

I. RESEARCH PROJECT TITLE

Evaluation of Motorcycle Safety in Kansas

II. RESEARCH PROBLEM STATEMENT

While there are some highway safety improvements achieved in certain categories, **number and percentage of motorcycle crashes in Kansas has increased significantly** as shown in the Table below. It also shows that there is a drastic (75%) increase in fatal motorcycle in Kansas from 2005 to 2006. Additionally, **motorcycle crashes tend to be more severe** than other crashes. For example, in 2006, number of motorcycle crashes as a percentage of total crashes is 1%, but motorcycles accounted for 12.4% of all fatal crashes, indicating motorcycle riders as more vulnerable than other road users. In 2000, only 3.2% of all fatal crashes in Kansas were motorcycle crashes, which increased four times to 12.4 by 2006. If Kansas has to keep on reducing total fatalities and to achieve the goals of Kansas Strategic Highway Safety Plan (i.e. to reduce number of fatalities to less than 400 by 2008 and less than 365 by 2010), it is extremely important to look at motorcycle crashes to identify the characteristics so that problem areas could be identified.

Table: Characteristics of Motorcycle Crashes in Kansas (2000-06)

Year	All Motorcycle Crashes		Fatal Motorcycle Crashes	
	Number	% of all crashes	Number	% of all fatal crashes
2000	700	0.5	21	3.2
2001	762	0.6	27	4.2
2002	819	0.6	29	4.2
2003	857	0.7	32	5.3
2004	988	0.8	31	7.9
2005	1041	0.9	33	8.6
2006	1103	1.0	58	12.4

(Source: Kansas Traffic Accident Facts)

One area that gets immediate attention in terms of motorcycle safety is the use of helmets. Motorcycle helmet laws in the United States vary significantly among the states. In one end of the spectrum, four states have no helmet law at all. And then, there are 19 states with mandatory motorcycle helmet law and twenty-four other states that have a partial helmet law based on an age requirement. Three more states have a partial law based on an age requirement and insurance requirement. In Kansas, the law requires only those motorcycle drivers and riders under 18 to wear a helmet that complies with the minimum federal safety standards. All drivers and passengers, however, must wear protective glasses, goggles, or transparent face shields that are shatter proof and impact resistant, except when the motorcycle is equipped with a windscreen that has a minimum height of 10 inches measured from the center of the handlebars. Use of helmets appears to have a direct impact on the outcome of the crash. In 2006, only 31.5% of Kansas riders

involved in crashes were wearing helmets, but only 28% motorcycle riders that were fatally injured were wearing helmets. Opponents of mandatory state motorcycle helmet laws, however, have suggested that although effective in reducing injuries, helmets may increase a rider's risk of crashing by interfering with the ability to see and hear surrounding traffic.

Accordingly this study proposes to investigate the characteristics of motorcycle crashes in Kansas with the intention of identifying critical areas and issues. Particularly, the relationship between motorcycle injury outcome and helmet usage in Kansas will be studied in addition to other critical matters.

III. RESEARCH OBJECTIVES

Main objectives of this study are to investigate the characteristics of motorcycle crashes in Kansas to identify critical characteristics and to evaluate the effect of helmet use on motorcycle crash injury outcome. At the same time, this project will identify other factors that contribute towards increased severity related to motorcycle crashes and concerns that motorcyclists have regarding wearing of helmets, thereby evaluating the overall motorcycle safety situation in Kansas.

Following are the major tasks that will be completed in accomplishing the above objectives.

1. Conduct a detailed literature review.
2. Gather all existing data related to motorcycle helmet usage in Kansas and other states.
3. Determine the effect of the type of law (no law, mandatory, conditional) towards number of crashes and crash rates related to motorcycles.
4. Gather all data related to motorcycle crashes in Kansas, analyze the data, identify the characteristics and relate the outcome of the crash with the status of helmet usage and other characteristics.
5. Conduct a survey among motorcycle riders to determine personal and other related factors associated with the decision making process related to the use of helmets.
6. Through the survey results and motorcycle crash data analysis evaluate the motorcycle safety situation in Kansas.
7. Document the study in a final report.

IV. ESTIMATE OF FUNDING AND RESEARCH PERIOD

Research Period: 24 months from the beginning of the project.

Funding: Total estimated project cost is \$ 100,000. Funding request from K-TRAN Program is \$ 40,000 and funding request from KSU-UTC is \$ 60,000.

V. URGENCY AND PAYOFF POTENTIAL

Since motorcycle fatalities and crashes are consistently increasing this issue has become real urgent, particularly since the state has improved in terms of total number of fatalities

and crashes. If Kansas is to achieve the goals of the Kansas Strategic Highway Safety Plan (SHSP), this is one area that needs to be addressed IMMEDIATELY.

VI. IMPLEMENTATION STRATEGY

Based on the findings of the project, areas that need more attention in terms of improving motorcycle safety could be identified and mitigation measures be taken.

VII. PROJECT PERSONNEL

The principal investigator of this project will be Dr. Sunanda Dissanayake (Assistant Professor in Civil Engineering) who has many years of experience in the areas of traffic engineering, highway safety, crash data analysis and access management related issues. One Graduate Research Assistant will work on this project whose master thesis will be based on this study.

VIII. SUBMISSION INFORMATION

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