

Development of Revised Hazard Index Model for Highway-Rail Grade Crossings

Key Points:

Project Number:

362-16-803

Start Date:

May 1, 2016

Duration:

8 months

Project Cost:

\$98,000

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PROBLEM

There have been several major crashes between motor vehicles and trains at highway-rail crossings that have increased public scrutiny of these safety issues. At-grade highway rail crossings represent points of conflict between rail and highway traffic that require the use of safety devices to control the flow of traffic when trains are crossing the area. The relative risks for collisions at each crossing must be understood in order for the installed safety device to be appropriate, cost-effective, and maintainable. NDOT has been using a combination of two risk models to assess the need for appropriate safety devices at the state's grade crossings, one from the Federal Railroad Administration Accident Prediction model and one from the New Hampshire Hazard Index model. The current formulas give significant weight to traffic and train volumes that are often higher in urban areas. Important factors also include size, speed, and type of trains and presence of larger trucks and farming and mining equipment. The limitations of the current formulas resulted in the develop a revised hazard index model that more accurately prioritizes grade crossing improvements based on the goals of the department.

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OBJECTIVE

The objectives of the research are to develop an improved replacement for the current hazard index model, increase buy-in and support from legislators and the public, and materially reduce the potential and actual occurrence of crossing incidents.

METHODOLOGY

The SRF Project Team has proposed an outline of five tasks that will assist in modifying and improving the hazard index and crossing evaluation process. Task one includes the preparatory research and resources reviews. Task two includes coordinating and convening with an expert panel. Task three is to evaluate suitability of various hazard indices. Task four will include applying preferred hazard index to full inventory of crossings. Task five will be the preparation and presentation of the final report.

IMPLEMENTATION POTENTIAL

The implementation of the new accident model will result in overall safety at grade crossings with fewer vehicles and pedestrian fatalities at these conflict points. A reduction of crashes will also reduce the severity of material damage.