

**Instrumented On-Road Study of Motorcycle Riders
Supporting Statement for Information Collection Request**

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A. Justification

A.1. Explain the circumstances that make the collection of information necessary. Identify any Legal or 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.

a. Circumstances making the collection necessary

The National Highway Traffic Safety Administration (NHTSA) was established by the Highway Safety Act of 1970 (23 U.S.C. 101) to carry out a Congressional mandate to reduce the mounting number of deaths, injuries and economic losses resulting from motor vehicle crashes on the Nation's highways. As part of this statutory mandate, NHTSA is authorized to conduct research as a foundation for the development of motor vehicle standards and traffic safety programs.

Motorcycle crashes and fatalities have become a rapidly escalating traffic safety problem on our Nation's roads. Motorcyclist fatalities in the United States have more than doubled over the past 13 years, from a low of 2,106 in 1997 to 4,502 fatalities in 2010 (NHTSA, 2011a). Motorcycles made up 3% of the registered vehicles in the United States in 2009 but motorcyclists accounted for 13% of the total traffic fatalities (NHTSA, 2011b).

Knowledge of how riders successfully avoid crashes and of behaviors that correlate with and contribute to crash risk is crucial to developing effective countermeasures to reduce motorcycle crashes and fatalities. Data describing actual events are difficult to collect. Riders and law enforcement officers are not always aware of what caused a crash after the fact. It is even more difficult to identify behavioral factors associated with safe riding, and the actions of riders during evasive maneuvers that did not result in a police-reportable crash. One way to identify behavioral factors related to safe riding and crash involvement is to collect data on motorcycle riders' behaviors while they are engaged in their normal riding activities.

The objective of this study is to collect data on motorcyclists' real-world riding behavior using the *naturalistic driving* methodology. In a naturalistic driving study, a participant's vehicle is inconspicuously outfitted with cameras, radar, and other sensors, and the participant drives the instrumented vehicle as they normally would. This allows researchers to study the natural driving behavior of drivers as they normally operate their vehicles.

Naturalistic driving studies have provided an unprecedented amount of data on driving behavior that had not previously been available through other methodologies. For example, in the 100-Car Naturalistic Driving Study sponsored by NHTSA, the cars of 100 volunteers in the Washington, DC metropolitan area were instrumented for one year each. This data set from this study included approximately 2,000,000 vehicle miles and almost 43,000 hours of data (Dingus et al., 2006). From this data collection, the traffic safety community has learned about the contribution of driver inattention and distraction to crash risk (Klauer, Dingus, Neale, Sudweeks, & Ramsey, 2006; Klauer, Guo, Sudweeks, & Dingus, 2010), factors associated with rear-end crashes (Dingus et al., 2006; Lee, Llaneras, Klauer, & Sudweeks, 2007), factors associated with run-off-the-road crashes (McLaughlin, Hankey, Klauer, & Dingus, 2009), factors associated with lane-

change crashes (Fitch et al., 2009), and differences in the driving styles of individuals who have high and low crash and near-crash rates (Klauer, Dingus, Neale, Sudweeks, & Ramsey, 2009). Data from the 100-Car Naturalistic Driving Study have provided support for countermeasure development, such as the development of crash warning systems and countermeasures to reduce texting while driving.

Other naturalistic driving studies have examined the real-world driving behavior of novice teenage drivers (Klauer et al., 2011; Lee, Simons-Morton, Klauer, Ouimet, & Dingus, 2011; Simons-Morton et al., 2011), older drivers (Antin, Wotring, & Foley, 2011), and truck drivers (Barr, Yang, Hanowski, & Olson, 2011; Hanowski et al., 2008). Based on the utility of naturalistic data from these studies, the National Academies of Sciences are now overseeing the Strategic Highway Research Plan 2 Naturalistic Driving Study in which 2,000 passenger cars will be instrumented for 1-2 years each (Antin, Lee, Hankey, & Dingus, 2011).

Prior naturalistic driving studies have additionally collected data from questionnaires given to drivers on their personality characteristics, risk-taking propensity, thrill-seeking propensity, risk perception, sensation seeking, driving style, and driving history (Antin, Lee et al., 2011; Dingus et al., 2006; Simons-Morton et al., 2011). These questionnaires have been used to assess the relationship between drivers' individual difference characteristics and their real-world driving behavior.

In this study, NHTSA will be conducting on-road instrumented vehicle data collection with 160 motorcycle riders to examine motorcycle riders' behaviors as they typically ride. Volunteers will be recruited to have their motorcycles outfitted for one year with instrumentation such as cameras, GPS, and accelerometers that will capture data on normal riding behavior whenever their motorcycles are ridden. A data acquisition system was developed during a pilot study that was appropriate for a motorcycle's small size and exposure to the elements (McLaughlin, Doerzaph, & Cannon, 2011). The pilot study report is attached to this package as Appendix A.

Participating motorcycle riders will be asked to complete questionnaires during the time when their motorcycles are being instrumented that will assess their demographics, riding history, sensation- and thrill-seeking propensity, personality, and self-reported riding style. After completing the on-road study, participants will be asked to complete a short debriefing questionnaire that will ask them to provide feedback on their subjective experience while riding with the instrumentation, to recollect behavior that could not be recorded with the instrumentation, and to rate their own riding safety and skills. The subjective data from questionnaires will be combined with the objective data from the instrumentation on actual riding behavior to help NHTSA develop a better understanding of if a rider's demographic characteristics, riding history, sensation- and thrill-seeking propensity, personality, self-reported riding style, and other subjective factors are linked to his or her observed behavior on the road.

Similar to the wealth of information found with the 100-Car Naturalistic Driving Study and other naturalistic driving studies, this program of research will provide unprecedented objective data into what riding behaviors contribute to safe motorcycle riding and to motorcycle crashes. Naturalistic data collection with motorcycles will provide insight into rider behaviors at the moment of a crash or near-crash, how often poor riding behaviors are executed, what riders do to

successfully avoid crashes, and how characteristics of the motorcycle relates to crash and near-crash risk. These data will build a foundation by which crash risk is better understood and effective novel behavioral and vehicle-based countermeasures for motorcycle safety can be developed.

b. Statute authorizing the collection of information

NHTSA has statutory authority to conduct crash injury research and collect relevant data in the interest of public health. Specifically, NHTSA is authorized to conduct research on all phases of highway safety and traffic conditions; conduct ongoing research into driver behavior and its effect on traffic safety; and conduct research, training, and programs relating to motorcycle safety (See 23 U.S.C. 403(a)(1), 23 U.S.C. 403 (a)(2), and 23 U.S.C. 403 (a)(9)).

A.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.

The data from this study will provide NHTSA with information that will guide the development of novel behavioral and vehicle-based countermeasures to improve motorcycle safety. Data collected from questionnaires will be used primarily to determine if demographics, riding history, sensation- and thrill-seeking propensity, personality, self-reported riding style, and other subjective factors are related to the objective behaviors riders exhibit on the road. For example, if riders with differing levels of past riding experience are found to exhibit different on-road behaviors, it may lead to the development of programs directed at novice motorcycle riders or those returning to motorcycle riding after a break.

NHTSA will disseminate the information collected to State and local highway safety authorities, who will use it to develop, improve and target their own motorcycle safety countermeasures. NHTSA will also disseminate the information to other organizations and partners concerned with motorcycle safety traffic safety issues, who will use it to develop, improve and target their own programs and activities.

NHTSA reports are available to the general public on our web site. Many of NHTSA's reports are accompanied by a press release. In these cases, the press reports our results to the general public.

Resulting publications will include a caveat that data were collected from a convenience sample of volunteers, and that the results cannot be generalized to the population of American motorcycle riders. We will not attempt to characterize American motorcycle riders with the results. We will instead use the findings as a foundation from which to generate ideas for the development of novel behavioral- and vehicle-based countermeasures for motorcycle safety.

A.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 information technology. Also describe any considerations of using information technology to reduce burden.

The instrumentation package used in this study will collect detailed information about motorcycle riders' behaviors in an automated format. The data acquisition system has been developed and refined in several studies for use with cars and trucks (Antin, Lee, et al., 2011; Dingus et al., 2006; Hanowski et al., 2008; Lee et al., 2006) and was adapted for use on motorcycles in a pilot study (McLaughlin et al., 2011). All motorcycles will be equipped with a data acquisition system capable of capturing video, latitude, longitude, speed, heading, accelerations in three axes (longitudinal, lateral, vertical), and gyro in three axes (yaw, pitch, roll). Sixty of the motorcycles will be equipped with a more complex data acquisition system that will capture additional data on range and closing/separating speed to forward objects, lane position, brake force, downshifting, and turn signal status.

Once the instrumentation is installed on riders' motorcycles, they will be instructed to ride as they normally would. Data collection will proceed with minimal requirements on the part of the participant. The automated nature of the data collection will reduce the burden on participants. Participants will not be required to keep travel logs or incident logs. Intake questionnaires will be collected in the time during which participants' motorcycles are being outfitted with instrumentation. Debriefing questionnaires will be administered in the time during which the instrumentation is being removed from the participants' motorcycles.

A.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.

The Motorcycle Safety Foundation (MSF), a non-profit organization sponsored by motorcycle manufacturers that develops and maintains the motorcycle rider training curricula used in most States, is currently conducting a complementary study in which data will be collected from motorcyclists riding instrumented motorcycles. Although the MSF-sponsored study will collect data using a data acquisition system (DAS) NHTSA helped fund and intends to use in our study, the two studies will address different research issues and result in virtually no duplication.

The cost and complexity of conducting this type of research, termed "naturalistic behavior", has resulted in large databases being established that are then used to conduct many studies over a significant period of time. For example, the NHTSA funded "100 Car Pilot Study of Naturalistic Driving" has been used in over 50 studies in the decade since the data was collected. The NHTSA study "Instrumented On-Road Study of Motorcycle Riders" does not duplicate the MSF study; rather it is designed to address different issues.

Due to their differing missions, MSF and NHTSA will be addressing different research questions with the data that will be collected. MSF's primary mission is to support motorcycle rider training systems. Thus, the reports that will be produced from MSF-sponsored analyses of the data will undoubtedly focus on identifying unsafe riding behaviors that could be improved by rider training courses. NHTSA has a broader goal of creating behavioral- and vehicle-based countermeasures for motorcycle safety. Rider training is one behavioral countermeasure to improve motorcycle safety, but NHTSA also needs to learn from this data collection information on rider behavior that would inform the development of other countermeasures such as laws,

enforcement strategies, communications strategies, and vehicle technologies. The analyses that MSF will perform on the data will be quite different from the analyses that NHTSA will conduct.

MSF is a private entity and the data that they collect ordinarily would not be accessible to NHTSA or others to perform independent analyses. In May 2012, NHTSA and MSF began communicating about each of our plans for data collection and analysis. In light of the fact that we are both using the same DAS, MSF indicated that they may be open to allowing both entities to perform separate analyses on the pooled dataset, when appropriate. If NHTSA and MSF are able to pool data collected in both studies for analysis, it would be beneficial to the goals of both groups. The sample size of 260 from the combined datasets would be more than double the sample size of 100 participants from MSF's study, and the expanded data would add diversity in geography and in the characteristics of the riders involved in the study. However, for many research questions pooling the data for analysis will not be feasible. For example, NHTSA intends to recruit riders based on experience (novice, experienced, returning), a variable not included in the MSF study; thus, their data would not be useable for this type of analysis. Likewise, we will have different bike makes and models in the two studies, limiting some types of comparisons.

Pooling data across collection sites for analysis would be similar to what has been done by other multi-site naturalistic driving data collection efforts. For example, in the Strategic Highway Research Plan 2 Naturalistic Driving Study (SHRP 2 NDS), data are being collected from 2,000 instrumented passenger vehicles in six sites across the country, with each site managed by an independent group. When data collection is completed, data can be analyzed across all six SHRP 2 NDS sites or a single site, depending on which is most appropriate for the research question being addressed. We anticipate employing a similar strategy for analyzing data from the MSF- and NHTSA-sponsored instrumented motorcycle data collections.

NHTSA and MSF intend to ensure that there will not be duplication in the research questions addressed by NHTSA- and MSF-sponsored analyses. Without sponsoring an independent data collection, however, NHTSA would not have access to MSF's data to perform analyses that would support NHTSA's need of informing the development of novel behavioral- and vehicle-based countermeasures for motorcycle safety, beyond motorcycle rider training.

There are also several key differences in the types of riders being recruited by NHTSA and MSF, and the types of self-report information we will gather from them. NHTSA's study design will focus on recruiting novice and experienced riders. This recruitment strategy will allow NHTSA to address key research questions regarding the relationship between safety and experience that could inform NHTSA's recommendations to States on motorcycle rider licensing procedures. MSF is not recruiting riders based on their prior riding experience, and we would not be able to learn about the relationship between experience and safe riding from MSF's data.

Similarly, different information from questionnaires will be collected in MSF's and NHTSA's studies. Of the five questionnaires that will be completed by participants in NHTSA's study (demographic and riding history questionnaire, sensation- and thrill-seeking questionnaire, NEO Five Factor Inventory (NEO-FFI) personality inventory, Motorcycle Rider Behavior

Questionnaire, and debriefing questionnaire), only one (the NEO-FFI) will also be completed by participants in the MSF-sponsored study.

In their letter in response to the Federal Register notice announcing this project, the American Motorcyclist Association suggested that the funds for this project would be better spent by NHTSA on supporting the Federal Highway Administration's Motorcycle Crash Causation Study, or on implementing the plan laid out in the National Agenda for Motorcycle Safety. NHTSA disagrees with this assessment. The proposed study is part of a larger motorcycle safety research program at NHTSA. This program has involved providing funding to the Federal Highway Administration's Motorcycle Crash Causation Study. Additionally, the proposed study will address several recommendations from the National Agenda for Motorcycle Safety, including:

- Immediate action should be taken by government and industry to address the critical questions in motorcycle safety through comprehensive, in-depth studies as well as studies focused on specific topics.
- Study factors that affect and shape motorcyclists' attitudes and behavior and how they affect crash involvement.
- Conduct research to determine which rider crash avoidance skills are most important.

Other public comments in response to the Federal Register notice recommended that NHTSA delay this study until the completion of MSF's study, so that NHTSA could conduct a "sturdier" study that builds on what MSF has done. Since the two studies will address different issues delaying the NHTSA study makes no sense.

It will be several years before a report from MSF's study is completed and released. While passenger vehicle fatalities have been steadily decreasing since 2002, motorcyclist fatalities have increased precipitously since the mid-1990's. Motorcyclist fatalities reached a low of 2,106 in 1997, and by 2010 this number had more than doubled to 4,502. To reverse this uptick in fatalities, it is crucial for NHTSA to develop novel countermeasures. Without conducting this study, NHTSA will miss out on a wealth of information on motorcycle rider behavior that will lead to the development of countermeasures to address this problem.

NHTSA has already learned some lessons from MSF's study, and we have benefitted from discussions with MSF on problems they have encountered with their data collection and how they have resolved these problems. For instance, MSF's experiences have alerted us to the importance of having knowledgeable technicians outfitting participants' motorcycles with instrumentation, and have shown us what kinds of participant recruitment methods are the most and least successful. We believe that we can learn this kind of information from MSF as the studies operate in parallel to conduct the sturdiest study possible.

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

Information for this study will only be collected from individuals. There is no burden on small businesses.

A.6. Describe the consequences to Federal Program or policy activities if the collection is not collected or collected less frequently.

Much of what is known about unsafe motorcycle riding comes from reports taken after crashes. Like previous instrumented vehicle studies, this study will provide unprecedented amounts of information on real-world riding behavior, including how riders successfully perform evasive maneuvers, the riding styles of “safe” riders that do not get into many crashes and near-crashes “unsafe” riders that do get into many crashes and near-crashes, and the relationship between the locations where riders ride and where incidents occur. The information collection that will accompany the data collected from the data acquisition systems will inform NHTSA how demographic characteristics, riding history, sensation- and thrill-seeking propensity, personality, self-reported riding style, and other subjective factors correlate with objectively recorded real-world riding behavior. NHTSA needs this information to design behavior-based and vehicle-based countermeasures that are effective at reducing motorcycle crashes, tailored towards individual differences that may be correlated with unsafe behaviors. The number of injuries and fatalities due to motorcycle crashes will continue to increase if effective countermeasures cannot be identified.

A.7. Explain any special circumstances that require the collection to be conducted in a manner inconsistent with the guidelines set forth in 5 CFR 1320.6.

There are no special circumstances that would cause this collection to be conducted in a manner inconsistent with OMB guidelines.

A.8. 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 these comments. Describe efforts to consult with persons outside the agency to obtain their views.

a. Federal Register Notice

NHTSA published a notice in the *Federal Register* with a 60-day public comment period to announce this proposed information collection on November 16, 2011, Volume 76, Number 221, pages 71122-71123.

NHTSA published a notice in the *Federal Register* on May 10, 2012 (Volume 77, Number 91, pages 27539-27540) with a 30-day public comment period to announce forwarding of the information collection request to OMB for approval.

b. Responses to the Federal Register Notice

Eight comments were submitted to Docket Number NHTSA-2011-0162 in response to the 60 Day Federal Register Notice. These comments are attached to this package. Below is a summary of the comments that were received, and NHTSA’s responses.

Comment 1 - One commenter noted that it would be valuable to collect data on brake application during the study.

NHTSA Response 1 – NHTSA plans to collect brake application data from the 60 riders receiving the more complex data acquisition system.

Comment 2 – One commenter asked how motorcyclists will be recruited, if diverse demographics will be included, and if motorcyclists will be recruited from many areas of the country or a single region.

NHTSA Response 3 – Recruitment processes, demographics of participants, and the proposed sites are described in detail in Sections 1 and 2 of Part B of this proposal. To sum, operational considerations dictate that recruit volunteer motorcyclists from a single metropolitan area. We acknowledge that drawing volunteers from a single metropolitan area means that our sample will not be representative of American motorcycle riders and that we will not be able to generalize findings to the American motorcycle riding population. However, in spite of this limitation, we expect to uncover useful information on motorcycle riding behavior similar to what has been found in past naturalistic driving studies such as the 100-Car Naturalistic Driving Study (Dingus et al., 2006) and the Naturalistic Teenage Driving Study (Lee et al., 2011), which were also conducted with a sample of volunteers drawn from a single metropolitan area.

The age and gender distribution of volunteers will approximately match those of American motorcycle owners, as reported by the Motorcycle Industry Council’s 2008 Motorcycle/ATV Owner Survey (Motorcycle Industry Council, 2009). Motorcycle riders ages 18-29 are overrepresented in fatal crashes, and thus riders in this age group will be overrepresented in our sample as compared to population of owners. The age distribution of motorcycle owners, motorcycle operators in fatal crashes, and of the 160 volunteers we plan to recruit for the study appear in Table 1 below.

Table 1. Age distribution of motorcycle operators in fatal crashes, motorcycle owners, and of participants in study design.

	Age				Total
	18-29	30-39	40-49	50+	
% of motorcycle operators in fatal crashes, 2010	25%	18%	22%	34%	
% of motorcycle owners, 2008	19%	19%	28%	29%	
Number of participants	40	32	40	48	160

Source: FARS, 2010 data; Motorcycle Industry Council 2008 Motorcycle Owner Survey

Twelve percent of motorcycle owners in 2008 were female (Motorcycle Industry Council, 2009), and 4% of motorcycle operators involved in fatal crashes in 2010 were female (NHTSA, 2011c). As such, NHTSA will seek to fill approximately 10% of the sample, or 16 participants, with females.

Multiple methods will be used to recruit volunteers. Examples of methods, ranging roughly from targeted to broad include: traditional mailings generated from owner data (e.g., from State Department of Transportation databases of registered motorcycle owners), placing flyers on motorcycles of specific types, posting notices with online forums, placing advertisements in newspapers, and word-of-mouth.

Comment 3 - One commenter expressed interest in participating in the study.

NHTSA Response 3 - This comment does not pertain to the design of the study, cost, or burden.

Comment 4 - Five commenters expressed concerns regarding the similarities between NHTSA's proposed study and the instrumented motorcycle study sponsored by the Motorcycle Safety Foundation (MSF). One of these commenters suggested that MSF and NHTSA coordinate their efforts and co-publish the findings.

NHTSA Response 4 - As noted in section A.4 of this proposal, the Motorcycle Safety Foundation (MSF), a non-profit organization sponsored by motorcycle manufacturers that develops and maintains the motorcycle rider training curricula used in most States, is currently conducting a complementary study in which data will be collected from motorcyclists riding instrumented motorcycles. Although the MSF-sponsored study will collect similar data that will be collected in the NHTSA-sponsored study, it is necessary for NHTSA to collect data separately from the MSF-sponsored study.

MSF is a private entity and the data that they collect would not be accessible to NHTSA to perform independent analyses. Due to their differing missions, MSF and NHTSA are interested in addressing different research questions with the data that will be produced. MSF's primary mission is to support motorcycle rider training systems, and NHTSA has a broader mission of creating behavioral- and vehicle-based countermeasures for motorcycle safety. The analyses that MSF performs on the data may not satisfy NHTSA's needs for the information, and without sponsoring a data collection NHTSA will not be able to analyze the data to address the agency's needs.

Different information from questionnaires will be collected in MSF's and NHTSA's studies. Of the five questionnaires that will be completed by participants in NHTSA's study (demographic and riding history questionnaire, sensation- and thrill-seeking questionnaire, NEO Five Factor Inventory (NEO-FFI) personality inventory, Motorcycle Rider Behavior Questionnaire, and debriefing questionnaire), only one (the NEO-FFI) will also be completed by participants in the MSF-sponsored study.

NHTSA and MSF are collaborating to ensure that our study designs are complementary. For example, MSF's study design focuses on younger and older riders (i.e., are recruiting riders ages 21-34 and 45-65), and NHTSA's design focuses on novice and experienced riders (i.e., plan to recruit novice and experienced riders). NHTSA also intends to minimize overlap between the motorcycle models that are included in MSF's study. NHTSA and MSF are currently exploring the possibility of combining study datasets for some analyses, which will strengthen both

organizations' efforts by increasing the sample size in the analyses and the diversity of the riders included in the joint dataset.

Technical and expense limitations make it impossible to collect naturalistic data from a representative sample of American riders. Having complementary data collections sponsored by MSF and NHTSA will allow for naturalistic data to be collected from a more inclusive sample of American riders, while simultaneously allowing NHTSA to collect independent data that the agency can analyze to satisfy the agency's mission.

Also see A-4, above.

Comment 5 - Two commenters suggested that the funds budgeted for this study should be used to fund the Federal Highway Administration's Motorcycle Crash Causation Study.

NHTSA Response 5 - The proposed information collection is part of a larger motorcycle safety research program at NHTSA. As part of this program, NHTSA has provided funding to the Motorcycle Crash Causation Study.

Comment 6 - One commenter suggested that NHTSA use the burden hours of this study instead on implementing the recommendations from the National Agenda for Motorcycle Safety (NHTSA and MSF, 2000).

NHTSA Response 6 - As noted in NHTSA's Response 5, the proposed information collection is part of a larger motorcycle safety research program at NHTSA. This program has involved implementing recommendations from the National Agenda for Motorcycle Safety. The proposed study will address several recommendations from the National Agenda for Motorcycle Safety, including:

- Immediate action should be taken by government and industry to address the critical questions in motorcycle safety through comprehensive, in-depth studies as well as studies focused on specific topics.
- Study factors that affect and shape motorcyclists' attitudes and behavior and how they affect crash involvement.
- Conduct research to determine which rider crash avoidance skills are most important.

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

One hundred participants will be compensated \$300 for their participation. The motorcycles of 60 participants will be outfitted with a more complex data acquisition system (i.e., more cameras and sensors) that will take longer to install, and these participations will be compensated \$500 for their participation. These compensation amounts are similar to what has been used in other naturalistic driving studies. For example, the Strategic Highway Safety Research Plan 2 Naturalistic Driving Study initially compensated participants \$300 for one year of driving an instrumented vehicle and later increased compensation to \$500 for one year of driving an instrumented vehicle.

The purpose of the payment is to compensate participants for their time and travel during installation, data retrieval, and de-installation, or any unanticipated problems that might arise from having their motorcycles outfitted with the data acquisition system. Installation is expected to take a maximum of 8 hours, and de-installation at the end of the study a maximum 2 hours. Installation and de-installation will last longer for participants receiving the more complex data acquisition systems. The research team will additionally make one or more appointments with some participants during the study to retrieve the data from their motorcycles. These appointments will last 15 minutes to one hour, and will occur at a location that is convenient to the participants. It is expected that one data retrieval appointment may be necessary over the year-long study.

A.10. Describe any assurance of confidentiality provided to respondents.

Pending approvals, a Certificate of Confidentiality will be obtained from the Department of Health and Human Services (DHHS) and provided to each participant. An Informed Consent Document will be provided to each participant. The study's contractor, Virginia Tech Transportation Institute (VTTI) will use its Institutional Review Board (IRB) to review the study plan and Informed Consent Document and ensure that they are provided to each participant as this research is conducted. DHHS will review the Virginia Tech IRB approval, a Certificate of Confidentiality application, and the Informed Consent Document. A draft of the Informed Consent Document is provided in Appendix B.

Participants will be told the following regarding the confidentiality of their participation in the study:

1. There will be video of your face and portions of your body. The study also will collect health and driving data about you. The video and other data that personally identifies you, or could be used to personally identify you, will be held under a high level of security at the VTTI data storage facilities. Your data will be identified with a code rather than your name.
2. All data collected from identified riders who have not signed a consent form will be deleted. No identifying information will be collected on passengers.
3. For the purposes of this project, only authorized employees of NHTSA and VTTI will have access to study data containing personally identifying information, or that could be used to personally identify you. The data, including face video which has been blurred, blacked out, or replaced by animation, may be shown at research conferences and for the highway and road safety purposes identified above. Under no circumstances will your name and other personally identifying information be associated with the video clips. No audio will be available, since no audio is being collected as part of this study.
4. Data collected in this study may be analyzed in the future for other research projects. The use of your data for future projects will require that research partners obtain Institutional Review Board approval and data sharing agreements that adhere to or exceed our commitment to protecting your confidentiality for this project are executed.

5. A Certificate of Confidentiality has been obtained from the National Institutes of Health. With this Certificate, the researchers and study sponsors cannot be forced to disclose information that may identify you, even by a court subpoena, in any federal, state, or local civil, criminal, administrative, legislative, or other proceedings. While your confidentiality is protected in most cases by the Certificate, you should know that in some rare instances involving alleged improper conduct by you or others, you may be prevented by a court from raising certain claims or defenses unless you agree to waive the confidentiality protection.

A.11. Provide additional justification for any questions of a sensitive nature, such as sexual behavior or attitudes, religious beliefs, and other matters that are commonly considered private.

The debriefing questionnaire will ask one question regarding riding a motorcycle while under the influence of drugs or alcohol. It is necessary to ask this question because drug and alcohol impairment is a risky motorcycle riding behavior that will not be captured by the data acquisition system. In 2009, a higher percentage of motorcycle riders in fatal crashes had blood alcohol concentration (BAC) of .08 grams per deciliter (g/dL) or higher than any other type of motor vehicle driver (NHTSA, 2011b). If a data reductionist suspects that a rider is impaired from video footage, a participant's answer to this question will give guidance on if alcohol or drug impairment was possible during an event. The data collection does not contain additional questions related to matters that are commonly considered sensitive or private.

A.12. Provide estimates of the hour burden of the collection of information on the respondents.

Participants will be asked to complete four intake questionnaires while their motorcycles are being instrumented. These questionnaires will take an average of 75 minutes to complete, resulting in a burden of 200 hours for the 160 participants (160 respondents x 75 minutes = 200 hours). These four questionnaires are:

- Demographics and riding history questionnaire,
- Sensation- and thrill-seeking questionnaire,
- NEO Five Factor Inventory (NEO-FFI) personality inventory,
- and Motorcycle Rider Behavior Questionnaire (MRBQ).

When the instrumentation is removed from their motorcycles one year later, participants will be asked to complete a debriefing questionnaire. This questionnaire will last an average of 15 minutes, resulting in a burden of 40 hours for the 160 participants (160 respondents x 15 minutes = 40 hours).

Based on the above calculations, the total annual burden hours for this project will be 240 hours. These totals are also displayed in the following table.

Table 1. Estimated Total Burden.

Task	Estimated Burden per Response	Frequency of Response	Number of Respondents	Total Burden Hours
Intake Questionnaires	75 minutes	1 response	160	200 hours
Debriefing Questionnaire	15 minutes	1 response	160	40 hours
<i>Total</i>				<i>240 hours</i>

Participation in this study is voluntary, and there are no costs to respondents. However, the cost to respondents could be computed in terms of their hourly wage. Based on mean per capita income, the maximum total input cost, if all respondents completed questionnaires while on the job, is estimated as follows:

$$\$21.74 \text{ per hour}^1 \quad \times \quad 240 \text{ hours} \quad = \quad \$5,217.60$$

A.13. Provide an estimate of the total annual cost to the respondents or record keepers resulting from the collection of information.

There are no record keeping or reporting costs to respondents. All responses are provided spontaneously.

Respondents will need to travel to a facility for installation and de-installation of the data acquisition systems. They also may need to travel to one more appointments with the research staff to retrieve data from their motorcycles during the study. Respondents will incur costs when traveling to these appointments (e.g., for gas). These travel costs will be compensated with the \$300 or \$500 payment respondents will receive for their participation, as noted in A.9.

A.14. Provide estimates of the annualized cost to the Federal Government

The total cost to the Federal Government for this study is \$2,212,927 over 42 months, which amounts to an annual cost of approximately \$632,265 per year. In addition to administering questionnaires, this cost includes participant recruitment, participant payment, development and purchase of the data acquisition systems, labor to instrument and de-instrument the motorcycles, data reduction, data analysis, and report writing.

A.15. Explain the reasons for any program changes or adjustments in Items 13 or 14 of the OMB 83-I

This is a new collection to supplement a new instrumented study of motorcycle riders that NHTSA has not previously conducted, which results in a program change of an increase to NHTSA’s overall burden hour by 240 hours. The instrumented study of motorcycle riders is

¹ US Department of Labor, Bureau of Labor Statistics (2012). May 2011 National Occupational Employment and Wage Estimates. http://www.bls.gov/oes/current/oes_nat.htm

being conducted in response to the large increase in motorcycle rider fatalities that has occurred in the United States over the past 15 years.

A.16. For collection of information whose results will be published, outline plans for tabulation and publication.

Reports and summary sheets will be published at the end of the study. Analyses will be conducted to examine interactions between self-reported information collected in questionnaires and on-road behavior recorded with instrumentation. Self-reported information may be used to split riders into groups along a variable of interest (e.g., low experience and high experience), and then an on-road behavior may be compared between these groups (e.g., comparing near-crash rate per mile ridden between low-experience and high-experience riders). Riders may also be separated into groups based on on-road performance (e.g., low near-crash rate and high near-crash rate), and then self-reported characteristics may be compared between these groups (e.g., comparing sensation seeking between riders with low near-crash rates and riders with high near-crash rates).

Technical report printed by NHTSA that will be disseminated to State, local, and national traffic safety officials. Reports and results will also be disseminated to advocacy and other groups interested in motorcycle safety, as briefings and presentations at traffic safety meetings, and to the research community through presentations at research conferences and publication of journal articles.

Resulting publications will include a caveat that data were collected from a convenience sample of volunteers, and that the results cannot be generalized to the population of American motorcycle riders. We will not attempt to characterize American motorcycle riders with the results. We will instead use the findings as a foundation from which to generate ideas for the development of novel behavioral- and vehicle-based countermeasures for motorcycle safety.

A.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.

A.18. Explain each exception to the certification statement identified in Item 19, "Certification for Paperwork Reduction Act Submissions" of the OMB Form 83-I

No exceptions to the certification statement are made.