpose the information is to be used. Except for a new collection, indicate the actual use the agency has made of the information received from the current collection.**

BY WHOM: All information will be collected by staff from NHTSA’s Vehicle Research and Test Center (VRTC) along with contracted support from Transportation Research Center, Inc.

This research encompasses multiple complementary experiments, each using the same six information collections detailed below. All experiments focus on drivers’ interactions with crash avoidance warning systems and will involve driver behavior observation while driving on a test track, public road, or in a simulated environment (i.e., driving simulator). Each experiment within the research that remains to be performed utilize the same six information collections. Data collection may also involve stationary laboratory

measurements relating to crash avoidance warning signal characteristics, such stationary laboratory measurements of individuals' visual angle when gazing at in-vehicle visual signals (e.g., instrument panel symbols) and displays.

This research involves the following individual information collections and an observational step.

1. **Interest Response Form (NHTSA Form 2006)**

PURPOSE: For determining individuals' willingness to participate in the research and initial suitability for participation based primarily on their demographics and driving qualifications (e.g., annual mileage driven).

HOW: Individuals will be reached via recruitment advertisements (print and online). Individuals interested in participation will respond to the recruitment advertisement or mailing by completing the *Interest Response Form* online via a secure website. The *Interest Response Form* is used to determine whether the respondents meet the basic participation qualifications. Response data will be reviewed by the research team and a determination will be made whether the individual meets the initial participation criteria. Those meeting the criteria, will move on to the next step.

2. **Candidate Screening Questions (NHTSA Form 2007)**

PURPOSE: To determine whether individuals meet participation criteria for the research. The purpose of the screening process is to ensure that participants' driving experience is representative of either the general public or the average consumer of the vehicle model and system under test and that participants' physical and health conditions allow them to safely drive continuously up to 2 hours without the use of assistive devices.

HOW: Individuals' responses are reviewed to determine whether they meet the age, licensing, and annual mileage criteria:

- a. Be aged 25-65 years (inclusive)
- b. For drivers of light passenger vehicles: Hold a valid U.S. driver's license and drive at least 11,000 miles annually in light passenger vehicles
- c. For drivers of heavy trucks: Hold a valid U.S. commercial driver's license and drive at least 11,000 miles annually in a commercial truck

Individuals meeting the criteria associated with the *Interest Response Form* will be sent an e-mail message containing a web link for accessing the *Candidate Screening Questions* via a secure website. The website will present the additional questions that seek to ensure the participants:

- d. Have no more than 2 points on current driving record
- e. Have no criminal convictions in the past 3 years including criminal driving offenses

- f. Have no uncorrected vision or hearing problems
- g. Are in good general health, able to drive continuously and safely for a period of 2 hours without the need for assistive devices
- h. Self-report that they are able to read, write, speak, and understand English
- i. Are willing to drive to NHTSA's Vehicle Research and Test Center and spend up to approximately 3 hours participating in a research study

The question regarding driving record is a requirement of the company providing the Contractor with a liability insurance policy. The question regarding criminal record serves to ensure no recent criminal convictions (to increase the likelihood that participants will follow research staff's instructions and maintain safety for research staff and the instrumented government-owned test vehicles). The website used to administer the questions records responses to individual vehicle and driving-related questions, while recording only a summary indications (i.e., yes or no) of whether an individual has any criminal convictions and meets the health question requirements. If the respondent replies, 'yes,' to the question about recent criminal convictions, a "thank you for completing the questionnaire" message will be displayed and no responses to the *Candidate Screening Questions* will be saved.

3. **Appointment Scheduling (NHTSA Form 2008)**

PURPOSE: Upon review of response data for candidate participants meeting the screening criteria, candidates meeting the criteria will be contacted to schedule the study participation appointment.

HOW: Contact with the selected participants will be by e-mail, text message, or phone to schedule participation as needed.

4. **Participant Informed Consent Form (NHTSA Form 2009)**

PURPOSE: This form describes the purpose, procedures, possible benefits and risks of the research. This form also explains what information will be collected, how the information will be used, how it is maintained, who may use it, and secondary research and other uses. The form asks the participant to acknowledge consent to participate by signing this form prior to the start of the Experimental Data Collection. The second consent to permit potential disclosure of the video and audio data collected during Experimental Data Collection is presented for the participant to optionally consent to after they have completed the protocol. This "Information Disclosure: consent gives NHTSA consent to use video showing the participant's face and related audio, as needed, to support NHTSA's vehicle safety efforts. NHTSA's vehicle safety research efforts include seeking ways to aid U.S. drivers in properly understanding the capabilities and proper use of the latest vehicle safety technologies. This consent

provides for the potential use of collected video and audio data in consumer education and outreach efforts.”

HOW: Upon arrival at the study site, participants will be asked to review and sign an informed consent form. Participants will be administered an audio-recorded version of the informed consent form after which the participant will be given the opportunity to ask questions and then asked to sign an electronic version of the consent form.

5. **Experimental Data Collection**

PURPOSE: To record participants’ driving and eye glance behavior for later analysis with respect to research questions addressing safety impacts of the crash avoidance warning system HMI characteristics. This data collection is necessary for collecting information from the public to support NHTSA’s vehicle safety efforts and potential rulemakings.

HOW: Experimental Data Collection will involve driver behavior observation while driving on a test track, public road, or in a simulated environment (i.e., driving simulator). NHTSA-provided vehicle instrumentation will include video cameras for recording driver eye glances and other actions such as control manipulation, as well as the road scene. Instrumentation will also include sensors to capture information such as vehicle position, speed, vehicle control inputs (e.g., steering wheel, accelerator pedal, and brake pedal inputs), and turn signal status. Computer equipment will be used to review these data and for subsequent analysis. These data will be used to assess how efficiently crash avoidance warning system HMI characteristics communicate the conflict situation (e.g., crash imminence) to the driver and whether the conditions elicit a timely and appropriate response from the driver.

Data collection may also involve stationary laboratory measurements relating to crash avoidance warning signal characteristics, such stationary laboratory measurements of individuals’ visual angle when gazing at in-vehicle visual signals (e.g., instrument panel symbols) and displays with the participant seated in a stationary vehicle. These measurements would be used to determine the best placement of crash warning visual signals to ensure they can be perceived effectively by all drivers.

6. **Post-Drive Questionnaire (NHTSA Form 2010)**

PURPOSE: To understand drivers’ opinions regarding the crash avoidance warning system HMI characteristics they experienced and their associated effectiveness, as well as assessing specific, open-ended opinions regarding the conditions examined.

HOW: The post-drive questionnaire will be administered via computer immediately following the completion of the *Experimental Data*

Collection. Participants' responses to scale-based questions will be combined for analysis. Responses to open-ended questions will be qualitatively summarized and described in the technical report without reference to individual participants.

Upon completion of research studies, the information will be available for public consumption in reports accessible via the National Transportation Library and/or Federal Register. Reports will present study results in aggregate and will not contain information about individual participants. The analysis is also expected to be used throughout the agency to support NHTSA's vehicle safety efforts and to support potential rulemaking activities.

3. Describe whether, and to what extent, the collection of information involves the use of automated, electronic, mechanical, or other technological collection techniques or other forms of information technology, e.g., permitting electronic submission of responses, and the basis for the decision for adopting this means of collection. Also, describe any consideration of using information technology to reduce burden.

Electronic collection of information will be used for all question sets. Computer software will be used for electronic presentation of participant recruitment and screening questions, as well as the post-drive questionnaire. Electronic presentation of these questions avoids the need to administer printed question sets completed by hand and eliminates the need to manually enter questionnaire response data.

Participant recruitment will be accomplished via online and 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.

The screening questions will be presented via a secure website. A link is e-mailed to potential subjects so they can complete it at their convenience; the respondents can leave and come back to the questionnaire if desired should something interrupt them. Additionally, branching and display logic used in the questionnaires reduces the need for respondents to skip questions on their own if they do not apply. The questionnaires are as follows:

1. The first questionnaire is a short set of questions (see *Interest Response Form*) used to determine whether the respondents meet the basic participation qualifications. The form solicits demographic, contact, driving license and history information, and annual mileage information.
2. If the respondent meets the basic participation qualifications based on responses from the *Interest Response Form*, then they will receive a second e-mail containing a web link for accessing a second questionnaire (see *Candidate Screening Questions*). The second set of questions determines whether the respondents are in good health, are free of recent criminal convictions, have no

more than 2 points on the driving record, and are likely to satisfactorily and safely complete study participation if selected.

Information entered by candidate participants meeting health and criminal conviction criteria will be securely stored in electronic format for review by the research team. Response data from both sets of screening questions will be downloaded from the secure website for review by NHTSA and its contractors to evaluate individuals' suitability for participation.

In the Experimental Data Collection, NHTSA-provided vehicle instrumentation will include video cameras for recording driver eye glances and other actions such as control manipulation, as well as the road scene. An eye tracking system (consisting of cameras, a computer, and software) will be used to obtain driver eye glance location and timing and associated software will automatically summarize these data. Instrumentation will also include sensors to capture information such as vehicle position, speed, vehicle control inputs (e.g., steering wheel, accelerator pedal, and brake pedal inputs), and turn signal status. Computer equipment will be used to review these data and for subsequent analysis.

The post-drive questionnaire will be administered using computer software that can be accessed with via a secure website or run locally on a computer without needing internet access.

4. Describe efforts to identify duplication. Show specifically why any similar information already available cannot be used or modified for use for the purposes described in Item 2 above.

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. These systems communicate the occurrence of such conditions to drivers via different sensory modalities, such as visual or auditory signals or vibration of the seat or steering wheel. They may also actively intervene via braking or steering input to mitigate or avoid crashes. Crash avoidance technologies have rapidly evolved over the years, with the latest systems having advanced performance abilities, including new HMI technology options. This research will look at how crash avoidance warning system HMI characteristics affect driver behavior and response in conflict situations. While there is much research published in prior decades by NHTSA and others in the research community examining crash avoidance warning system HMIs, research on the latest HMI developments and trends is sparse. NHTSA has yet to look at these new HMI designs and the impacts of the technology. NHTSA has not conducted or sponsored similar research that aims to understand drivers' responses to different crash avoidance warnings as a function of system HMI characteristics of the latest crash avoidance technologies being released in the U.S. market. NHTSA proposes to perform research involving collecting information from the public to aid in NHTSA's vehicle safety efforts and support potential rulemaking efforts.

5. If the collection of information impacts small business or other small entities, describe any methods used to minimize burden.

The collection of information does not involve small businesses. Respondents are individuals who meet certain criteria and who volunteer to participate in the research.

6. Describe the consequence to Federal program or policy activities if the collection is not conducted or is conducted less frequently, as well as any technical or legal obstacles to reducing burden.

The information collection covered herein will be collected once only and, therefore, less frequent collection is not feasible.

If the research is not conducted, NHTSA will lack important information to help support its decisions relating to safe implementation of different crash avoidance warning systems and related HMI characteristics. As the agency responsible for prescribing and maintaining the standards for vehicle safety in the United States,² NHTSA is constantly seeking objective data for use in basing decisions about how to best protect the road-traveling public and minimize deaths and injuries associated with car crashes.³ Timely, accurate information on driver behavior and performance considering modern-day vehicle equipment and driver habits is essential to NHTSA's determining the most appropriate recommendations and requirements for vehicle equipment and driving safety.

7. Explain any special circumstances that would cause an information collection to be conducted in a manner:

- a) requiring respondents to report information to the agency more often than quarterly;
- b) requiring respondents to prepare a written response to a collection of information in fewer than 30 days after receipt of it;
- c) requiring respondents to submit more than an original and two copies of any document;
- d) requiring respondents to retain records, other than health, medical, government contract, grant-in-aid, or tax records, for more than three years;
- e) in connection with a statistical survey, that is not designed to produce valid and reliable results that can be generalized to the universe of study;
- f) requiring the use of a statistical data classification that has not been reviewed and approved by OMB;
- g) that includes a pledge of confidentiality that is not supported by authority established in statute or regulation, that is not supported by disclosure and data security policies that are consistent with the pledge, or which unnecessarily impedes sharing of data with other agencies for compatible confidential use; or

² 49 U.S.C. 30101(1).

³ 49 U.S.C. 30101(2).

- h) requiring respondents to submit proprietary trade secrets, or other confidential information unless the agency can demonstrate that it has instituted procedures to protect the information's confidentiality to the extent permitted by law.**

There are no special circumstances that would cause this collection to be collected in a manner inconsistent with 5 CFR 1320.5(d)(2).

- 8. If applicable, provide a copy and identify the date and page number of publication in the Federal Register of the agency's notice, required by 5 CFR 1320.8(d), soliciting comments on the information collection prior to submission to OMB. Summarize public comments received in response to that notice and describe actions taken by the agency in response to the comments. Specifically address comments received on cost and hour burden. Describe efforts to consult with persons outside the agency to obtain their views.**

NHTSA published a 60-day notice on November 7, 2024 in the *Federal Register* (89 FR 88342) requesting comment on NHTSA's intention to submit this ICR to OMB for approval. NHTSA received two comments.

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.

- 9. Explain any decision to provide any payment or gift to respondents, other than remuneration of contractors or grantees.**

For the *Interest Response Form* and the *Candidate Screening Questions*, no payment or gift will be provided to these respondents.

Only respondents that become participants will be compensated for their time spent completing the Experimental Data Collection and the post-drive questionnaire, as well as reimbursed for the mileage traveled to and from the study site. Compensating individuals for study participation is consistent with normal experimental practices to account for the

time that participants contribute and encourage participation in research studies. The compensation rate is set using a calculation method approved by NHTSA's Office of Acquisition Management and will be reviewed by an independent Institutional Review Board. The compensation amount calculation begins with an hourly rate corresponding to a nonprofessional federal government employee (GS-8, Step 1) in the locality (Columbus, OH) in which the research is conducted and the prevalent GS pay schedule for the year it is conducted. The calculation adds increments of pay to account for added data collection complexity or procedural complexity associated with the research. For example, additional amounts are added to this rate to compensate for things such as special participant criteria (e.g., technology experience) and test procedure invasiveness (e.g., wearing eye tracking equipment). This method of determining pay level has been in use for NHTSA research studies conducted for many years at NHTSA Vehicle Research and Test Center where this research will be conducted.

For this research, NHTSA plans to provide monetary payment at a rate of approximately \$65 per hour for participation. Payment will be calculated to every quarter of an hour and rounded up to the whole dollar. In addition, study participants will be reimbursed at the current IRS mileage rate for miles traveled to and from the test site located approximately 30 miles outside of Columbus, Ohio. Payment in the form of cash will be provided to each participant in person at the completion of their participation appointment.

10. Describe any assurance of confidentiality provided to respondents and the basis for the assurance in statute, regulation, or agency policy. If the collection requires a systems of records notice (SORN) or privacy impact assessment (PIA), those should be cited and described here.

This research will use methods for protection of study data and personal identifying information (PII) that have been reviewed previously and deemed acceptable by NHTSA's CIO office and NHTSA's Privacy Officer.

The agency will provide participants with a *Participant Informed Consent Form* developed in cooperation with NHTSA's Office of Chief Counsel. The form explains what information NHTSA may release as follows:

"The engineering data collected and recorded in this study will include your driving performance based on the data. This data will be analyzed along with data gathered from other participants. NHTSA may publicly release this data, which will not be linked to your name or contact information, in final reports or other publication or media for scientific, educational, research, traffic safety or government purposes.

The video/audio data recorded in this study includes images of your face and in-vehicle audio (possibly including your voice). The video/audio data will include information regarding your driving performance and visual and other behavior while driving. Video and in-vehicle audio will be used to examine your driving performance and other driving and non-driving related task performance while

driving. NHTSA may publicly release video image data (in continuous video or still formats) and associated audio data, either separately or in association with the appropriate engineering data for scientific, educational, research, or government purposes. NHTSA also may disclose specific clips of video and associated audio to the media, and others involved in efforts to improve traffic safety. When disclosed, the video will not be linked to your name or your contact information and images of your face will be obscured.

NHTSA may show specific clips of video and associated audio internally within the U.S. Department of Transportation. When presented internally or externally, the video images of your face will be obscured, except in cases where showing specific facial behavior, such as where a driver is looking while driving, is essential to support a scientific, educational, research or government purpose. However, the video and audio data will not be linked to your name or contact information.

NHTSA nor its authorized contractors or agents shall release your Contact Information, Driving Background and Experience Information or Health Information, unless required by Federal law or an order from a court with competent jurisdiction.”

The *Participant Informed Consent Form* further contains an Information Disclosure Statement that describes additional use of collected video and audio data and gives the participant the opportunity to consent or not consent to such data usage. The Information Disclosure Statement will be administered after the protocol has been completed. The statement describes possible use of video and engineering data as follows:

"By signing the information disclosure statement below, you authorize NHTSA to use, disclose, reproduce to the public, and perform publicly and display publicly, in any manner and for any purpose, and to have or permit others to do so the Engineering and Video and Audio data associated with my individual participation.

You understand that unobscured images of your face and accompanying audio data may be shown publicly to highlight specific facial behavior, such as where a driver is looking while driving, when such information is critical to communicating the data in a scientific, educational, research, or government purpose. However, the video and audio data will not be linked to your name, contact, or other personal information.

You understand that you may decline to sign this information disclosure clause and still participate fully in this research.”

To maintain privacy, participants will be assigned a subject number which will be used instead of their name to de-identify all data collected.

NHTSA's privacy impact assessment (PIA) can be found online at the following link: <https://www.transportation.gov/individuals/privacy/office-vehicle-safety-research-ovsr-studies-0>.

11. Provide additional justification for any questions of a sensitive nature, such as sexual behavior and attitudes, religious beliefs, and other matters that are commonly considered private. This justification should include the reasons why the agency considers the questions necessary, the specific uses to be made of the information, the explanation to be given to persons from whom the information is requested, and any steps to be taken to obtain their consent.

The *Interest Response Form* and the *Candidate Screening Questions* are used to ensure that individuals meet study eligibility requirements prior to their enrollment. These questions are prefaced with a statement clarifying that responding is voluntary and that information will only be used for the purposes of study participant recruitment. Some *Candidate Screening Questions* ask about topics that are not considered sensitive information, such as vehicle and driving-related information, as well as age and other demographic information. Age and other demographic information will be collected to assign participants to the experimental conditions in a balanced manner. The *Candidate Screening Questions* also involve collection of information that some individuals may deem of a sensitive nature, such as general health information that may affect driving ability and criminal activity. The questionnaire administration website will be secure and present the questions and record responses to individual vehicle and driving-related questions, while recording only a summary indication of whether an individual meets the participation health criteria. Response data from both sets of screening questions will be downloaded from the website and maintained only on secure computers and/or file directories that are password protected. The screening question relating to criminal activity asks whether the individual has "...had any criminal convictions in the past 3 years?" with the response options as 'yes' and 'no.' If the respondent replies, 'yes,' to the question about recent criminal convictions, a "thank you for completing the questionnaire" message will be displayed and no responses to the Candidate Screening Questions will be retained.

12. Provide estimates of the hour burden of the collection of information on the respondents and estimates of the annualized labor cost to respondents associated with that hour burden.

The *Interest Response Form* is the initial information collection and is a solicitation for potential research participants. Interested individuals will respond to a study recruitment advertisement by completing the *Interest Response Form*. This is an electronic collection, is only collected once, and is estimated to take approximately 5 minutes. NHTSA estimates, based on the magnitude of participation interest response elicited for driving studies conducted by NHTSA's Vehicle Research and Test Center in past years at the same study site (NHTSA's Vehicle Research and Test Center), 250 people will complete this Interest Response Form annually.

The *Interest Response Form* submissions will be reviewed manually by research staff to select eligible participants. Individuals whose responses meet participation requirements will be selected to take the *Candidate Screening Questions*. Candidate participants are e-mailed a link to the electronically presented question set hosted on a secure website. NHTSA estimates (based on the magnitude of participation interest response elicited for driving studies conducted by NHTSA's Vehicle Research and Test Center in past years at the same study site (NHTSA's Vehicle Research and Test Center)) that 125 individuals will receive the *Candidate Screening Questions* annually. This information is to be collected once and will take approximately 7 minutes.

The respondents completing the *Interest Response Form* and the *Candidate Screening Questions* will be using their personal electronic device. There is no compensation for individuals who complete these information collections. Upon review and determination that the respondent is eligible and that sample specifications are met, that participant will be contacted by e-mail or phone to schedule their participation. This e-mail or phone call will take approximately 2 minutes via electronic or digital/phone, will only occur once, and is expected to be sent to 67 individuals annually (based on the magnitude of participation interest response elicited for driving studies conducted by NHTSA's Vehicle Research and Test Center in past years at the same study site (NHTSA's Vehicle Research and Test Center)).

Individuals scheduled for study participation will be asked to appear at NHTSA's Vehicle Research and Test Center in East Liberty, OH. Participants will be compensated for mileage driven to and from the research site at a rate corresponding to the IRS mileage rate in effect at the time of participation. Study participation will begin with a pre-briefing, *Participant Informed Consent Form*, followed by the *Experimental Data Collection*. The pre-briefing will consist of greeting the participant and administering an audio-recorded version of the *Participant Informed Consent Form* after which the participant will be given the opportunity to ask questions and then asked to sign an electronic version of the consent form on a computer. Sixty-seven participants annually will complete this collection and it is estimated at 35 minutes.

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 and NHTSA is maximizing the estimate of burden by calculating for all 67 respondents annually who received an appointment time.

Upon completion of the *Experimental Data Collection*, the participant will complete the *Post-Drive Questionnaire*. This is an electronic collection, will be administered once to each participant, and is estimated to take 15 minutes to complete. NHTSA is maximizing

the burden by calculating for all 67 respondents annually who will receive an appointment time.

The final information collection is the Information Disclosure Statement, which comprises the last page of the *Participant Informed Consent Form* document. This statement is administered electronically once and is estimated to take 35 minutes. NHTSA is maximizing the burden by calculation for all 200 respondents who received an appointment time.

Table 1 shows the annual estimated burden hours and opportunity costs. The opportunity cost is calculated based on Bureau of Labor Statistics Occupational Employment and Wages in Columbus, Ohio — May 2023, \$30.17 (Accessed April 10, 2025, at https://www.bls.gov/regions/midwest/news-release/occupationalemploymentandwages_columbusoh.htm). The annual estimated burden for the information collection is 239 hours.

Table 1. Annual Burden Hours and Opportunity Cost

Information Collection	Number of Respondents	Frequency of Response	Responses	Time per Response (min)	Cost Per Response \$30.17/Hour	Estimated Burden Hours (Rounded)	Opportunity Costs (rounded)
Interest Response Form	250	1	250	5	\$2.51	21	\$628
Candidate Screening Questions	125	1	125	7	\$3.52	15	\$440
Appointment Scheduling	67	1	67	2	\$1.01	2	\$68
Participant Informed Consent Form	67	1	67	35	\$17.60	39	\$1,179
Experimental Data	67	1	67	130	\$65.37	145	\$4,380

Collection							
Post-Drive Questionnaire	67	1	67	15	\$7.54	17	\$505
Total						239	\$7,200

13. Provide an estimate of the total annual cost burden to respondents or record keepers resulting from the collection of information. Do not include the cost of any hour burden already reflected in the response provided in question 12.

There are no additional costs to respondents. The respondents do not incur costs for equipment or materials for participation in the study. They are reimbursed for time spent completing the recruitment screening questionnaires and for travel costs for visits to the study site.

Respondents for the *Interest Response Form* and the *Candidate Screening Questions* use their own electronic device to complete the questionnaires. They are not responsible for purchasing additional equipment nor software for this completion. Any e-mail messages or phone calls made for the purposes of *Appointment Scheduling* are handled through personal devices as well.

Respondents selected and who agree to participate in the *Experimental Data Collection* will need to provide or obtain their own transportation to and from the study site. However, they are reimbursed for the cost of mileage driven to and from the study site and, therefore, incur no additional costs. The costs are minimal and are expected to be offset by the compensation that will be provided to the research participants. NHTSA estimates that each participant will travel on average 30 miles one-way to the research location (approximately 60 miles round trip). Using the IRS standard mileage rate of \$0.67 per mile⁴, each respondent is expected to incur approximately \$40.20 in transportation costs. Therefore, NHTSA estimates that the total costs to all respondents for the one-time research program will be approximately \$8,040 ($\40.20×200 participants). NHTSA estimates the total annual costs based on an average of 67 respondents a year. Accordingly, NHTSA estimates the total annual cost to be approximately \$2,693.40 per year ($\40.20×67 respondents). All equipment required for conduct of the research will be provided by NHTSA. The respondents will be fairly compensated for their participation without being coercive.

14. Provide estimates of annualized costs to the Federal government. Provide a description of the method used to estimate cost, which should include quantification of hours, operational expenses (such as equipment, overhead, printing, and support

⁴ From Internal Revenue Service's 2024 standard mileage rates for self-employed and business.
<https://www.irs.gov/tax-professionals/standard-mileage-rates>, last accessed May 14, 2024.

staff), and any other expense that would not have been incurred without this collection of information.

NHTSA is asking for a three-year approval for this one-time information collection request, thus, the annual cost to the federal government is estimated to be \$8,245.

The estimated annual cost in terms of the Federal government's research contract management time is approximately 40 hours for the Contracting Officer's Representative (COR) for the relevant contract task order and 8 hours for the supervisor. Using an example COR GS pay scale level of GS-14 Step 1 and Supervisor GS pay scale rate of GS-15 Step 1, NHTSA estimates that the cost associated with those hours to be \$2,623.60 (\$53.47 x 40 hours = \$2,138.80; \$62.89 x 8 hours = \$503.12; \$2,138.80 + \$503.12 = \$2641.92). (GS locality COLUMBUS-MARION-ZANESVILLE, OH and pay rates for year 2024.)

The estimated costs incurred by the Federal government relating to the administration and technical support for this information collection are based on the number of minutes needed to for the contractor to administer and process each question set and the number of respondents.

The estimated costs incurred by the Federal Government relating to the administration and technical support for both parts (driver behavior experimentation and stationary laboratory measurements relating to crash avoidance warning signal characteristics) of this information collection are summarized below. The number of respondents and time to administer and process each question set across both parts of data collection are estimated as shown in the table, and the calculations for the estimates are described below.

The estimated annual contractor costs to the Federal government for administration, processing, and summarizing this information collection across both parts of data collection is \$19,930.42.

Table 3. Estimated Annual Contractor Costs to Federal Government

Form Order	Form No.	Question Topic / Information Collection Step	Number of Responses	Time Per Respondent/ Participant (Minutes)	Total Time per Question Set (Hours)	Labor Cost (\$) Per Hour	Estimated Time Cost (\$)
1	2006	Interest Response Form Administration	250	0	0	\$96.00	\$0.00
		Interest Response Form Data Processing	250	5	21	\$96.00	\$2,000.00
2	2007	Screening Questions Administration	125	7	15	\$96.00	\$1,400.00
		Screening Questions Data Processing	125	20	42	\$136.00	\$5,666.67
3	2008	Appointment Scheduling Administration	125	2	4	\$96.00	\$400.00

		Appointment Scheduling Data Processing	125	5	10	\$96.00	\$1,000.00
4	2009	Participant Informed Consent Form Administration	67	35	39	\$96.00	\$3,752.00
		Participant Informed Consent Form Data Processing	67	5	6	\$96.00	\$536.00
NA	NA	Experimental Data Collection: Participant is observed in experimental protocol	67	130	-	-	-
5	2010	Post-Drive Questionnaire Administration	67	15	17	\$154.50	\$2,587.88
		Post-Drive Questionnaire Data Summary	67	15	17	\$154.50	\$2,587.88
TOTAL:							\$19,930.42

*Note: Candidate Screening Questions will be administered electronically via a secure website. However, the step of referring individuals with acceptable Interest Response Form responses to complete Candidate Screening Questions will be accomplished by a contractor sending the candidate an e-mail asking them to complete Candidate Screening Questions online. Administration time consists of the time it will take for an individual to send the candidate participant a scripted e-mail response.

Costs incurred by the Federal Government for compensation of study participants and mileage reimbursement are shown in Table 4. It is planned that participants will be recruited from an area covering an approximately 60-mile radius surrounding the test site. For the purposes of estimating mileage reimbursement cost, it is assumed that participants' residences will be located an average of 30 miles from the test site. Study participants will be reimbursed for mileage driven for both outbound and return trips between their residence and the test site, which gives an average of 60 miles reimbursed at the current IRS standard mileage rate of \$0.67⁵ per participant. For the *Experimental Data Collection* and the *Post-Drive Questionnaire*, monetary payment will be provided at an hourly rate determined via an internal, standardized pay rate determination calculation. The hourly rate of pay is based on the federal government general schedule pay rate corresponding to GS-8, Step 1 for the locality of the research site. NHTSA anticipates that the hourly rate for study participation will be approximately \$65 per hour. Participants are expected to spend approximately a total of 3 hours participating in the research. Anticipated total costs incurred by the Federal Government for compensation of research participants and mileage reimbursement are summarized in the table 4 below.

Table 4. Estimated Annual Costs for Participant Compensation

Compensation	N	Quantit	Cost	Cost (\$)
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⁵ See

From Internal Revenue Service's 2024 standard mileage rates for self-employed and business.
<https://www.irs.gov/tax-professionals/standard-mileage-rates>, last accessed Sept. 6, 2024.

		y	Rate	
Participant Pay	67	3 (hours)	\$ 65.00/hr	\$13,065
Mileage Reimbursement	67	60 (miles)	\$ 0.67/mile	\$2,693.00

The annual costs to the federal government combine \$38,312.02.

- 15. Explain the reasons for any program changes or adjustments reported on the burden worksheet. If this is a new collection, the program change will be entire burden cost and number of burden hours reported in response to questions 12 and 13. If this is a renewal or reinstatement, the change is the difference between the new burden estimates and the burden estimates from the last OMB approval.**

This is a new data collection that adds 239 annual burden hours and \$7,200 of annual opportunity cost.

- 16. For collections of information whose results will be published, outline plans for tabulation and publication. Address any complex analytical techniques that will be used. Provide the time schedule for the entire project, including beginning and ending dates of the collection of information, completion of report, publication dates, and other actions as applicable.**

Research results will be published in the form of one or more technical research reports. NHTSA may publish in aggregate the results of these experiments through research reports via the National Transportation Library and/or future published Federal Register notices.

Only descriptive and inferential statistical analysis methods will be used. Personal information will not be published in the technical reports.

Data collection is planned to begin immediately upon receipt of PRA approval. All data collection will be completed over an anticipated period of approximately 24 months. Data reduction and analysis will follow data collection. Completion of technical reports is anticipated within 12 months of the end of data collection. Therefore, the full approval request is for three years.

- 17. If seeking approval to not display the expiration date for OMB approval of the information collection, explain the reasons that display would be inappropriate.**

NHTSA will display the expiration date for OMB approval.

18. Explain each exception to the topics of the certification statement identified in "Certification for Paperwork Reduction Act Submissions." The required certifications can be found at 5 CFR 1320.9.⁶

There are no exceptions to the certifications statement.

In accordance with the requirement at 5 CFR 1320.9(g), the following statement will be provided to respondents:

Paperwork Reduction Act Statement: A federal agency may not conduct or sponsor, and a person is not required to respond to, nor shall a person be subject to a penalty for failure to comply with, a collection of information subject to the requirements of the Paperwork Reduction Act unless that collection of information displays a current valid OMB Control Number. The OMB Control Number for this information collection is 2127-XXXX. The information collected is necessary to help support NHTSA's vehicle safety efforts and potential future rulemaking actions relating to crash avoidance warning systems. We estimate that it will take approximately 5 minutes to complete the form. The information collected is mandatory under 49 CFR 591.5. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden to: Information Collection Clearance Officer, National Highway Traffic Safety Administration, 1200 New Jersey Ave, S.E., Room W45-205, Washington, DC, 20590.

⁶ Specifically explain how the agency display the OMB control number and expiration date and will inform potential respondents of the information required under 5 CFR 1320.8(b)(3): the reasons the information is planned to be and/or has been collected; the way such information is planned to be and/or has been used to further the proper performance of the functions of the agency; an estimate, to the extent practicable, of the average burden of the collection (together with a request that the public direct to the agency any comments concerning the accuracy of this burden estimate and any suggestions for reducing this burden); whether responses to the collection of information are voluntary, required to obtain or retain a benefit (citing authority), or mandatory (citing authority); the nature and extent of confidentiality to be provided, if any (citing authority); and the fact that an agency may not conduct or sponsor, and a person is not required to respond to, a collection of information unless it displays a currently valid OMB control number.