

RESEARCH PROBLEM STATEMENT

DATE: 09/25/2020 **PROJECT AREA:** Special Projects

TITLE: Speed Limit Increases and their Impacts

PROBLEM STATEMENT:

On June 10, 2020, the Arkansas State Highway Commission approved 5 mph speed limit increases for rural (70 to 75 mph) and urban (60 to 65 mph) interstates. This raised concerns about increased crash severity and damage to highway infrastructure resulting from higher speeds. As evidence of possible impacts, in 1996 when Arkansas increased the speed limit from 65 to 70, the fatality rate increased by 9.4% during the 2 years following the increase. Traffic studies prior to the speed limit increase estimated the potential impacts to safety and mobility of the increased speed limits. Now, there is a need to measure the observed impacts of recent speed limit increases in terms of safety and potential damages to roadside hardware (guardrails, signage, cabinets). Roadside hardware in Arkansas was tested at lower speeds under AASHTO MASH standards. Thus, it is not well understood how hardware may perform or affect crash severity on roadways with higher speed limits. This research aims to quantify the safety and infrastructure impacts resulting from the recent increased speed limits and will enable ARDOT to make data-informed decisions about speed limit changes.

OBJECTIVES:

The objectives are to determine the impacts of increasing the speed limit on (1) crash frequency and severity, and driver operating speeds and (2) the performance of roadway and roadside elements, such as roadside hardware, and barrier systems. Proposed tasks include: a) review of existing research, b) collection and analysis of data for the period prior to and following the speed limit change including crash data, operating speeds, and maintenance records for roadside equipment, and c) a cost-benefit analysis of the impacts associated with increasing the speed limit. The team proposes to get data from third party vendors, e.g., Streetlight or INRIX, who gather cell-phone and GPS data anonymously.

FORM OF RESEARCH IMPLEMENTATION AND RETURN ON INVESTMENT:

The research will be implemented as a final report documenting all research efforts. This includes a retrospective benefit-cost analysis and documentation of mitigative solutions. The estimated cost of speed limit signage changes was \$350,000. This does not consider the cost of possible damage to roadside equipment and accidents. This study will produce data evidence of damage and crash costs for a full retrospective cost-benefit analysis of the speed limit increases. This will help ARDOT and the Highway Commission determine if future shifts to higher/lower speed limits are warranted by the driving behaviors of the traveling public.

Estimated Project Duration: 24 Months

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Standing Subcommittee
Ranking

4/9

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23

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