INDOT Research

TECHNICAL *Summary*

Technology Transfer and Project Implementation Information

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Internet-Supported Evaluation of Highway Safety

Introduction

Various methods of identifying hazardous roadway locations have been proposed and used. Most of these methods use crash data as a means of measuring highway safety. However, crash data alone does not provide comprehensive safety information. Because of factors such as unreported crashes and time delay in collecting crash data, improving upon the current methods of identifying hazardous locations is desirable.

One possible source of additional safety information is motorist feedback. Currently, the state of Indiana collects motorist feedback about hazardous highway locations through telephone and written correspondence.

In the present study, a prototype Internet survey tool to collect motorists' concerns about highway locations in Tippecanoe County, Indiana is developed. This tool is presented as a means of upgrading the current system of collecting motorist feedback. The tool is designed such that the information provided by the motorist is gathered and presented in an effective manner. The study evaluates the survey tool itself, the quality of the safety information collected with the tool, and the effectiveness of hazard identification based on motorist feedback.

Findings

Evaluation of the Internet survey tool indicates that users of the survey were pleased with the format and structure of the Internet tool. Eighty to ninety percent of the users indicated satisfaction with the interface, user-friendliness, and readability of the survey tool. Users also indicated a desire for more questions and response options in order to better facilitate their responses. Security and stability of the tool was satisfactory during the pilot study.

Information gathered through an Internet-based survey provides valuable insight into the nature and scope of hazards at highway locations. Responses frequently provide a high amount of detail useful to highway agencies in identifying specific problems upon investigation of a location.

The locations indicated by users tend to be significantly more hazardous than locations not indicated by survey users. If one considers a location hazardous if it has 15 or more crashes during three years, then the respondents altogether identified 45 percent of such locations. The false detection rate was 6 percent. Looking at the detection performance from another perspective, 55 percent of locations reported by motorists were found hazardous. This rate improved to 86 percent for locations reported at least twice, and to 96 percent for locations reported at least three times.

It was also found that gender of respondent had no statistically significant effect on the results. Older motorists tended to perform better than younger motorists in terms of percent of reported locations that were hazardous but this trend could not be confirmed as statistically significant probably due to a small sample size. The collected data support a hypothesis that perception of hazard based on personal observations of traffic and intersection conditions is as adequate, if not better than, safety information obtained from individuals involved in a crash or from the public media.

Implementation

Examination of the results indicates that the public is highly receptive to the use of the Internet survey tool as a means of gathering their feedback about the safety of highway locations. The detailed descriptions of safety problems obtainable through the survey would be useful to highway agencies at any level in investigating safety conditions at highway locations. The Internet tool features database storage and remote access capabilities, making a single tool accessible to multiple agencies through access control. In addition, the results indicate that user feedback tend to identify hazardous locations, making the use of such feedback beneficial to highway agencies operating on limited resources for investigating and improving locations on the basis of safety.

It is concluded that no further pilot testing of the tool is needed. Changes to the survey tool should be made based on the recommendations contained within the report. In addition, the implementing agency is free to add any features that they may find useful to their particular needs.

This tool would be best implemented through the INDOT district level offices, with remote database access provided to local MPOs and county and city road departments in order to make the survey responses readily available to them. A mechanism may also be added to automatically route responses to the most appropriate agency for evaluation.

The prototype tool is recommended as an implementation example. It can be seen at Internet site ***saferoad.cc*** (for limited time).

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