

Background

Why Are Motorcycle Fatality Rates so High? In 2009, there were 4,462 motorcycle crash-related fatalities in the United States. That is over twice the number of motorcycle rider fatalities that occurred in 1997. Furthermore, every State experienced an increase in the number of annual motorcycle fatalities over this same time-period. This is despite a 27% reduction in the number of fatalities in passenger cars and light trucks. Thus far, the highway safety community does not have a complete understanding of the reasons for this discrepancy, largely due to a lack of comprehensive data sources. The existing federally supported crash databases provide only limited information on motorcycle crashes and are not tuned to the unique causative factors that affect motorcycle crashes. As a result, acquiring information that focuses on the motorcycle-specific causative factors in crashes has been made a priority by State and Federal Governments alike. The data resulting from this motorcycle crash causation study that will be developed through this pooled-fund project will serve as the foundation for answering the important questions about why motorcycle crashes occur and what data-supported countermeasures can be introduced to address these issues.

Why is it Important for My State to Contribute? Decreasing the rate of motorcycle crashes and fatalities has been established as a priority, but the accessibility of detailed motorcycle crash causation data is limited. Motorcycle safety objectives have been presented as emphasis areas in the State Highway Safety Plans (SHSP) of 36 states and the District of Columbia. Despite a general consensus that addressing the motorcycle crash causation factors is essential to reducing the number of fatalities on our highways, budgetary constraints have hampered the ability to collect the necessary data. That is why this study holds so much promise. In the SAFETEA-LU legislation, congress mandated the Federal Highway Administration (FHWA) to grant funding to Oklahoma State University (OSU) to conduct a Motorcycle Crash Causation Study (MCCS). The goals of the MCCS directly tie into the goals of many State DOT SHSPs. The scope of the MCCS includes the opportunity to address possible countermeasures such as:

- Recommended changes in motorcycle licensing/training requirements
- Education strategies for the driving public
- Effective roadway improvements that mitigate the occurrence or severity of motorcycle crashes
- Assessment of the public health benefit of incorporating measures to curb motorcycle crashes

While this study is not meant to be nationally representative, the data collection region of Orange County, California was selected largely because it offers a uniquely diverse riding environment. In many ways, Orange County, CA constitutes a cross-section of American motorcycle riding environments. There are both rural and urban regions, flat land and rolling hills, as well as daily commuters and leisure riders. Therefore, the data collected from this region should reflect many of the same causative factors that produce motorcycle crashes across the country.

What is Different Now? This project has been delayed in the past due to a myriad of budgetary and approval issues. However, the complications that were the source of these delays have been addressed and the project is set to begin data collection in spring of 2011. Furthermore, the Motorcycle Cash Outcomes Pilot Study, which was completed in June, 2010, was successful in developing training materials, creating data collection documents, establishing relationships with local law enforcement, and successfully locating and investigating motorcycle crashes and controls. This proven model was used to develop the final work plan for the full Motorcycle Crash Causation Study.

Project Detail: The language of the SAFETEA-LU legislation states that the project must utilize the Organisation for Economic Co-operation and Development (OECD) data collection methodology. The OECD methodology refers to the Common International Methodology which constitutes a comprehensive on-scene, in-depth accident investigation protocol for motorcycle crashes. This methodology has successfully been implemented in studies abroad. However, a data collection program of this scale has not been performed in the United States in roughly 30 years.

In the fall of 2008, NHTSA began a pilot study of the data collection methodology to develop and test the data collection forms, training manuals, data collection protocols, etc. A final report was delivered in June, 2010, which has served as a guide for the training and data collection materials to be used in this study. Furthermore, the OECD data collection methodology was proven to be effective in the United States, just as it was abroad. This includes interviews with similarly at-risk riders (control group) at each of the crash locations. This collection methodology provides for the development of a statistically robust database that will provide insight into the causes of motorcycle crashes. The database will contain both in-depth data on crash antecedents, as well as data on risk factors (e.g., age, rider experience, speed, alcohol) that will be derived from comparisons of the crash and control samples. The collected data can be used to guide the development of improved countermeasures to crashes including countermeasures relating to roadway configuration and design.

This project has been recognized as a priority by Congress, FHWA, the National Highway Traffic Safety Administration (NHTSA), and motorcycle advocacy groups. As part of the SAFETEA-LU legislation, the federal government has obligated almost \$2M through FHWA. Furthermore, contributions of \$500,000 and \$100,000 have been received from NHTSA and the American Motorcycle Association (AMA), respectively. This Pooled fund study is expected to provide an additional \$700,000. However, the project is likely to be expanded with any additional funds. This includes any additional fund contributions through this pooled-fund solicitation. It is anticipated that the study will reconstruct and collect crash data from roughly 230 motorcycle crashes. However, this figure is based on the current funding obligations. If the total contributions increase, the number of cases will grow accordingly.

Objectives

The primary objective of the Motorcycle Crash Causation Study is to investigate the causes of motorcycle crashes and to enable the development of countermeasures that can be effective in reducing these crashes. Using the field tested methodology developed by the OECD, the study will focus on all relevant aspects of motorcycle crashes that could be susceptible to countermeasures that will either prevent motorcycle crashes from occurring or will lessen the harm resulting from them. The objective of this transportation pooled fund study is to provide additional funding to increase the number of crash investigations that will be used to expand the database.

Scope of Work

Establish, Maintain, & Facilitate Project Working Group

A project working group (PWG) has been established for the MCC study. It currently includes 15-20 selected individuals from key motorcycle organizations (e.g., Motorcycle Safety Foundation, The American Motorcycle Association) with an interest in motorcycle safety. The PWG provides technical input to the study and meets annually. The TPF will include additional representation from participating State DOTs to the MCC PWG.

Finalize Work Plan

A finalized work plan based on the successes and recommendations of the NHTSA Pilot study has been developed and addresses the following questions and procedural matters:

- Questions to be answered by the research;
- The sampling plan for crash and control riders and drivers;
- The data elements to be captured from crash and control riders and drivers;
- The training requirements for field data collectors, and the training materials;
- The criteria for selecting data collection sites, and a proposed list of sites that meet these criteria;
- A Drafted Memorandum of Understanding for selected sites;
- Protocols for implementation of data collection;
- Protocols for ensuring data security;
- Specification of data file formats and sufficient documentation to ensure third parties can easily read and electronically manipulate the files when given access;
- A detailed data analysis plan; and a reporting plan for routine status.

Obtain Required Approvals

Given the nature of the OECD data collection methodology, Oklahoma State University has acquired approval from an Institutional Review Board (IRB) to conduct the study under the pre-determined methods and procedures. Oklahoma State University has also acquired OMB approval to begin the project, and a certificate of confidentiality from the National Institutes of Health (NIH) will ensure that all participants remain anonymous.

Develop a Project Website

A MCC project website shall be developed and maintained for the project. The website shall include project information, updates, informational links, generated reports, funding support, etc. The website will be updated at least monthly.

Collect the Motorcycle Crash Causation Data

In accordance with the procedures outlined in the approved Finalized Work Plan, the motorcycle crash causation data from all crash involved vehicles and from all control vehicles shall be collected. All data forms and the data shall be entered into secure electronic files in the form specified in the Finalized Work Plan. The motorcycle crash causation data collection shall be completed on or before 36 months from the effective date of the agreement.

Analyze Data and Prepare Final Reports and Presentations

The data shall be analyzed and the results of the analysis shall be presented in a final report. Additionally, presentations of the findings shall be made at the annual meeting of the Transportation Review Board (TRB) and at least one other annual conference. The analysis, final report and presentations shall be completed on or before 48 months from the effective date of the agreement.

Comments

The disparity in safety improvements for passenger vehicles compared to motorcycles with regard to crash and fatality rates is increasingly becoming a significant public health issue in the United States. The findings of this study will help identify the motorcycle-specific crash causation factors and assist the states in producing effective measures to address these issues.

The desired level of contribution is \$50,000 per year per agency. However, level of commitment may vary based on size and type of agency (e.g. county and city). Desired minimum level of contribution is \$15,000 per year per agency. Consistent funding for three (3) years is desired. A waiver has been provided by the FHWA that will allow SP&R funds to be allocated to this project from State DOTs. Additional funding mechanisms and sources are welcomed as well.