Kansas Department of Transportation

TECHNICAL SUMMARY

Aging Road User Survey and Crash Analysis to Identify Issues and Applicable Improvement Strategies for Kansas Conditions

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Introduction

The percentage of the United States population aged 65 years or older is increasing rapidly. Statistics show this age group was 14.9 percent of the population in 2015 and is expected to be 20.7 to 21.4 percent for the years 2030–2050. Kansas has similar statewide trends with its aging population. Therefore, identifying issues, concerns, and factors associated with highway safety of older drivers in Kansas is necessary and useful. The Kansas Crash Analysis and Reporting System (KCARS) database maintained by the Kansas Department of Transportation was used in this study to identify older-driver crash characteristics, compare older drivers with all drivers, and develop crash severity models.

According to KCARS data, older drivers were involved in more than one in five fatalities in Kansas from 2010 to 2014. When compared with all drivers, older drivers were overly represented in fatal and incapacitating injuries. The percentage of older-driver fatal injuries was more than twice that of all drivers. Older drivers were involved more often in crashes at four-way intersections, on straight and level roads, in daylight hours, and at stop or yield signs.

Project Description

Due to the high severities of older-driver crashes, an in-depth crash severity analysis was carried out for the older drivers involved in crashes. Three separate binary logistic regression models were developed for single-vehicle crashes where only the older driver was present (Model A), single-vehicle crashes involving an older driver with at least one passenger (Model B), and multi-vehicle crashes involving at least one older driver (Model C). From the crash severity analysis, it was found that left turns were significant in changing the crash severity for Model A, though it was not significant in Model B. For Model B, none of the passenger attributes were significant, though it was originally developed to identify passenger attributes. Gender of the older driver was not significant in any of the models. For all models, variables such as safety equipment use, crash location, weather conditions, driver

ejected or trapped, and light conditions distinguished crash severity. Furthermore, for Model A, variables such as day of the week, speed, accident class, and maneuver, were associated with crash severity. Accident class, surface type, and vehicle type changed crash severity in Model B. Number of vehicles, speed, collision type, maneuver, and two-lane roads were significant in Model C.

A road-user survey was also conducted to identify habits, needs, and concerns of Kansas' aging road users, since it was not advisable to conclude safety factors solely on crash data. The probability of occurrence was calculated by taking the weighted average of answers to a question. Contingency table analysis was carried out to identify relationships among variables. For older drivers, seatbelt use as a driver had the highest probability of occurrence. Driving in heavy traffic, merging into traffic, moving away from traffic, and judging gaps were dependent on age group.

Project Results

Findings of this research gave understanding of older-driver crashes and associated factors. Since more than 85 percent of crash contributory causes were related to drivers, driver awareness programs, driver licensing restrictions, providing public transportation, and law enforcement can be considered as potential countermeasures. Accordingly, results of this study could be used to enhance older-driver safety and awareness programs.

Project Information

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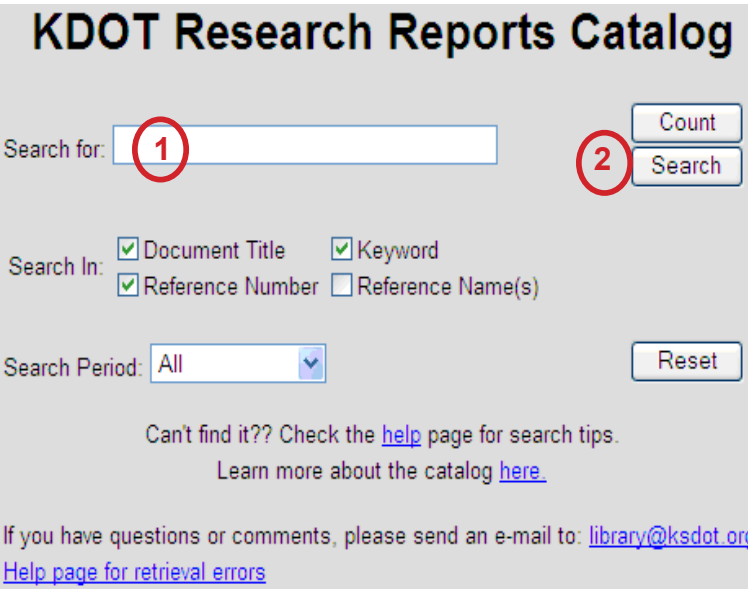

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