

OHIO DEPARTMENT OF TRANSPORTATION OFFICE OF TRAFFIC ENGINEERING RESEARCH IMPLEMENTATION PLAN



Title: Evaluation of the Buckeye Crossbuck at Public, Passive Railroad/Highway Grade Crossings in Ohio

State Job Number: 14612

PID Number:

Research Agency: Ohio University

Researcher(s): Helmut Zwahlen

Technical Liaison(s): Dave Holstein

Research Manager: Monique Evans

Sponsor(s): Tony Vogel

Written by: Omar Abu-Hajar

Study Start Date: 3/20/1995

Study Completion Date: 3/20/2000

Study Duration: 60 Months

Study Cost: \$421,145.00

Study Funding Type: 100% Federal from FHWA

STATEMENT OF NEED:

The state has been able to close more than 150 public grade crossings to motor vehicles since 1990 until 2000. During that 10-year period, Ohio has completed in excess of 1400 light and gate projects at a cost exceeding \$140 million. With all of the efforts, more than 3500 public grade crossings still exist in Ohio, at the time of this research started, that are protected with crossbucks only. Two new crossbuck designs were developed by Conrail in cooperation with ODOT, to replace the current standard crossbuck and for subsequent evaluation in a large scale state-wide field study. One of the crossbuck designs is known as the Buckeye crossbuck, named after the Conrail Buckeye railroad yard, and the other design is referred to as the Standard Improved crossbuck.

RESEARCH OBJECTIVES:

The main objective of this research was to evaluate two new crossbuck designs for use at passive railroad/highway grade crossings (RRX). The Standard Improved Crossbuck design and the Buckeye Crossbuck design evaluation was a state-wide basis in Ohio with respect to their potential to alter driver risk taking behavior, their crash reduction potential, their user acceptance, and with respect to their photometric performance at night

RESEARCH TASKS:

- Investigated, unobtrusively, the driver risk taking behavior at public passive Railroad/Highway Grade Crossings, where a train was approaching as a function of crossbuck design.
- Perform a state-wide ten-year crash analysis at public passive Railroad/Highway Grade Crossings for the Current Standard Crossbuck, the new Standard Improved crossbuck, and the new Buckeye crossbuck.
- Perform a user-acceptance survey.
- Perform a nighttime photometric evaluation.

RESEARCH DELIVERABLES:

The final reports which includes a description of all research activities, findings, conclusions, and recommendations.

RESEARCH RECOMMENDATIONS:

Amend the national standard for crossbucks at public passive Railroad/Highway Grade Crossings in the MUTCD and to include the Buckeye crossbuck as an alternate design.

PROJECT PANEL COMMENTS:

Even though project recommendation will not be implemented, it is clearly evident that the standard crossbuck could be revised to improve safety at passive highway/railroad crossings.

IMPLEMENTATION STEPS & TIME FRAME:

A recommendation to amend the MUTCD to include the Buckeye Crossbuck as an alternate design was submitted to FHWA. However, FHWA is considering other changes to the signing at highway-rail grade crossing signing and it was decided that the Buckeye Crossbuck would not be included in the MUTCD. See Attachment A showing Section 800 of ODOT Traffic Engineering Manual.

EXPECTED BENEFITS:

N/A

EXPECTED RISKS, OBSTACLES, & STRATEGIES TO OVERCOME THEM:

N/A

OTHER ODOT OFFICES AFFECTED BY THE CHANGE:

N/A

PROGRESS REPORTING & TIME FRAME:

N/A

TECHNOLOGY TRANSFER METHODS TO BE USED:

- The final report of the research has been distributed to 49 state transportation departments, different FHWA offices, selected national libraries, and others.
- The final report of this research will be available online at the ODOT website.

IMPLEMENTATION COST & SOURCE OF FUNDING:

N/A

Approved By: (attached additional sheets if necessary)

Office Administrator(s):

Signature: Dave Holstein Office: OTE Date: 12/21/2006

Division Deputy Director(s):

Signature: Tony Vogel Division: DHO Date: 12/22/2006

Attachement A

800 HIGHWAY-RAIL GRADE CROSSINGS Traffic Eng. Manual

880 RESEARCH

880-1 General

This Chapter is reserved for information about pertinent research regarding traffic control at highway-rail grade crossing.

880-2 Buckeye Crossbuck

The final report on this experiment, evaluating the Buckeye Crossbuck at public, passive highway-rail grade crossings, was issued in December 2000. For copies of the report contact the **Office of Research Development**.

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