



RESEARCH PROJECT CAPSULE [20-1SA]

September 2020

TECHNOLOGY TRANSFER PROGRAM

Evaluation of Traffic Crash Characteristics on Elevated Sections of Interstates in Louisiana

JUST THE FACTS:

Start Date:

August 3, 2020

Duration:

24 months

End Date:

August 2, 2022

Funding:

TT-Fed/TT-Reg

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Sponsored jointly by the Louisiana
Department of Transportation and
Development and Louisiana State
University

POINTS OF INTEREST:

Problem Addressed / Objective of
Research / Methodology Used /
Implementation Potential

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PROBLEM

According to the National Highway Traffic Safety Administration (NHTSA) Fatality Analysis Reporting System (FARS), an average of 31,779 fatal crashes occurred every year in the United States in the last 10 years. Among this number, an average of 3,892 fatal crashes can be attributed to interstates. Data from FARS show that between 2014-2018, Louisiana experienced a yearly average of 697 fatalities on its roadways with an average of 100 fatalities on its interstates. This study will not only review the crash characteristics of all vehicle types along the Atchafalaya Basin Bridge only, but will also review similar sections at other elevated sections in Louisiana in order to better understand the magnitude of the problem and make the necessary recommendations to reduce interstate crashes.

OBJECTIVE

The primary objective of this project is two-fold: first, to fully develop a video analytical software to classify and count vehicle stream and have the capability of calculating vehicle speeds and/or headways; and secondly, to undertake crash analysis on selected elevated segments to look for characteristics of crashes, common issues, and similarities/differences in car and truck crashes.

METHODOLOGY

To achieve the objectives of the study, the following tasks will be completed. A literature review will be conducted along with a summary on crash characteristics and their contributing factors on interstates in the United States, with a focus on elevated segments. Secondly, the research team will select sample elevated sections, comprising of interstates and roadways throughout Louisiana for evaluation. A video analytical tool will be used to capture live or archived video feeds of traffic cameras and output directional volume counts. The research team will also undertake a comprehensive study for each crash that occurred on the list of selected segments for the most recent and available five years' data. Traffic flow information will be retrieved from video data on the selected elevated segments. The team will also conduct a targeted analysis of the Atchafalaya Basin Bridge to determine if the current lane and speed restrictions have been successful in reducing the crash frequencies and severity along this segment. A combined analysis of all sites will then be conducted using the data obtained from the crash analysis and the video data obtained from selected elevated segments. Last, a final report and technical summary will be prepared.

IMPLEMENTATION POTENTIAL

Part of this task involves developing an analytical software that will utilize publicly available traffic video data and convert to classified traffic counts. Such a tool could be used statewide in research work to estimate traffic volumes. The study on elevated sections will also have a component on speed compliance along with truck lane restrictions on the Atchafalaya Basin Bridge. Knowing where and when the most serious violations occur would help law enforcement allocate resources to these hot spots. Data about the magnitude and effects of crashes would inform policy makers so they could make better decisions about how to reduce this problem. Results of this project may assist in providing guidelines for when DOTD may implement lane/speed restrictions, where applicable, on elevated segments on its interstates.