



Transportation Consortium of South Central States

Key Points

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\$49,635

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Tran-SET
Louisiana State University
Louisiana Transportation Research
Center (LTRC)

Total Project Cost:

\$99,275

Research Incentive Programs for Closures of Public and Private Grade Crossings

Brief Project Description

In the United States, highway-rail incidents at public and private crossings are a major concern because of the loss of lives and injuries that result from such incidents, as well as the massive financial burden it places on state agencies and railroad administrators due to delays in services and damage to trains, tracks, and other equipment. As such, this study investigates incentive programs, existing and new, that can be used to encourage closure of public and/or private crossings that hamper railroad operations, safety, and efficiency.

Problem Statement

In the United States, there are more than 212,000 at-grade highway-rail crossings with about 5,054 in the state of Louisiana. In Louisiana, from 2012 to 2014, there have been 71 highway-rail crossing incidents out of which 16 have been fatal. This appalling trend does not seem to get any better, as preliminary figures for 2016 revealed 84 incidents that included 10 fatalities and 50 injuries. Besides the loss of life and injuries that result from such incidents, there is also a massive financial burden on railroad administrators due to delays in services and damage to trains, tracks, and other equipment.

While it may be very difficult, and in some cases impossible, to close at-grade public highway – rail crossings, there may be an opportunity to reduce the number of at-grade crossings by targeting private roads and/or driveway crossings that present a safety hazard. Out of the 5,054 at-grade crossings in Louisiana, the number of private road/driveway crossings is unknown but may likely exceed the number of public crossings. Where these crossings are equipped with signalization and barriers, the safety hazard is reduced but it is believed that most of these private road/driveway crossings lack signalization. Federal laws do not impose specific requirements for signalization of either public or private at-grade crossings. It, however, recommends the conduct of engineering study on a case-by-case basis to determine the need for signalization. Even then, this recommendation only applies to publicly-owned crossings and affects privately-owned crossings only when they are open to the public without access restrictions. Similarly, state laws primarily address crossings at public highways, and it identifies circumstances under which the Louisiana Department of Transportation and



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Development (DOTD) can order a railroad company to provide signalization or other devices at such public crossings.

In addition to presenting safety concerns, there is a liability issue for both the state, railroad companies, and private owners depending on whether an accident occurs at a roadway crossing that is open to public or private use. Liability can also be affected by the statutory obligations of the parties involved in an accident regardless of whether the crossing is private or public. These issues can be costly and tend to hamper railroad operations and efficiency. Hence, there is a need to identify ways to address this problem and improve safety, one of which is to close redundant public and private grade crossings.

Objective

The purpose of this research project is to synthesize current literature to identify incentive programs already being used and potential new programs that offer promise in reducing the number of crossings in Louisiana and Region 6, thereby addressing part of the 2015 Louisiana Statewide Transportation Plan.

Intended Implementation of Research

Technology Transfer

Results of this study could provide agencies (DOTs, local governments, railroad companies, etc.) with a tool to reduce the number of public and private grade crossings. This will enhance the efficiency of railroad operations and potentially increase the safety of both the traveling public and the owners of the private crossings.

Education, Workforce Development, and Outreach

Students (both graduates and undergraduates) will be recruited for this project and offered stipends. This will introduce the students to transportation issues and may help attract them into the profession. Efforts will be made to recruit students from underrepresented groups to assist in planned research tasks. The research team will also target high school students as part of its outreach commitments to introduce STEM activities to future transportation leaders. This will be achieved by preparing short presentation material to be included in LSU's high school engineering residential camps each summer. Currently, LSU runs the Recruiting into Engineering High Achieving Multicultural Students (REHAMS) and eXploration Camp Inspiring Tomorrow's Engineers (XCITE). The former camp attracts around forty 10th – 12th graders and the latter around thirty 9th – 11th graders from a variety of race/ethnic backgrounds. This task will be undertaken throughout the life of the project.

The research team will provide the study results to all partner universities who can use the information to supplement teaching materials in transportation courses dealing with the safety and operation issues associated with railroad crossings. This research project will also create awareness of the various incentive programs nationwide and possible new incentive programs aimed at reducing the number of public and private grade crossings. The knowledge obtained may be shared with students undertaking courses in transportation planning at LSU, and other universities in the Tran-SET university consortium. The research team will disseminate the results of this study through conferences, meetings, workshops, and webinars to educate and train professionals in the transportation industry. Some possible avenues include the Annual Louisiana Transportation Conference, Annual Meeting of Transportation Research Board, and the Annual Gulf Region Intelligent Transportation Society Conference.



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Anticipated Impacts/Benefits of Implementation

This study will identify effective incentive programs that can be readily deployed to reduce safety hazards at grade crossings. It will also increase the efficiency of rail operations in areas where private road/driveway crossings otherwise hamper railroad operations and efficiency.

Weblinks:

- [Tran-SET's website \(http://transet.lsu.edu/completed-research/\)](http://transet.lsu.edu/completed-research/)
- [TRB's Research in Progress \(RIP\) database \(https://rip.trb.org/view/1467112\)](https://rip.trb.org/view/1467112)