

Arkansas Department of Transportation**Transportation Research Committee****RESEARCH PROBLEM STATEMENT****DATE:** 09/06/2017**PROJECT AREA:** Planning**TITLE:** GIS-Based Analysis of Transportation Safety in Arkansas**PROBLEM STATEMENT:**

Recent legislations strongly emphasize achieving higher levels of transportation safety. Geographic Information Systems (GIS) are capable of storing, maintaining, analyzing, and modeling, as well as visualizing large dynamic datasets of spatial data and tabular information, such as roadway inventory locations and crash records. GIS can help AHTD to accurately capture and analyze traffic accident information as well as identify dangerous roadway segments with high accident rates. Combined with regression analysis, GIS can address behind "where accidents are occurring" and can help safety engineers better understand the causes of accidents at the determined segments; and subsequently find optimal solutions to reduce accident rates. This comprehensive GIS investigation can help inform decisions regarding safety improvement priorities and crash mitigation measures. Ultimately, it will lead to improved road network performance and will definitely save lives and valuable infrastructures.

OBJECTIVES:

The key objective of this study is to investigate transportation safety in Arkansas via a comprehensive GIS and statistical analyses. The specific objectives include: (1) build and standardize a geodatabase for crash records and road inventory for the entire State of Arkansas, (2) conduct a geospatial analysis and determine road segments with high crash rates, (3) apply regression analysis to address "why" specific road segments are not safe, and (4) identify deficiencies and determine optimal solutions.

FORM OF RESEARCH IMPLEMENTATION:

This project will support AHTD with a unique Information Technology (IT) framework for transportation safety, management, and planning. It will provide AHTD professionals and safety engineers with knowledge, techniques, and methodologies to evaluate and identify safety improvement needs, and thus make informed decisions for a better state-wide transportation system.

Estimated Project Duration: 24 months**PREPARED BY:** Dr. Mohamed Aly, Assistant Professor**AGENCY:** University of Arkansas, Department of Geosciences**PHONE:** (479) 575-3185**REVIEWER:** Tymli FriersonStanding Subcommittee
Ranking4 / 5Advisory Council
Ranking43 / 44Statement Combined with
Statement Number(s)