

RESEARCH PROBLEM STATEMENT

DATE: 09/07/2018	PROJECT AREA: Special Projects
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TITLE: Developing a Roadside Trivia Alert System to Combat Driver Fatigue and Decreased Alertness

PROBLEM STATEMENT:

Ensuring that Arkansas' road network is safe for drivers is one of Arkansas' Department of Transportation's top concerns, however, this can be difficult when driver-centered crash factors such as fatigue and decreased alertness appear to be out of the control of ARDOT and other state agencies; statistics also indicate that driving on rural roads and highways increase the chances of having a motor vehicle crashes and fatalities. Rural road miles constitute over 80% of the miles in Arkansas' Highway System. According to the United States Department of Transportation's Fatality Analysis Reporting System (FARS), in 2016 66% of motor vehicle crashes in Arkansas occurred on rural roadways. A solution may lie in an Australian study which found that trivia has the ability to increase driver alertness without distracting the driver. Several smart phone applications use trivia as a way to keep drivers alert and fight fatigue, but it requires cell phone usage while operating a vehicle. This research will develop and evaluate a Roadside Trivia Alert System that displays trivia on signs, in order to decrease crashes on rural roads and highways due to driver fatigue.

OBJECTIVES:

The purpose of this research is to develop and evaluate a roadside trivia system, using roadside signage in to combat driver fatigue and decreased alertness. This will be accomplished by: 1) Reviewing any previous literature on related studies, or studies that may be of value for this research studies' purpose; 2) Performing a detailed review of rural roads in Arkansas , this includes reviewing crash data and other literature; 3) Select test sites to install trivia signage 4) Develop and install a signage system for selected test sites, with the help of necessary ARDOT staff; 4) Observe the impact of trivia signage on the crash rates and fatality rates of the selected sites; 5) Compare before and after statistics for selected test sites

FORM OF RESEARCH IMPLEMENTATION AND RETURN ON INVESTMENT:

Research results will determine exact details of how and where the Roadside Trivia Alert System can be implemented. Implementation would include installation of signage on selected highways. The return on investment includes both economic and societal impacts, such as a reduction in crashes and severity (including crash costs), reduced delays/travel time, vehicle operational costs, decreased fuel use/costs, and a positive public image. According to FHWA's High Safety Benefit Analysis Guide, an estimated annual benefit for crashes is \$88,670 when certain countermeasures are taken to increase safety.

Estimated Project Duration: 24 Months

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Standing Subcommittee
Ranking

Advisory Council
Ranking

Statement Combined with
Statement Number(s)