

Evaluating the Relationship between the Driver and Roadway to Address Rural Intersection Safety using the SHRP2 NDS Data

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Rural intersections account for 30% of crashes in rural areas and 6% of all fatal crashes, representing a significant but poorly understood safety problem. Transportation agencies have traditionally implemented countermeasures to address rural intersection crashes but frequently do not understand the dynamic interaction between the driver and roadway and the driver factors leading to these types of crashes.

The Second Strategic Highway Research Program (SHRP 2) conducted a large-scale naturalistic driving study (NDS) using instrumented vehicles. The study has provided a significant amount of on-road driving data for a range of drivers. This study utilizes the SHRP 2 NDS data as well as SHRP 2 Roadway Information Database (RID) data to observe driver behavior at rural intersections first hand using video, vehicle kinematics, and roadway data to determine how roadway, driver, environmental, and vehicle factors interact to affect driver safety at rural intersections.

The objective of this study was to better understand how drivers react at rural intersections by identifying intersection or roadway characteristics that are correlated to more risky behaviors so that transportation agencies can better target their resources to address those issues and select appropriate countermeasures. This study analyzed driver stopping and reaction behavior to evaluate what factors have an influence as drivers approach the intersection.

Keywords: Driver behavior; intersection safety; naturalistic driving; stopping behavior; SHRP2;
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