# SUPPORTING STATEMENT
# FOR

## Request for Clearance Extension under

## P.L. 109-59, Section 5511 (71 FR 30831)

## Motorcycle Crash Causation Study

## TABLE OF CONTENTS


Chapter Page

A. JUSTIFICATION..... 5

A1. Circumstances, Statutes, and Regulations..... 5

A1.1 Congressional Mandate..... 5
A1.2 FHWA Authorization..... 6
A1.3 Highway Safety Need..... 6
A1.4 Circumstances Leading to a Combined Approval Request..... 8

A2. Indicate How, by Whom, and for What Purpose the Information is to be Used..... 8

A2.1 FHWA Data Applications..... 8
A2.2 NHTSA Data Applications..... 8
A2.3 National Transportation Safety Board (NTSB) Potential Uses..... 9
A2.4 Other Users of Project Data (e.g. state government, manufacturers)..... 9

A3. Uses of Automatic, Electronic, Mechanical, or Technologic Data Collection Techniques..... 9
A4. Describe Efforts to Identify Duplication. Show Why any Similar Information Already Available Cannot be Used or Modified..... 9
A5. If the Collection of Information Impacts Small Businesses or Other Small Entities, Describe Any Methods Used to Minimize Burden..... 10
A6. Describe the Consequence to Federal Program or Policy Activity if the Collection is not Conducted or is Conducted Less Frequently..... 10
A7. Explain any Special Circumstances that Require the Collection to be Conducted in a Manner Inconsistent with the Guidelines Set Forth in 5CFR.1320.6..... 10
A8. Compliance with 5CFR 1320.6..... 10

A8.1 Federal Register Notice (60 Day) - Comment Summary..... 10

A8.1.1 Non-Supportive Comments..... 10
A8.1.2 Supportive Comments..... 11

A8.2 Federal Register Notice (30 Day) - 0Comment Summary..... 13

A9. Payment or Gift to Respondents..... 16
A10. Assurances of Confidentiality Provided to Respondents..... 16
A11. Justification of Collection of Sensitive Information..... 16



## TABLE OF CONTENTS

**(continued)**


| Chapter | | Page |
|---|---|---|
| A12. | Estimate of the Hour Burden of the Collection of Information on the Respondents | 17 |
| A13. | Estimate of the Total Cost Burden to Respondents Resulting from the Collection of Information | 17 |
| A14. | Estimates of Annualized Costs to the Federal Government | 17 |
| A15. | Explain the Reason for any Program Changes of Adjustments | 18 |
| A16. | For Collection of Information whose Results will be Published, Outline Plans for Tabulation and Publication | 18 |
| A17. | Approval for not Displaying the Expiration Date of Collection | 18 |
| A18. | Exception to the Certification Statement | 18 |

**TABLE OF CONTENTS**
**(continued)**

## List of Figures


Figure

1 Occupant Fatality Rate per 100 Million Vehicle Miles Traveled by Vehicle Type..... 7


## List of Attachments


1. SAFETEA-LU, Section 5511
2. Notice From Federal Register: November 24, 2006 (Volume 71, Number 226)
3. Notice From Federal Register: February 26, 2007 (Volume 72, Number 37)
4. Motorcycle Study Interview Forms:
    a. Crash Motorcycle - Rider
    b. Crash Motorcycle - Passenger
    c. Crash Motorcycle - Mechanical
    d. Helmet Evaluation Form
    e. Motorcycle Dynamics From
    f. Motorcycle Injury From
    g. Other Vehicle - Form
    h. Other Vehicle - Driver
    i. Control Motorcycle - Rider
    j. Control Motorcycle - Passenger
    k. Control Motorcycle – Mechanical
    l. Contributing Factors Form
    m. Environmental Form
5. OECD Methodology
6. Certificate of Confidentiality
7. Informed Consent
8. Example Medical Release Forms
9. Motorcycle Pilot Study Final Report

## A. JUSTIFICATION

**A1. EXPLAIN THE CIRCUMSTANCES THAT MAKE THE COLLECTION OF INFORMATION, NECESSARY. ATTACH A COPY OF THE APPROPRIATE SECTION OF EACH STATUTE AND REGULATION MANDATING OR AUTHORIZING THE COLLECTION OF INFORMATION.**

**A prior request under P.L. 109-59, /section 5511 (71FR30831) was approved for both the NHTSA Pilot Motorcycle Crash Causes and Outcomes Study and the FHWA Motorcycle Crash Causation Study. The NHTSA Pilot Motorcycle Crash Causes and Outcomes study has been completed and the FHWA Motorcycle Crash Causation study is underway. The current request is for continuation of the FHWA Motorcycle Crash Causation Study. This current request will reflect information learned from the completed NHTSA Pilot Study. Please note that there is a request to change the name of the request from the "Pilot Motorcycle Crash Causes and Outcomes Study and Motorcycle Crash Causation Study" to the "Motorcycle Crash Causation Study" as this current request is for a continuation of the main study. The pilot study has been completed and no longer requires approval.**

### A1.1 Congressional Mandate

Congress directed the Department of Transportation (USDOT) to conduct research that will provide a better understanding of the causes of motorcycle crashes in Section 5511 of the Safe, Accountable, Flexible, Efficient, Transportation Equity Act: A Legacy for Users (SAFETEA-LU) Pub. L. 109-59. The legislation required the Secretary of Transportation to provide grants to the Oklahoma Transportation Center (OTC) for the purpose of conducting a comprehensive, in-depth motorcycle crash causation study using the common international methodology for in-depth motorcycle crash investigation. (This methodology was developed by the Organization for Economic Cooperation and Development (OECD) to foster uniform procedures in the investigation of motorcycle crashes).

The OECD methodology is a comprehensive approach to investigating motorcycle crashes. The 649 page methodology calls for the investigation of crashes of all severities and the collection of exposure data in the form of controls (two matched non-crash involved vehicles for every similar crash-involved vehicle). Crash investigations specify interviews with motorcycle operators, passengers and the drivers of other-involved vehicles. Human factors topics range from rider experience, licensing and training to fatigue, drug and alcohol use, trip purpose, use of protective clothing, and risk-taking behaviors.

Vehicle inspections specify detailed examinations and judgments of pre-and post-crash condition for every motorcycle component. The type, size and handling characteristics of the motorcycles are also carefully documented. When other motor vehicles (such as cars and trucks) are involved in crashes with motorcycles, data on the points of contact and exterior vehicle damage are recorded.

Roadway features, traffic controls, and environmental factors that could have contributed to crash causation are recorded. In addition, circumstances such as line-of-site and potential visual obstructions are noted.

Control data includes detailed interviews with motorcycle operators, passengers and drivers of

other vehicles similarly at risk to those involved in each crash. OECD also requires careful documentation of the condition of motorcycles selected as part of the control population.

The OECD protocol also describes a 12 week training program that covers data collection techniques (interviewing skills, vehicle damage assessments), and the analyses of physical data such as metal fractures. Training materials have been developed based on the OECD protocols and modified as a result of the Pilot Study.

**A1.2 FHWA Authorization**

The Federal Highway Administration (FHWA) was delegated authority to conduct this research by the Secretary under Section 5511 (71 FR 30831). Under 23 USC402, FHWA has responsibility for highway safety programs, research and development related to highway design, construction and maintenance, traffic control devices, and identification and surveillance of accident locations.

**A1.3 Highway Safety Need**

This research on the causes of motorcycle crashes is necessary because the countermeasures currently being used have not been effective in reducing the rate of motorcycle crashes in recent years. In the last decade and a half there was a dramatic increase in the motorcyclist fatality rate. While the fatality rate for all motor vehicle occupants has decreased from 2005 to the present, the motorcyclist fatality rate is still over 30 times higher than that of the passenger occupant fatality rate. Additionally, motorcycle rider fatalities now account for over 14% of all traffic fatalities in the United States. The information to be acquired in this study is needed to mitigate this discrepancy.

**A1.4 Circumstances Leading to an initial Combined Approval Request**

Prior to this directive by Congress, NHTSA initiated a pilot study to investigate the causes of motorcycle crashes using the OECD methodology. Given that FHWA was authorized to conduct a main study using the OECD methodology, and that NHTSA had already begun its pilot study, an opportunity was provided for the NHTSA study to seamlessly transition into the main FHWA study. The coordination of these two studies was expected to allow the main study to avoid many start up costs (e.g., site selection, training of personnel, coding manual development, data form development, etc. that will be accomplished by the pilot study). **Because the NHTSA and FHWA studies became a single research effort and the methods to be used were the same, the USDOT decided to request a single clearance from the Office of Management and Budget (OMB) for both studies. This initial request under P.L. 109-59, /section 5511 (71FR30831) for both studies was approved. While the Pilot Study has since been completed, the main study is underway and the FHWA is now seeking renewed approval for the remainder of the main study, not the NHTSA pilot study. The methods and materials have remained largely unchanged from the original submission.**

**A2. INDICATE HOW, BY WHOM, AND FOR WHAT PURPOSE THE INFORMATION IS TO BE USED.**

**A2.1 FHWA Data Applications**

The data from this study will provide the FHWA with information that will allow determination and development of effective countermeasures to reduce the frequency and severity of motorcycle crashes for the various crash types as determined by the study. Countermeasures may

take the form of rulemaking, safety programs, design standards, and recommended practices.

The FHWA can use the information from this study to evaluate and update current roadway design and maintenance guidelines. The information can also be used to make roadways more accommodating to motorcyclists by modifying road delineation and markings, conspicuity of traffic controls, signal timing, intersection design, and vehicle detection.

For example, this research may show that one of the most common motorcycle crash types occurs on sharp curves on arterial roads. A potential countermeasure could be the installation of warning or advisory signs for motorcyclists indicating the approaches to such curves. Another frequent crash type could be automobiles turning left in front of oncoming motorcycles. A potential ITS (Intelligent Transportation System) countermeasure could be an in-vehicle warning to drivers preceding unsignalized intersections or signalized intersections with permissive phasing advising them to watch for oncoming motorcyclists.

**A2.2 NHTSA Data Applications**

While this study is being conducted by FHWA, NHTSA can also use the data in its development of licensing requirements, rider training programs, and vehicle design standards. Such information is critical to the evaluation of current standards and practices and to the development of improvements that enhance traffic safety.

As an example, if the research were to show that a large proportion of the crashes involved novice riders on motorcycles over 900 cubic centimeters, NHTSA may recommend graduated rider licensing, based on engine displacement. As another example, if the research shows that in many crashes the motorist did not see the motorcyclist, and then increased conspicuity of the motorcycle could be mandated. With the increasing use of daytime running lights on passenger vehicles, a different headlight color for motorcycle daytime use is a remedy that could be considered.

**A2.3 National Transportation Safety Board (NTSB) Potential Uses**

In addition to the potential uses by FHWA and NHTSA, the data may have significant value for the NTSB. The NTSB submitted a statement to the original Docket in support of this study. It is possible that NTSB will make use of the findings to support recommendations on motorcycle safety.

**A2.4 Other Users of Project Data (e.g. state governments, manufacturers)**

This information could also be used by State highway engineers for road design and maintenance changes, and by State highway safety officers in their development of highway safety initiatives. The motorcycle industry could use this information as it develops safer vehicle designs. User organizations, (e.g., American Motorcyclists' Association) could use findings from this study as they develop recommendations for their constituencies. Other potential users include insurance companies, safety research organizations, and universities that have an interest in improving transportation safety.

**A3. DESCRIBE WHETHER, OR 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.**

Vehicle and scene data are collected mainly using photographic equipment and electronic and mechanical measuring devices. These include digital cameras and scene measurements. However, data describing rider, passenger, and motor vehicle operator characteristics and behaviors are collected through in-person and telephone interviews using paper forms.

**A4. DESCRIBE EFFORTS TO IDENTIFY DUPLICATION. SHOW WHY ANY SIMILAR INFORMATION ALREADY AVAILABLE CANNOT BE USED OR MODIFIED.**

This study does not duplicate any US National study on motorcycle crashes. The last federally sponsored study focused on MC crashes was performed by researchers at the University of Southern California, for NHTSA, in the1970s. Some information is available on motorcycle crashes in the U.S. from state databases using widely different protocols; however, these do not conform to the OECD methodology. Both FHWA and NHTSA currently collect a limited amount of data on motorcycle crashes; however, again, the data do not conform to the OECD methodology and moreover, do not capture exposure data, and are not focused on antecedents to such crashes. The application of the OECD guidelines results in a more complete collection of data and also allows this study to be compared to recent research conducted in Thailand and Europe.

**A5. IF THE COLLECTION OF INFORMATION IMPACTS SMALL BUSINESSES OR OTHER SMALL ENTITIES, DESCRIBE ANY METHODS USED TO MINIMIZE BURDEN.**

There are no planned interactions with small businesses in this study. Crash investigations may take place in the general vicinity of small businesses, but steps are taken to avoid placing any burden on small businesses.

**A6. DESCRIBE THE CONSEQUENCE TO FEDERAL PROGRAM OR POLICY ACTIVITIES IF THE COLLECTION IS NOT CONDUCTED OR IS CONDUCTED LESS FREQUENTLY.**

The upward trend in motorcycle crashes and fatalities is likely to continue or worsen if the collection is not completed. The reason for this is that the existing countermeasures currently being used have not been as effective as hoped. This research will allow new countermeasures to be developed and tested.

Regarding the matter of collection frequency, FHWA and NHTSA do not see a need to repeat this study in the near term. The vehicle mix and crash environment are expected to remain fairly stable for the next 5-10 years.

**A7. EXPLAIN ANY SPECIAL CIRCUMSTANCES THAT REQUIRE THE COLLECTION TO BE CONDUCTED IN A MANNER INCONSISTENT WITH THE GUIDELINES SET FORTH IN 5CFR 1320.6.**

There are no special circumstances that require an inconsistency with the subject guidelines. The Code of Federal Regulations, 5CFR 1320.6, addresses public protection regarding the conduct of surveys. It describes provisions such as: displaying a valid OMB control number, informing potential participants that the survey is voluntary, complying with OMB directives to modify

survey plans, and not imposing penalties on persons who choose not to participate. The OECD procedures to be used in this study are consistent with those guidelines.

**A8. Compliance with 5 CFR 1320.8:**

The FHWA published a Federal Register notice on June 5, 2014 volume 79, No 108, for renewal of this collection which solicited public comments on our intent to seek OMB renewed approval. No comments were received.

**A9. PAYMENT OR GIFT TO RESPONDENTS.**

Upon review of the pilot study it was found that an effective method for collecting control data was to offer gas cards as a "thank you" to participants. Per the findings of the IRB at OSU it was determined that if the control subjects were being offered a gas card, then the crash participants must also be provided with similar compensation. As a result, all participants are given a $40 gas card.

**A10. ASSURANCE OF CONFIDENTIALITY PROVIDED TO RESPONDENTS.**

No personal identifiers are included in any of the databases; the data on individual cases is not discoverable. However, a Certificate of Confidentiality was obtained from the Department of Health and Human Services and a copy is provided to each participant. An Informed Consent Document was prepared by FHWA's and NHTSA's legal departments and is provided to each participant. The Institutional Review Board (IRB) at OSU has reviewed both the Certificate of Confidentiality and the Informed Consent Document and ensured that they are provided to each subject as this research is conducted.

Several levels of protection are planned to protect both the survey participants and the data files holding crash information. OSU staff and relevant subcontractors sign confidentiality pledges to protect all information gathered in the study. No personal identifiers regarding the crashes, vehicles or involved parties, are ever recorded in any system of records. All databases use password protection as do the computers and servers used to manage the data. The computer network used to house any case information is protected using state of the art hardware and software applications. If a telephone number is acquired because of the need for a follow-up call to a respondent this number is not recorded in any database and is not retained once the follow-up call is completed.

For the main study, the University of Oklahoma's Transportation Center has an established secure facility that will be used for the data collected under this study. Their IRB also reviewed all experimental protocols.

**A11. JUSTIFICATION OF COLLECTION OF SENSITIVE INFORMATION.**

Information will be requested on rider behavior, training history, license type and status, health status, alcohol consumption, and blood alcohol levels (using preliminary breath testers). This information is necessary to determine risk factors for crashes. However, NO identifying information is associated with this private information, and respondents are advised that they may refuse any and all questions, as well as the breath test.

**A12.** **ESTIMATE OF THE HOUR BURDEN OF THE COLLECTION OF INFORMATION ON THE RESPONDENTS.**

**It should be noted that the estimates provided below are for the MAXIMUM number of cases that may be collected through this effort. However, the current Work Plan and budget with OSU supports a total of 350 cases. The larger sample size of 1,200 cases was the number requested by the Project Working Group as an "ideal" sample size. Unfortunately, the costs per case will not allow FHWA conduct this many investigations at the current funding levels. However, the contractor has previously shown they are able to find cost savings as they progress with the project. In fact, the original Cooperative Agreement with OSU only supported the collection of 148 cases. Therefore, significant improvements in sample size have been realized. Additionally, the Transportation Pooled-Fund Program that provides support to the Main Study remains active and it is possible that the sample size may again increase if additional funding is acquired from State DOTs through this program. To date, the project has closed-out 223 cases, including the collection of two corresponding control rider interviews per case. In addition, another 39 cases are currently under investigation.**

The following table shows the sampling plan and estimated number of interviews assuming a maximum of 1200 crashes are investigated in the combined studies. These distributions have been updated to reflect what has been collected to date in the Main Study.

**Crash Interviews**:

| | |
|---|---|
| Operators of motorcycles in single vehicle crashes = | 252 |
| Motorcycle operators and other drivers in Multi-vehicle crashes (840 crashes*2 persons) = | 1680 |
| Motorcycle Passenger interviews (0.07(of single vehicle crashes) *252 crashes + 0.07 (of multi-vehicle crashes)*1680) = | 136 |
| Car passenger interviews cars (.19*1680) = | 319 |
| *Total Crash Interviews (252 + 1680 + 136 + 319) =* | *2387* |

**Control interviews**:

| | |
|---|---|
| Controls for single vehicle motorcycle crashes (2 controls *252 crashes) = | 504 |
| Controls for multi-vehicle crashes (1 motorcyclist * 840 crashes + other vehicle driver * 840 crashes) = | 1680 |
| Passenger Interviews = | 0 |
| *Total Control Interviews (504+1680) =* | *2184* |
| **Grand Total Crash plus Control Interviews (2387 + 2184) =** | **4571** |

Additionally, participant burden has been updated based on the average time required to complete a field interview in the Main Study. The Estimated Average Burden per Interviewee is 30 minutes for crash interviews and 15 minutes for control individuals' interviews. The Estimated Total (Not Annual) Burden Hours estimates are based on the total of 2,387 crash interviews to be conducted at an average length of 30 minutes each and 2,184 control interviews to be conducted at an average length of 15 minutes each for a total one-time burden on the public of 1,770 hours.

**A13. ESTIMATE OF THE TOTAL COST BURDEN TO RESPONDENTS RESULTING FROM THE COLLECTION OF INFORMATION.**

This collection of information imposes no costs to participants/respondents beyond the time they voluntarily provide. Record keepers from hospitals and police departments are not considered as respondents since part of their jobs is to provide records upon request. Additionally, hospitals charge a fee for each record request. As such, no additional cost burden is imposed on these record keepers resulting from the collection of information beyond the record keepers' actual job requirements.

**A14. ESTIMATES OF ANNUALIZED COSTS TO THE FEDERAL GOVERNMENT.**

The following figures come from the awards of the "Motorcycle Crash Causation Study" cooperative agreement. These are total, not annual amounts.

| Contract | Estimated Total Cost |
|---|---|
| Motorcycle Crash Causation Study (SAFETEA-LU) | $2,584,600* |
| NHTSA Funds | $500,000 |
| FHWA Recovered Funds | $197,000 |
| Total Federal Cost | $2,781,600 |

*A waiver has been obtained from the Administrator of the FHWA that states that the Grantee is no longer required to obtain matching funds for the project.

Additionally, the AMA provided $100,000 in funding to support this effort and another $750,000 was obtained from State DOTs through the Transportation Pooled-Fund Program. The total project budget for the Main Study is thus $3,631,500.

**A15. EXPLAIN THE REASONS FOR ANY PROGRAM CHANGES OR ADJUSTMENTS.**

While the Pilot Study has since been completed, the main study is underway. The original OMB approval is set to expire and the FHWA is now seeking renewed approval for the remainder of the main study. The methods and materials have remained largely unchanged from the original submission.

**A16. FOR COLLECTIONS OF INFORMATION WHOSE RESULTS WILL BE PUBLISHED, OUTLINE PLANS FOR TABULATION AND PUBLICATION.**

This study will produce an FHWA-owned master data file with all personal identifiers removed. A series of summary reports describing these types of topics are planned: precipitating antecedents to the crashes, identification of risk factors for crashes such as age, gender, alcohol use, motorcycle size, motorcycle type, road conditions, time of day, etc.; estimates of the relative importance of these risk factors in predicting crashes. A final report will be published that will describe the major crash types, the most frequent antecedent events that if altered would have resulted in a reduced severity or no-crash outcome, and the variables that are most over-involved in crashes when compared with their overall incidence in the sample. These antecedent events and risk factors will form the basis for recommending countermeasures. Such recommendations will also be included the final report.

**A17. APPROVAL FOR NOT DISPLAYING THE EXPIRATION DATE OF COLLECTION.**

There are no reasons this display would be inappropriate. OMB approval will be shown on all collection instruments.

**A18. EXCEPTION TO THE CERTIFICATION STATEMENT.**

No exceptions are requested.