

**Department of Transportation
National Highway Traffic Safety Administration
Information Collection Request Supporting Statements: Part A
Distraction: Portable Electronic Device Interfaces OMB Control No. 2127- (New)**

Abstract:

The National Highway Traffic Safety Administration (NHTSA) is proposing a new information collection consisting of a single, one-time experimental research study that involves voluntary participation from members of the public. The purpose of this research is to evaluate how safely drivers can interact with smartphone integration systems that allow access to smartphone applications through the vehicle's built-in display screen. Data collection will occur in two parts. Part I consists of an evaluation method called an "occlusion study" at Westat facilities in the Washington D.C. area (n =56). Part II consists of a closed-course track (CCT) evaluation conducted at Utah Motorsports Campus near Salt Lake City (n=72). The primary characteristic of eligible participants is the use of Android Auto (AA) or Apple CarPlay (ACP) while driving. Data collected will include eye tracking measurements, vehicle performance metrics, task completion times, error rates, and participant demographics. The collected information will be analyzed by Westat and Red Scientific on behalf of NHTSA, with summarized findings provided to NHTSA through detailed research reports. The study procedures will be reviewed and approved by the Westat Institutional Review Board (IRB) before any data collection begins.

Part I will follow the procedures for occlusion testing as outlined in the 2013 NHTSA Driver Distraction Guidelines for Task Acceptance Testing and will take place in stationary vehicles. In this part, 24 participants per system (across up to 3 vehicles, for a total of up to 56 participants, in a mixed-factorial design) will perform 6-9 standardized non-driving tasks (e.g., entering a destination in GPS, placing a food order using an app, finding a specific playlist) while wearing occlusion goggles, which are special electronic goggles that mimic on-road and off-road glances.

In Part II, a closed-course track (CCT) evaluation will be conducted at the Utah Motorsports Campus near Salt Lake City with 72 participants. In this part, 24 participants per system will perform a subset of standardized tasks from Part I, while operating vehicles equipped with Android Auto, Apple CarPlay, and original equipment manufacturer interfaces on a 0.84-mile track. Objective measures of driving performance – including eye-tracking data, vehicle kinematics, and task completion times – will be collected to quantify the impact of each interface on driver workload and safety. This real-world driving component will allow for validation of the findings from the controlled occlusion testing and provide critical insights into the potential for distraction and impaired driving performance during typical on-road scenarios.

Data collection will begin after receiving approval of this ICR and will be performed as needed to obtain the target number of valid participants. A literature review and technology scan report, as well as a final report will also be conducted as part of this project and details of the findings provided to NHTSA, with eventual publication in the National Transportation Library for public access. The final report will consist of the critical information gathered from the literature review and technology scan, as well as the methods, results, and implications of this information collection. The overall intent of this report will share information as to whether these interfaces meet NHTSA's guidelines for minimizing driver distraction and their effects on driving safety.

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 National Highway Traffic Safety Administration (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. The integration of smartphone mirroring applications like Android Auto (AA) and Apple CarPlay (ACP) into vehicle interfaces represents a significant change in how drivers interact with in-vehicle technologies. These interface applications have the potential to fundamentally alter the operation of original equipment manufacturer (OEM) interfaces by introducing new features and functions that may not have been thoroughly evaluated for their impact on driver distraction and safety.

This research supports NHTSA's mission by examining whether tasks performed through these interfaces comply with NHTSA's visual-manual distraction guidelines, understanding the cognitive mechanisms impacted, identifying design features that support or hinder low-workload performance, and assessing safety-relevant metrics.

NHTSA is authorized to undertake collaborative research and development projects with non-federal entities. This information collection supports the department's strategic goal of safety.

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.

This section details how Part I (Occlusion Testing) and Part II (Closed Course Track Testing) collect and use new information to evaluate driver distraction and cognitive workload for modern in-vehicle interfaces. In both parts, researchers—under contract to the National Highway Traffic Safety Administration (NHTSA)—will gather data on tasks performed with Android Auto (AA), Apple CarPlay (ACP), and Original Equipment Manufacturer (OEM) interfaces to understand whether they meet federal visual-manual distraction guidelines.

Part I utilizes occlusion goggles in a stationary environment to measure Total Shutter Open Time (TSOT) and error incidence, while Part II examines actual driving performance to capture real-world safety metrics such as eyes-off-road durations, lane-keeping, and cognitive workload indicators. By integrating these findings, NHTSA will use the results to inform policy recommendations, guide future research, and provide best-practice design guidance for technology developers, thereby ensuring that evolving in-vehicle systems align with safety standards.

Part I – Occlusion Testing

Part I of this research, referred to as Occlusion Testing, is a new information collection request to evaluate how smartphone mirroring interfaces, namely Android Auto (AA) and Apple CarPlay (ACP) compare with legacy Original Equipment Manufacturer (OEM) vehicle interfaces in terms of driver distraction. This phase involves measuring visual-manual distraction using occlusion goggles that alternate between transparent (open) and opaque (closed) states, simulating real-world glances between the “roadway” and an in-vehicle display. During the open (transparent) period, participants can view and interact with the display to complete a task, while closed periods mimic looking at the “roadway”. The key objective is to determine whether tasks enabled by AA, ACP, or OEM systems meet the NHTSA Visual-Manual Distraction Guidelines, particularly focusing on whether driver eyes-off-road times remain within acceptable thresholds.

NHTSA may utilize findings from the occlusion testing to guide policy recommendations, refine driver-distraction thresholds where necessary, and develop best-practice guidance for automakers and technology developers. Because smartphone integrations have become widespread in modern vehicles, the insights from Part I will help ensure that these evolving in-vehicle technologies comply with established safety standards. Additionally, the Part I results will inform the design of Part II (the Closed Course Track Evaluation) by identifying which tasks or interface conditions need deeper real-world investigation.

During the occlusion study, participants will be seated in stationary vehicles parked in a secure location. After completing standardized training on OEM, AA, and ACP systems, participants will wear the occlusion goggles to perform tasks such as receiving and responding to text messages, selecting and playing media, or entering navigation information. These tasks reflect commonly used functions in modern vehicles. As participants complete each task, the goggles will alternate between open and closed states, measuring the Total Shutter Open Time (TSOT) required for successful completion. This TSOT value corresponds to how long the participant’s eyes remain on the in-vehicle display (i.e., off the roadway). The entire session is estimated to be approximately 2 hours.

Participants will be recruited from the Washington, DC, metropolitan area (n=56). Individuals are recruited from social media, postings on Westat’s employee homepage, and existing participant databases. The sample will include 24 participants per system, consisting of AA, ACP and three OEM systems stratified by four age groups (18–24, 25–39, 40–54, and 55+) and balanced between individuals accustomed to AA and those accustomed to ACP as well as sex. Participants will complete the smartphone mirroring tasks using the system they are most familiar with, as well as one of three OEM systems. The smartphone mirroring systems will result in 24 participants for AA, and 24 participants for ACP, for a total of 48 participants. However, 48 participants split among three OEM systems results in only 16 participants per system. Therefore, a third group of participants will be recruited to test only the three OEM systems (n=8) which will provide 24 participants per system, and a total sample size of 56. Participants only completing the OEM systems will complete a similar number of tasks (6-9) as participants in the smartphone mirroring condition, which indicates similar burden for all participants across all groups.

Prior experience with at least one smartphone mirroring platform ensures that participants represent typical users. Participants who regularly use one of the OEM legacy systems will be excluded to ensure similar experience levels with OEM systems, as no participants will have experience using all three OEM systems and participants who primarily use AA or ACP will have low or no experience with the OEM systems. In addition, each participant must drive at

least 3,000 miles annually, have a valid driver's license, have normal or corrected-to-normal vision and hearing, be fluent reading and speaking in English, and be generally in good health to move inside and outside of vehicles as well as sit in a vehicle for up to two hours. All personally identifying information will be used only for scheduling and eligibility verification; once data collection is complete, identifying information will be separated from the performance metrics to protect privacy.

During Part I, three primary categories of information will be gathered. First, basic demographic data (age group and sex) will help ensure balanced representation and allow for analyses of whether demographic factors influence distraction outcomes. Second, occlusion testing metrics will record the number of open intervals, the TSOT in milliseconds for each task, and whether participants completed the task error-free. Finally, error incidence and recovery will be documented, particularly in tasks performed before formal training, to capture how participants naturally make and correct mistakes. This data will help determine whether certain interface designs require more effort to recover from errors, potentially increasing distraction. Researchers will de-identify all collected data, and only aggregated results will appear in subsequent analyses or reports.

Researchers will compute mean TSOT values per participant for each task-interface combination. Tasks with mean TSOT at or below 12 seconds (for at least 21 of 24 participants) will be deemed acceptable by the NHTSA Guidelines, while those that exceed this threshold or show high error rates will be flagged as potentially distracting. Analyses will also explore error patterns, task complexity, and whether certain interface designs prompt longer sequences of interactions or repeated glances to correct errors. Although the study does not explicitly rank OEM, AA, and ACP, comparing results in the aggregate will identify which design patterns reduce or amplify driver workload. These findings will guide NHTSA's regulatory considerations and future recommendations for in-vehicle device interfaces. Additionally, these findings will help to determine which tasks are selected for further study in Part II.

Part II – Closed-Course Track Study

Part II of this research, referred to as the Closed-Course Track Study, is designed to capture real-world driver performance and safety impacts when using OEM interfaces, AA, or ACP on a closed course track (CCT) in three different vehicles. Building on the tasks and vehicles evaluated in Part I, Part II collects data on visual attention, cognitive workload, and vehicle control metrics during CCT driving. This data will allow NHTSA to quantify the cognitive demands associated with each interface and assess compliance with established visual-manual distraction guidelines, ultimately informing evaluations of driver safety and system design.

NHTSA will use the CCT findings to verify compliance with distraction guidelines, evaluate differences in driver workload, and assess how each interface affects real-world lane-keeping, speed control, and response to critical events. If certain platforms or tasks produce consistently high eyes-off-road times or error rates, those aspects may prompt regulatory updates or design recommendations. Ultimately, Part II allows NHTSA to integrate laboratory-style occlusion metrics with on-road safety measures, forming a more comprehensive picture of how smartphone-based systems balance user convenience with driver attention.

In Part II, 72 participants (24 per vehicle) will be enrolled for a CCT driving evaluation. To ensure each available session is filled and make the most effective use of rented track time, each session will be double booked, thus 144 participants will be recruited but only 72 will participate

in the CCT. Each participant will drive a vehicle equipped with multiple cameras, a GPS, an eye-tracking system, and a tactile Detection Response Task (TDRT) device to measure workload. Participants will complete a standardized set of up to four tasks per interface, such as messaging, media selection, parking applications, and navigation while driving a 0.84-mile route. As noted earlier, tasks will be a subset of the tasks performed in Part I. Each participant will interact with three interfaces (OEM, AA, ACP), with data collection occurring in discrete blocks. Eye-tracking will record where drivers look, while the TDRT will capture measures of cognitive workload (e.g., reaction times, miss rates). Meanwhile, the data acquisition system will log lane position, speed variability, and task completion measures to assess how effectively participants maintain vehicle control while engaging with each interface.

Inclusion criteria for this CCT study mirror those of Part I, although participants must also meet any additional insurance or safety eligibility requirements (e.g., no more than two at-fault accidents in two years). Individuals will be recruited from local communities via newspaper ads, campus postings, social media, and existing participant databases. Participants will confirm their appointment 24 hours in advance to minimize no-shows. For individuals that are recruited and do not participate in the study, they will be compensated the same as those who participated. Each participant session will run for approximately 3.5 hours, including setup, practice drives, interface training, and breaks.

Part II will assess driver performance across five key categories to comprehensively evaluate interface safety. Cognitive workload will be quantified using objective measures from a tactile detection response task (TDRT) – reaction times and miss rates – alongside subjective ratings from the NASA-TLX. Visual attention will be assessed via eye tracking, quantifying total eyes-off-road time and glance durations. Vehicle control will be evaluated using metrics of lane position variability, lane departures, and speed control. Task performance will be measured through completion times, error counts, and error recovery rates. All data collected will remain confidential, with analyses focused on aggregated, de-identified results.

Following data collection, the research team will integrate input streams—TDRT logs, eye-tracking data, and video/GPS traces—into a single dataset. Linear Mixed Effects Models (LMMs) will test how interface type and task demands interact to influence eyes-off-road durations, lane stability, and error patterns. NHTSA can then link these findings directly to driver-safety outcomes. If tasks require frequent long glances or lead to a higher error rate, they may be deemed overly distracting. Analyses will similarly pinpoint tasks that maintain lower eyes-off-road times and minimal cognitive disruption. By comparing objective measures (vehicle control, missed responses, error recovery times) with subjective NASA-TLX scores, the study will provide a nuanced assessment of driver workload. The agency may use these conclusions to refine guidelines, identify design patterns needing improvement, and recommend best practices to automakers and smartphone-app developers.

Because this is a new information collection, there are no existing on-road datasets from the current study to reference. However, the completed CCT evaluation will enable NHTSA to integrate Part I's controlled environment results with dynamic, real-world data. This combined evidence base guides practical guidance and industry recommendations on whether smartphone-based infotainment systems achieve acceptable levels of driver attention and safety.

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.

This research project makes extensive use of automated, electronic, and mechanical data collection tools in both its laboratory-based occlusion testing (Part I) and the CCT evaluation (Part II). By incorporating electronic submission methods, automated logging systems, and computerized measurement devices, the study captures precise and comprehensive data while reducing manual effort and participant burden. Secure online platforms allow participants to complete questionnaires at their convenience, and specialized equipment continuously records performance metrics during task completion, ensuring accuracy and consistency across trials.

During Part I (the occlusion study), participants provide eligibility and demographic information online via Qualtrics, a secure system that applies branching logic to ensure only relevant questions appear. This reduces the need for respondents to skip questions manually and enables them to complete forms wherever convenient. Once selected, participants wear occlusion goggles that automatically measure Total Shutter Open Time (TSOT) to assess the visual demand of in-vehicle tasks. Video recordings document task performance and errors, and task metrics (e.g., completion times, number of errors) are captured in electronic logs, which decrease the likelihood of transcription errors or missed data. By integrating these automated methods, the occlusion study can precisely gauge how each task affects driver distraction without relying on time-consuming manual observations.

In Part II (the CCT study), participants will provide eligibility and demographic information online like Part I. Once a participant arrives at their session, they will be outfitted with an eye-tracking system to capture eyes-off-road durations and glance behavior in real time, while the tactile detection response task (TDRT) unit automatically measures participants' reaction times to intermittent stimuli. A dashboard-mounted LED light bar simulates critical events, and the system records response times electronically, eliminating the need for manual tracking. Additionally, GPS-enabled cameras monitor lane position, lane departures, and speed variability, continuously logging data that can be matched with timestamps for individual tasks. The RSLogger system coordinates timestamps, errors, and experimenter notes, ensuring a centralized record of each trial's events. Meanwhile, subjective workload feedback is gathered electronically through NASA-TLX questionnaires administered on a tablet, reducing paperwork and facilitating immediate data archiving.

These automated, electronic, and mechanical collection techniques in Parts A and B help researchers obtain detailed, accurate, and reliable datasets with minimal participant and researcher burden. Online platforms like Qualtrics streamline participant screening and demographic data collection, and fully electronic instrumentation—including occlusion goggles, eye-tracking devices, TDRT systems, GPS cameras, and RSLogger—captures in-vehicle task performance in real time. By adopting these tools, the study ensures consistent data quality, efficient study protocols, and a reduced likelihood of errors associated with manual data entry.

- 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.**

NHTSA conducted a thorough review of internal DOT databases, ongoing research programs, and published literature to identify any studies that might address these specific research questions about driver interactions with Android Auto, Apple CarPlay, and current OEM systems. The review found no existing dataset that examines safety-relevant metrics (e.g., eyes-off-road time, driver reaction to critical events) in conjunction with the newest in-vehicle designs and capabilities. Because these interfaces undergo rapid updates and introduce new functionality, available data from earlier or less comprehensive studies cannot be reused or modified to capture the evolving features of modern smartphone-based systems. Thus, new data collection is necessary to provide up-to-date insights into driver workload, error recovery, and safety-critical performance with the latest in-vehicle technologies.

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

The collection of information for this study does not directly impact small businesses or other small entities. Participation is limited to individuals, and no small businesses or small entities, as defined by the Small Business Administration, are involved in the data collection process. Consequently, no specific methods are required to minimize burden on small businesses or small entities in this study.

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 in this study will be conducted as a one-time effort.

As the agency responsible for establishing and maintaining standards for vehicle and driver safety in the United States, NHTSA relies on accurate and timely data to make informed decisions to protect the traveling public. This includes minimizing crashes, injuries, and fatalities associated with motor vehicle use. The rapid evolution of in-vehicle technologies, such as Android Auto, Apple CarPlay, and OEM interfaces, necessitates the collection of up-to-date data on driver behavior and performance. Understanding how drivers interact with these systems and the potential impacts on distraction, workload, and driving safety is critical for NHTSA to issue appropriate recommendations and requirements for in-vehicle equipment and safety measures.

Without this data, the agency would lack essential information about modern-day driving behaviors and system interactions, which are key to addressing the safety challenges posed by increasingly complex in-vehicle technologies. This study provides the necessary foundation for evaluating the usability and safety of these systems, ensuring that NHTSA's safety standards remain relevant and effective in reducing the risks associated with distracted driving.

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**
- 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.**

This information collection is fully consistent with 5 CFR 1320.5(d)(2) and does not require any exemptions or special circumstances. The study will not collect any data on race or ethnicity, and there are no deviations from approved statistical data classifications.

The collection does not require respondents to provide information more frequently than quarterly, nor does it involve written responses within fewer than 30 days of receipt. Additionally, respondents are not required to submit more than an original and two copies of any document, nor retain records beyond three years. All statistical surveys are designed to produce valid and reliable results that are generalizable to the study population. The study includes no pledges of confidentiality that are unsupported by statutory or regulatory authority, and no proprietary trade secrets or confidential information will be collected.

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 on the availability of data, frequency of collection, the clarity of instructions and recordkeeping, disclosure, or reporting format, and on the data elements to be recorded, disclosed, or reported.**

A Federal Register notice with a 60-day comment period soliciting public comments on the following information collection was published on March 6, 2026 (FR Doc. 2026-0444091 FR 11120). NHTSA received a total of two comments, one from an individual and one from Consumer Reports. These comments are summarized and responded to below.

In his comment Bob Scopatz supported this NHTSA data collection effort and stated that "The information gathered will have value for regulating the in-vehicle connected devices and for OEMs designing the next generation of in-vehicle systems."

Response:

NHTSA appreciates the public support for research on this topic.

The following excerpt summarizes the key points submitted by Consumer Reports (CR) in their comment for NHTSA's consideration; all cited references have been removed for brevity. To facilitate a clear mapping of the agency's response to the specific issues raised, the points are numbered to correspond with the numbered responses below.

1. CR is concerned that this study, would mostly focus on whether these systems are simply conforming to existing NHTSA guidelines instead of exploring questions regarding the nature of distraction as it relates to these interfaces. They stated that it might be more valuable to understand what specific aspects of these interfaces are actually driving distraction, and identify precisely where these systems break down for the user and how drivers might adapt to various interface designs.
2. CR also suggested that it may be worth exploring the role of more dynamic approaches to manage access to certain functions, as well as shaping how tasks are paced and completed, within the context of this research. They stated that drivers in real-world scenarios often self-pace their interactions or break tasks into smaller segments to manage attentional demands.

Response:

General comments: NHTSA appreciates CR's feedback on this topic. While the 60-day notice provides a high-level summary, several of CR's suggestions will be addressed in the full research and analysis plan. Regarding specific points:

1. NHTSA acknowledges the importance of capturing the nature of distraction with regard to these interfaces. Comparison to the existing NHTSA guidelines is one portion of this data collection; however, the study is designed to go beyond conformity to explore the underlying mechanisms of distraction. Utilizing the occlusion method in Part I with prescribed pacing allows for an understanding of task time and visual demand for a larger number of tasks across both smartphone mirroring systems and native OEM systems. Part II takes place on a closed-course to examine glance behavior, cognitive workload, and driving performance measures to understand the potential impacts of performing various self-paced tasks across both of these interfaces. This self-paced environment allows for the observation of how users adapt their behavior to various interface designs.
2. NHTSA acknowledges that gathering data on how drivers self-pace while completing non-driving related tasks is important. In Part II, participants will complete various tasks at their own pace while driving on the closed course to gather more naturalistic interactions with the interfaces. This allows data to be collected that reflects how individuals segment tasks and manage attentional demands in real-time. For experimenter and participant safety, interactions with personal smartphone devices will not be included as part of this study. Participants will be trained on how to complete the task, however, for any errors made, we will identify the specific error and sequence of recovery steps. Analyzing these sequences allows us to better understand the common errors and the effectiveness of various error recovery strategies. Furthermore, Part II will include some

of the feature lockouts and delays that are built into the interfaces when the vehicle is in motion that are not captured in Part I. This allows us to observe how users navigate these dynamic restrictions and will provide insight into how existing system management affects task pacing and completion.

After thoughtful consideration of all the above comments, NHTSA will ensure that appropriate discussion of findings relevant to the broad nature of distraction and to self-pacing of task performance are included in the final report. These modifications yield no changes in the participant burden estimate from that which was published in the 60-day notice.

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

NHTSA plans to provide monetary compensation for participants in both Part I and Part II to offset their time. The compensation rate for completion of the study was reviewed and approved by an independent Institutional Review Board. Respondents will receive no payment or gift for completion of the eligibility questionnaires. Compensation for Part I (occlusion testing) is set at \$120 upon completion (\$60 per hour), reflecting the time and effort required to participate, as well as logistical considerations such as travel. This amount aligns with the mean hourly wage of \$42.49 in the Washington, DC, metropolitan area, as reported by the Bureau of Labor Statistics (BLS, May 2022)¹. With sessions estimated to take approximately 2 hours, this compensation is consistent with research study norms and ensures adequate recruitment in a region with a higher cost of living.

For Part II (CCT testing), NHTSA will compensate participants at a rate of \$34 per hour. With sessions estimated to last 3.5 hours, participants can expect to earn approximately \$120 for their time. For individuals that are recruited as backups, they will receive the same compensation as those who participate in the study. According to the BLS, the mean hourly wage in the Salt Lake City area is \$31.67², making the proposed compensation consistent with local economic conditions, with additional compensation for travel factored in.

The difference in compensation between Part I and Part II is justified by the distinct geographic locations and economic benchmarks of the two sites. Part I, conducted in Washington, DC, corresponds to a higher regional mean wage and cost of living, whereas Part II, conducted in the Salt Lake City area, reflects local wage levels.

¹ U.S. Bureau of Labor Statistics. (May 2022). Occupational Employment and Wages in the Washington, DC, Metropolitan Area. Retrieved from https://www.bls.gov/regions/mid-atlantic/news-release/occupationalemploymentandwages_washingtondc.htm

² U.S. Bureau of Labor Statistics. (May 2022). Occupational Employment and Wages in Salt Lake City, Utah. Retrieved from https://www.bls.gov/regions/mountain-plains/news-release/occupationalemploymentandwages_saltlakecity.htm

These payments are designed to offset any inconvenience to participants, including travel requirements, time commitments, and adherence to pre-study restrictions. The compensation amounts align with standard practices in human subjects research and are designed to ensure robust recruitment and retention while avoiding coercion. By basing the compensation on regional labor market data and typical participant burdens, NHTSA ensures that participants are fairly reimbursed across both study parts.

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.

All data collected during this study will be handled with the highest level of sensitivity and security appropriate to its confidential nature. The Westat Institutional Review Board (IRB) has reviewed and approved all study materials, including instruments, informed consent forms, and procedures, to ensure that the rights and welfare of participants are protected. The IRB serves as an independent review body specifically tasked with safeguarding human subjects in research.

As detailed in the informed consent forms (NHTSA Forms 2063, 2068), no individual results or personal information will be published. Reports or publications resulting from the study will include only de-identified summary statistics that cannot be linked to any individual participant. Any connections between individual names and study numbers will be securely stored and managed in compliance with IRB-approved protocols. Identifying information will not be shared with NHTSA.

De-identified data may be placed in a central public repository to fulfill data sharing requirements while maintaining the confidentiality of participants. These measures ensure that all data is handled securely and in accordance with applicable privacy regulations, agency policies, and best practices for protecting human research subjects.

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.

This study does not involve questions of a sensitive nature, such as those related to sexual behavior, religious beliefs, or other topics commonly considered private. The information collected is directly relevant to the study's objectives, which focus on driver interaction with in-vehicle interfaces and driving performance.

The study does include an eligibility screening process to ensure participants meet the necessary requirements for safe and effective participation. Respondents will be informed during the consent process that answering the eligibility questions is entirely voluntary, and responses will only be used to determine eligibility for participation. The informed consent forms, which have been reviewed and approved by the Institutional Review Board (IRB), clearly explain the purpose of the studies (Part I and Part II), the types of questions participants will be asked, and

the measures in place to protect their confidentiality. No sensitive health or personal information will be recorded or included in the final dataset. These steps ensure that all participants are fully informed and that their privacy is respected throughout the study.

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.

To calculate the opportunity cost associated with the forms and other relevant activities necessary for this collection of information, NHTSA looked at the average hourly earnings for employees on private nonfarm payrolls (civilian workers) at the regions where the study takes place. NHTSA estimated the total opportunity costs associated with these burden hours by examining the average wages and salaries for total private employees on private nonfarm payrolls.

The Bureau of Labor Statistics (BLS) estimates that the average hourly wage for the Part I group at \$42.49, and the average hourly wage for the Part II group at \$31.67 which serves as the opportunity cost per hour. Therefore, NHTSA estimates the total opportunity cost associated with the estimated 534 total burden hours to be \$18,342.32.

All data collection will occur within one year, so the annualized cost equals the total opportunity cost.

Slight variations in the comparison of the sum of costs to the calculation above, as standard rounding rules were applied at each step of the calculations.

Burden estimates for each stage of this information collection request are provided in individual tables for ease of review (see Tables 1, 2, 3). A summary of the total estimated burden hours and labor costs associated with these submissions is provided in Table 4.

Part I (Occlusion Study) will require 56 total participants, with each participant assigned to either AA or ACP and one of three vehicles. Each system tested (AA, ACP, OEM) requires 24 participants per NHTSA requirements, and participants must have prior experience with either Apple CarPlay or Android Auto (with recruitment aiming for an equal balance between platforms). The sample must be balanced across four age groups (18-24, 25-39, 40-54, and 55+ years) with equal sex distribution (3 males, 3 females per age group). A pilot study will determine if participants can effectively evaluate the systems and tasks without undue fatigue or data quality impacts, which may adjust the final number of participants needed. Adding a 5% attrition buffer requires an additional 3 participants (rounded up from 2.8), bringing the total recruitment target to 59 participants.

Part II (Closed-Course Track Study) requires 72 total valid participants, with 24 participants testing each of the three vehicles. The participant will test out three systems (AA, ACP, and the OEM system in their assigned vehicle). For each vehicle, testing will be split between morning sessions (9:00 AM-12:30 PM) and afternoon sessions (1:00 PM-4:30 PM), with 1 participant per session. Each vehicle requires 6 participants per age group (21-24, 25-39, 40-54, and 55+ years), with equal sex distribution (3 males, 3 females per group). We plan to use an overbooking strategy, where two individuals are scheduled for the same session, but only one participant completes the study. We will use overbooking because the cost of compensating a participant who is not needed is substantially less than the cost of a lost CCT slot and additional rental days

needed for rescheduling. Participants who do not complete the study will be compensated at the same rate as participants who complete the study to ensure sufficient motivation for attendance. For both Part I and Part II, the time to complete forms and tasks is based on the average reading rate of 238 words per minute³, with potential buffer time for questions based on recent researcher experience, as well as internal pilot testing.

Table 1: Comparison of Study Components of Part I and Part II

Component	Part I	Part II
Base Number of Participants Required	56	72
Number of Vehicles	3	3
Participants per System Tested (AA, ACP, OEM)	24	24
Attrition Buffer	3	72
Total Recruitment Target	59	144

- 1) **NHTSA Form 2059: Part I Advertisement** - This form is necessary to recruit potential participants. This document's content will be published on Westat's intranet and social media channels, as well as distributed via email to a database of former participants expressing interest in future research. Participants who are interested in participating will be redirected to **NHTSA Form 2060: Part I Eligibility Questionnaire** to determine if they are eligible. We estimate that of the people who see the advertisement, about 168 people will read it and be sufficiently interested in the study to seek out the eligibility screener. For reading the recruitment text we estimate an average completion time of 1 minute. This results in: 168 participants X 1 minute = 168 minutes = 2.8 hours.
- 2) **NHTSA Form 2060: Part I Eligibility Questionnaire** - Recruitment for the occlusion study is necessary to ensure the validity and generalizability of the findings. This process will involve online screening and diverse outreach efforts, such as social media advertisements and intranet postings, to assemble a representative participant pool. Eligibility criteria will include (1) participant age of at least 18 years old, (2) familiarity with Android Auto or Apple CarPlay, (3) does not regularly drive one of the study vehicles, (4) possesses a valid driver's license, (5) drives at least 3000 miles annually, (6) has normal or corrected-to-normal vision, (7) has normal or corrected-to-normal hearing, (8) English fluency, and (9) is in general good health. Recruiting participants for the study will involve approximately 168 individuals, each of whom will spend approximately 5 minutes completing an online eligibility questionnaire. This results in: 168 individuals X 5 minutes = 840 minutes = 14 hours.
- 3) **NHTSA Form 2061: Part I Scheduling Availability Form** - This form is essential to capture participant's name, contact information and to ensure that participants provide their preferred time slot. Once an individual is deemed eligible, they will be taken to this form automatically. One hundred individuals

³ Brysbaert, M. (2019). How many words do we read per minute? A review and meta-analysis of reading rate. *Journal of Memory and Language*, 109, 104047. <https://doi.org/10.1016/j.jml.2019.104047>

are expected to be eligible and complete the scheduling availability form. This results in: 100 participants X 2 minutes = 200 minutes = 3.3 hours.

- 4) **Part I Scheduling Process** - Scheduling is essential in recruitment for Part I to ensure participant readiness and efficient study operations. The scheduling process includes a scheduling call, confirmation email, and reminder email. The entire process (as seen in Table 2) is completed in 7 minutes.
 - a. **Part I Scheduling Call Process** – The next step in the enrollment process involves calling eligible individuals to schedule their appointment. The call also provides the opportunity to provide additional study information like the location, study details, and answer any questions individuals may have. We estimate the call will last 5 minutes. To account for attrition, we plan to enroll 3 extra participants than our desired number. This results in 59 participants X 5 minutes = 295 minutes = 4.9 hours.
 - b. **NHTSA Form 2062: Part I Appointment Confirmation Email** - Following the call, participants will be sent an appointment confirmation email, with pertinent study information included (i.e., session date, time, and location and how to reschedule or cancel). As an additional step, participants will be sent a reminder email 24 hours before scheduled sessions is a critical step in ensuring smooth coordination and minimizing participant no-shows for Part I. Participants are estimated to spend approximately 1 minute reading and responding to this email, which will include essential information such as the session time, location, materials to bring, and instructions to confirm their attendance. Additionally, the email provides an opportunity for participants to ask any last-minute questions or inform the research team of scheduling conflicts. This step is designed to reinforce participant preparedness, reduce logistical issues, and enhance overall study efficiency. This results in: 59 participants X 1 minutes = 59 minutes = 0.98 hours.
 - c. **Part I Appointment Reminder Email** - As an additional step, participants will be sent a reminder email 24 hours before scheduled sessions is a critical step in ensuring smooth coordination and minimizing participant no-shows for Part I. Participants are estimated to spend approximately 1 minute reading and responding to this email, which will include essential information such as the session time, location, materials to bring, and instructions to confirm their attendance. Additionally, the email provides an opportunity for participants to ask any last-minute questions or inform the research team of scheduling conflicts. This results in: 59 participants X 1 minutes = 59 minutes = 0.98 hours.
- 4) **NHTSA Form 2063: Part I Informed Consent Document** - Obtaining informed consent upon arrival is an essential step to ensure compliance with ethical research standards and participant understanding for Part I. During this process, participants will review and sign consent forms, confirming their comprehension of the study's purpose, procedures, potential risks, and their rights as participants. This process also provides an opportunity for participants to ask questions or request clarification before the study begins, ensuring transparency, voluntary participation, and alignment with institutional and regulatory ethical guidelines.

We anticipate that 3 of the people we schedule will not show up to complete the study. This results in: 56 participants X 5 minutes = 280 minutes = 4.7 hours.

- 5) **Part I Data Collection Activities** – This process is required because it contains the information necessary to answer NHTSA’s research questions. It is comprised of five subcomponents: familiarization process, pertaining task error evaluation, occlusion training task assessment process, and honorarium and debriefing process. Each subcomponent is discussed in greater detail below. The subcomponents of burden can be seen below. The entire procedures (as seen in Table 2) are completed in 115 minutes.

- a. **Part I Familiarization Process** - The familiarization process following the consent procedure is a critical step to ensure participant readiness and comfort for Part I. Participants will be provided with an overview of the study procedures, including the tasks they will perform and the purpose of using occlusion goggles to simulate real-world driving behavior. They will familiarize themselves with the vehicles by adjusting their seating positions, understanding the layout of the interfaces (OEM, Apple CarPlay, and Android Auto), and practicing basic controls. This step ensures that participants are oriented to the study environment, reducing potential variability in performance, and improving the reliability and consistency of collected data. Participants will then complete a practice task with the occlusion goggles powered on. This is to limit their learning effects during the experiment. The familiarization process is expected to take approximately 15 minutes per participant. This results in: 56 participants X 15 minutes = 840 minutes = 14 hours.
- b. **Part I Pretraining Task Error Evaluation Process** - Pretraining task error evaluations are a critical step in Part I, providing baseline data on participant performance and error recovery strategies before formal training. Participants will attempt each task once using their most familiar interface platform, allowing researchers to document initial error rates, types of errors, and recovery approaches. This process ensures that common errors and participant strategies can be identified, which informs subsequent task design and training adjustments to improve study validity and reliability. This step is expected to take a maximum of 15 minutes per participant, with an average of 3 minutes per trial and a maximum of 5 trials. This results in: 56 participants X 15 minutes = 840 minutes = 14 hours.
- c. **Part I Occlusion Training Process** - Occlusion training is a necessary component of Part I to ensure participants are proficient in using the occlusion goggles and navigating the interfaces. Participants will be introduced to the goggles and their operation, including how they alternate between open and closed states to simulate glances between the road and the device. Training includes task demonstrations by the experimenter, hands-on practice with the tasks, and repeated trials to achieve proficiency. This ensures participants are comfortable with the equipment and task procedures, reducing variability in performance and enabling accurate data collection. Each participant is expected to spend a maximum

of 20 minutes on this training. The average time to complete a training session is 2.22 minutes with maximum of 9 training sessions. This results in: 56 participants X 20 minutes = 1,120 minutes = 18.6 hours.

- d. **Part I Task Assessment Process** - Task execution is a core component of Part I, designed to evaluate participant performance across different interface platforms. Participants will complete six-to-nine predefined tasks on two platforms (Android Auto or Apple CarPlay and one of three OEM systems) in one of three vehicles or complete six-to-nine tasks across all three OEM systems, ensuring comprehensive coverage of interface interactions. Each task will be performed five times to ensure data stability and allow researchers to analyze performance consistency and learning effects. This structured approach ensures robust and reliable data collection to assess task performance metrics and compliance with NHTSA guidelines. Each participant is expected to spend a maximum of 60 minutes completing task assessments, with an average task assessment taking 6.67 minutes and a maximum of 9 task assessments. This results in: 56 participants X 60 minutes = 3,360 minutes = 56 hours.
- e. **NHTSA Form 2064: Part I Honorarium Confirmation** - Debriefing is an essential component of Part I which is designed to gather participant insights and refine study outcomes. Following task completion, participants will engage in a structured debriefing session where they will provide feedback on task difficulty, interface usability, and their overall study experience. This process allows researchers to identify potential issues, capture subjective perspectives, and gain insights into interface design features, ensuring comprehensive evaluation and improving the quality of study findings. Participants will complete this step to ensure that they are compensated for their time. Each debriefing session is expected to take approximately 5 minutes per participant. This results in: 56 participants X 5 minutes = 280 minutes = 4.7 hours.
- 6) **NHTSA Form 2066: Part II Advertisement** - This step is necessary to recruit participants from Red Scientific's participant database (via email see **NHTSA Form 2065: Part II Email Templates**) and social media (via **NHTSA Form 2066: Part II Advertisement**) as needed. Participants will be directed to **NHTSA Form 2067: Part II Eligibility Questionnaire** to determine if they are eligible to participate. We estimate 288 individuals will read the advertisement and express sufficient interest to seek the eligibility screener. We anticipate it will take 1 minute to read the advertisement text about the study. This results in 288 participants X 1 minute = 288 minutes = 4.8 hours.
- 7) **NHTSA Form 2067: Part II Eligibility Questionnaire** - Administering the online eligibility questionnaire is a critical step in the recruitment for Part II to efficiently identify qualified participants. Recruitment efforts will include advertisements posted in local newspapers, on community boards, through social media, and within an existing participant database. These advertisements will direct interested individuals to an online questionnaire, highlighting the eligibility criteria: (1) participant age of at least 21 years old, (2) familiarity with Android Auto or Apple CarPlay, (3) do not regularly drive one of the study vehicles, (4)

possess a valid driver's license, (5) drive at least 3000 miles annually, (6) have normal or corrected-to-normal vision, (7) have normal or corrected-to-normal hearing, (8) English fluency, (9) are in general good health, (10) ability to abstain from alcohol and recreational substance use (e.g., marijuana) for 12 hours before the session, (11) do not take sedative or psychotropic medication, (12) no more than 2 at-fault accidents in the last 2 years, (13) do not wear corrective lenses while driving (contacts are allowed), (14) do not require specialized driving equipment, (15) no medical conditions that might impact driving (i.e., heart condition, back or neck pain, recent back or neck pain treatment, disorders, disability or seizures), and (16) no false eyelashes or mascara. The questionnaire is designed to filter out ineligible candidates by providing immediate feedback on their status. Approximately 50% of those who begin the questionnaire are expected to meet the eligibility criteria. To identify 144 participants, approximately 288 individuals will begin the questionnaire. Each individual will spend an average of 10 minutes completing the form: $288 \text{ individuals} \times 10 \text{ minutes} = 2,880 \text{ minutes} = 48 \text{ hours}$.

- 8) **Part II Scheduling Process** – Scheduling is essential in recruitment for Part II to ensure participant readiness and efficient study operations. The scheduling process includes a scheduling call, confirmation email, and reminder email. The entire process (as seen in Table 3) is completed in 9 minutes.
 - a. **Part II Scheduling Call** - Once 144 eligible participants are identified through the eligibility questionnaire, they will proceed to the scheduling phase, where the research team will call eligible individuals to schedule their session. The call provides the opportunity to provide additional study information like the location, study details, and answer any questions individuals may have. We estimate the call will last 5 minutes. To ensure that all available sessions are double booked, two individuals will be scheduled for each session. This results in $144 \text{ participants} \times 5 \text{ minutes} = 720 \text{ minutes} = 12 \text{ hours}$.
 - b. **Part II Confirmation Email** – After each individual is scheduled, they will receive an email confirming their study session (from **NHTSA Form 2065: Part II Email Templates**). During this phase, each participant will spend an average of 2 minutes reading and responding to this email. The email will include information including the session time, location, materials to bring, and instructions to confirm their attendance. Participants are encouraged to ask any additional questions they may have. This confirmation ensures a well-coordinated schedule and minimizes the risk of no-shows or miscommunication, supporting the successful execution of the study. This results in: $144 \text{ participants} \times 2 \text{ minutes} = 288 \text{ minutes} = 4.8 \text{ hours}$.
 - c. **Part II Reminder Email** - Sending a reminder email 24 hours before scheduled sessions (from **NHTSA Form 2065: Part II Email Templates**) is a critical step in Part II to ensure smooth coordination and participant preparedness. The email will provide detailed information about session logistics, including directions to the testing location, session time, and any specific instructions or requirements, such as materials to bring or

preparatory steps. This reminder also offers participants the opportunity to confirm their attendance or notify the research team of any last-minute conflicts, reducing the likelihood of no-shows and ensuring the study proceeds as planned. Participants are expected to spend approximately 2 minutes reading and responding to these emails to confirm their attendance. This results in: 144 participants X 2 minutes = 288 minutes = 4.8 hours.

- 9) **Part II Initial Setup & Intake Process** - This procedure is necessary because it prepares participants for their study session. The initial setup and intake process includes informed consent, study setup and route familiarization. The entire process (as seen in Table 3) is completed in 50 minutes. Note, this process includes the double booked participants, so there is attrition at the end of this process (reduction of 72 participants) for the rest of the data collection activities from Part II Task Assessment Process onward.

- a. **NHTSA Form 2068: Part II Informed Consent Document** will be completed in this step to ensure participants are informed of their rights, as well as the study details and what information will be collected from them and obtain their written consent. The informed consent document will be printed on paper for participants to physically sign at the beginning of their session. Further, participants will be introduced to the vehicle, vehicle controls, interfaces and safety information they will be using as well as the eye tracker and tactile detection response system. We anticipate 72 participants will complete this procedure and it will average 20 minutes to complete. This process is expected to take approximately 20 minutes per participant. This results in: 144 participants X 20 minutes = 2,880 minutes = 48 hours.
- b. **Part II Study Setup** - The study setup is a critical preparatory phase in Part II to ensure participants are ready and equipped for testing. Following the consent process, participants will receive a comprehensive introduction to the study procedures, including a detailed safety briefing that covers equipment use, driving protocols, and emergency procedures. Participants will then be seated in the test vehicle, where they will be fitted with eye-tracking equipment to monitor visual behavior, as well as tactile motors and response switches for the Detection Response Task (TDRT). This step ensures participants are fully prepared to proceed safely and effectively with the study tasks. The study setup is expected to take approximately 15 minutes per participant. This results in: 144 participants X 15 minutes = 2,160 minutes = 36 hours.
- c. **Part II Route Familiarization** - The route familiarization drive is a critical preparatory step in Part II to ensure participants are comfortable with the vehicle and test route. Participants will complete a guided familiarization drive along the 0.84-mile test route to learn the vehicle's handling characteristics and route-specific safety considerations. This process ensures that participants are confident in operating the vehicle and are adequately prepared for the task evaluations, promoting both safety

and reliable data collection. This results in: 144 participants X 15 minutes = 2,160 minutes = 36 hours.

- d. **Part II Double Booked Participants** – Each session will be double booked to ensure there is a participant for each session given the limited track time. After completion of the setup and intake process, half of the participants will be thanked for their time and compensated \$120 since only 72 participants are needed for the study.

10) Part II Task Assessment Process – This set of procedures is essential because this is where the study data will be collected. The task assessment process consists of the task assessments, NASA TLX, and buffer time. The entire process (as seen in Table 3) is completed in 160 minutes.

- a. **Part II Task Assessments**– Task execution within the interface blocks is a central component of Part II designed to evaluate participant performance across three distinct interfaces: OEM, Apple CarPlay, and Android Auto. Each interface evaluation begins with a 10-minute orientation, during which participants are introduced to the interface layout and controls. This is followed by four task segments, with each segment lasting 9 minutes and involving task performance under real-world driving conditions. This structured approach ensures consistent evaluation across interfaces, enabling a comprehensive comparison of usability, cognitive workload, and safety-relevant metrics. Each interface requires a total of 10 minutes for orientation and 36 minutes (4 X 9 minutes) for task performance, for a total of 46 minutes per interface. Across all three interfaces, participants will spend 138 minutes (46 X 3 interfaces), or 2.3 hours per participant. This results in: 72 participants X 2.3 hours = 165.6 hours.
- b. **NHTSA Form 2069: Part II NASA TLX Form** - The NASA TLX (Task Load Index) form is a necessary component of Part II to assess the cognitive workload associated with each interface. The NASA TLX is a widely used self-reported tool designed to measure perceived workload across dimensions such as mental demand, physical demand, and effort. Participants will complete the form after each of the four task segments for the OEM, Apple CarPlay, and Android Auto interfaces, with each form requiring approximately 1 minute to complete. This totals 4 minutes of form completion time per interface. The data collected through the NASA TLX is essential for evaluating usability and workload demands, providing critical insights into driver-interface interactions and their impact on performance and safety. For all three interfaces, participants will spend 12 minutes (4 minutes X 3 interfaces) completing the NASA TLX forms. This results in: 72 participants X 12 minutes = 864 minutes = 14.4 hours
- c. **Part II Buffer Time** – For each participant an additional 10-minute time buffer is necessary to account for unforeseen delays, equipment adjustments, or additional breaks. This buffer ensures that transitions between activities are smooth and that participants have sufficient time to complete all tasks. This results in: 72 participants X 10 minutes = 720 minutes = 12 hours.

11) NHTSA Form 2070: Part II Debriefing and Honorarium Confirmation – The debriefing process is a necessary final step in Part II to ensure participants are allowed to ask any final questions and receive their honorarium. Participants will complete **NHTSA Form 2070: Part II Debriefing and Honorarium Confirmation** during this step to read the debriefing materials and ensure that they are compensated for their time. Additionally, a researcher will briefly review the collected data to ensure proper acquisition and verify data integrity and adherence to the established collection protocols. The debrief is expected to take approximately 5 minutes per participant. This results in: 72 participants X 5 minutes = 360 minutes = 6 hours.

Table 2: Burden Estimates for Part I – Occlusion Evaluation

NHTSA Form No.	Information Collection	Total / Annual Respondents	Estimated Burden Per Response (minutes)	Cost per Response (\$42.49/60 x burden per response)	Frequency of Response (count)	Total / Annual Opportunity Burden Hours	Total Burden Costs (dollars)
2059	Part I: Advertisement	168 / 56	1	0.71	1	2.8 / .93 3 / 1	119.28
2060	Part I: Eligibility Questionnaire	168 / 56	5	3.54	1	14 / 4.6 15 / 5	594.72
2061	Part I: Scheduling Availability Form	102 / 34	2	1.42	1	3.4 / 1.1 3 / 1	144.84
2062	Part I: Scheduling Process - Part I Scheduling Call - Part I Appointment Confirmation Email - Part I Appointment Reminder Email	60 / 20	7	4.96	1	7 / 2.3 6 / 2	297.60
2063	Part I: Informed Consent Document	57 / 19	5	3.54	1	4.75 / 1.58 6 / 2	201.78
2064	Part I: Data Collection Activities: - Part I Familiarization - Part I Pretraining Task Error Evaluation - Part I Occlusion Training - Part I Task Assessment - Part I Honorarium Confirmation	57 / 19	115	81.44	1	109.25 / 36.42 108 / 36	4559.18
					TOTAL	141 / 47	5914.40

Table 3: Burden Estimates for Part II – Closed Course Track Evaluation

NHTSA Form No.	Information Collection	Total / Annual Respondents	Estimated Burden Per Response (minutes)	Cost per Response (\$31.67/60 x burden per response)	Frequency of Response (count)	Total / Annual Opportunity Burden Hours	Total Burden Costs (dollars)
2066	Part II: Advertisement	288 / 96	1	0.53	1	4.8 / 1.6 6 / 2	152.64
2067	Part II: Eligibility Questionnaire	288 / 96	10	5.28	1	48 / 16 48 / 16	1520.64
2065	Part II: Scheduling Process - Part II Scheduling Call - Part II Confirmation Email - Part II Reminder Email	144 / 48	9	4.75	1	21.6 / 7.2 21 / 7	684
2068	Part II: Initial Setup & Intake Process - Part II Informed Consent Document - Part II Study Setup - Part II Route Familiarization	144 / 48	50	26.39	1	120 / 40	3,800.16
2069	Part II: Task Assessment Process - Part II Task Assessments - Part II NASA TLX Form - Part II Buffer Time	72 / 24	160	84.45	1	192 / 64	6,080.40
2070	Part II: Debriefing and Honorarium Confirmation	72 / 24	5	2.64	1	6 / 2	190.08
					TOTAL	354 / 118	12,427.92

Table 4: Overall Burden Estimates

	Total Opportunity Burden (Total/Annual Hours)	Total Burden Costs (Dollars)
Part I – Occlusion Testing	141 / 47	5914.40
Part II – Test Track Evaluation	393 / 131	12,427.92
Burden Sum	534 / 178	18,342.32

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 capital start-up, operation, or maintenance costs required of respondents for this study. All equipment and resources are provided by the research team, and no record-keeping is required.

Participation in this study is voluntary, and there are no costs to respondents beyond the time spent completing the questionnaires and travel costs for the visits to the study facility. The costs are minimal and are expected to be offset by the compensation that will be provided to the research participants.

NHTSA estimates that for Part A, assuming an average round trip of 60 miles and a mileage cost of \$0.70⁴ per mile, each of the 56 participants could incur a \$42.00 travel cost (60 X \$0.70). This yields \$2,352 across all Part A participants. Similarly, for Part B, assuming a round trip of 60 miles to the track, each of the 144 participants could incur a cost of \$42.00 travel cost (60 X \$0.70). For Part B, this cost yields \$6,048. For both Parts A and B, this cost totals \$8,400.

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

The total estimated cost to the Federal Government is composed by two costs. The total task order contract cost in the amount of \$173,567.40 per year (\$867,837 total task order cost over a five year period of performance).

The other amount comes from the estimated annual cost in terms of the Federal government's research study. The estimated number of contracting hours for a 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 \$3,373.20 (\$68.27 x 40 hours = \$2,730.80; \$80.30 x 8 hours = \$642.40; \$2,730.80 + \$642.40 = \$3,373.20; GS locality Washington-Baltimore-Arlington, DC-MD-VA-WV-PA, and pay rates for year 2025[1]). 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.

Therefore, the total estimated annual cost to the government, including contract cost and GS hourly wage, is \$176,940.60 (\$173,567.40 + \$3,373.20).

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 the number of burden hours reported in response to question 12 and the entire burden cost reported in response to question 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.

⁴ From Internal Revenue Service's 2025 standard mileage rates for self-employed and business. <https://www.irs.gov/tax-professionals/standard-mileage-rates>, last accessed February 20, 2026.

The collection of this information is associated with a new project. Therefore, there is no program change from an existing collection. As stated in Question 12, the annual burden time for this new collection is 165 hours and the total opportunity cost for the collection is \$18,342.32.

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.

The findings from this data collection effort will be compiled into a comprehensive final report, which will undergo a thorough agency review at NHTSA. This report will present summary statistics and detailed analyses of the collected information, ensuring that no personally identifiable information is included. NHTSA plans to publish the aggregated results as part of a research report and may also incorporate the findings into future Federal Register documents. The results may be categorized based on various factors, such as age groups, licensure status, and other relevant demographics, to provide insightful analyses.

The project commenced in 2023, with regulatory approval phases initiated in 2024. The entire project is scheduled to span 50 months, with a draft final report due within 42 months of the award. Data collection is slated to begin immediately upon receiving clearance under the Paperwork Reduction Act (PRA) and is expected to take approximately 10 months. Subsequent data reduction and analysis will be conducted following each data collection phase to ensure timely processing and evaluation of the information gathered.

NHTSA is committed to maintaining transparency and rigor in its research processes, adhering to established guidelines and standards to ensure the reliability and validity of the published findings. The final report will be made available to the public through NHTSA's official channels, contributing to the body of knowledge about traffic safety and informing future policy decisions.

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 on all recruitment and data collection materials.

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 1320.9.⁵

In accordance with the requirement at 5 CFR 1320.9(g), the following statement will be provided to respondents. The specific burden amount in the statement will vary by form.

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 (expiration date: MM/DD/YYYY). We estimate that it will take approximately X minutes to complete this survey/questionnaire. All responses to this collection of information are voluntary. 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., Washington, DC, 20590.