

**Project Number**

BDV25-977-11

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A Pilot Study for Preventing Incorrect Turns at Highway-Rail Grade Crossings

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Current Situation

Occasionally, drivers can mistake an at-grade rail crossing for a street and turn onto the tracks. Drivers make these turns for a number of reasons. Sometimes a right-turn arrow that applies to a roadway beyond the rail crossing can cause confusion, or GPS instructions may appear to instruct a turn.

Research Objectives

University of South Florida researchers proposed low-cost countermeasures to reduce driver confusion and the potential for improper turns at at-grade rail crossings. This study included detailed plans for pilot testing of the countermeasures.

Project Activities

In a previous project (FDOT Project BDK85-977-45), the research team identified five major contributing causes for improper turns at at-grade rail crossings: (1) potentially misleading signs and pavement markings near highway-rail crossings, (2) darkness and low visibility near or at highway-rail crossings, (3) following inaccurate turn instructions from a GPS device onto railroad tracks, (4) skewed highway-rail grade crossings, and (5) driver distraction. Combinations of these conditions further increase the chances of an improper turn. In this project, the team developed countermeasures to address these causes.

The countermeasures were based on guidance drawn from the latest standards on traffic control devices and marking, leading to four countermeasures: (1) eliminating potentially misleading arrow pavement markings and turning information signs, (2) painting pavement markings (straight arrows) with guidance information before at-grade crossings, (3) extending edge line markings at highway-rail grade crossings, and (4) installing Qwick Kurb, an elevated lane marker with delineators that provides additional guidance, to prevent drivers from turning around at railway crossings.

In preparation for a pilot implementation of these countermeasures, the research team met with representatives of the Florida Department of Transportation's (FDOT) Central Office, and its Districts 1, 4, and 7, headquartered in Bartow, Ft. Lauderdale, and Tampa, respectively. The resulting plan included identification of study sites of railway crossings with potential incorrect turn issues, proposed countermeasures, estimated costs, a data collection plan, and a data analysis methodology. Based on their potential risks and historical railway incidents in the three FDOT districts, ten sites were identified and recommended for deployment of countermeasures.

Project Benefits

Proper countermeasures at at-grade rail crossing can reduce driver confusions and prevent improper turns.

For more information, please see www.fdot.gov/research/.



Some drivers approaching this intersection have responded to the turn lane markings with an improper turn onto the railroad tracks.