NTRO Rail Case Study

LEVEL CROSSING SAFETY – FREIGHT TRAIN VISIBILITY REVIEW

INTRODUCTION

Daytime collisions contribute between 75% and 94% of level crossing collisions, according to the 2009 update to the Train Illumination Report.

Since an Australian Standard (AS7531) for lighting and visibility was introduced, there is a clear downward trend in night-time collisions. However, daylight collision levels have seen negligible change.

Previous research conducted by the Australasian Centre for Rail Innovation (ACRI) has identified that level crossing safety may be improved if steps are made to make freight vehicles more conspicuous or more noticeable to road users and pedestrians.

This project aims to identify potential opportunities that may improve freight vehicle conspicuity and driver awareness when interacting with passive level crossings.

PROJECT OVERVIEW

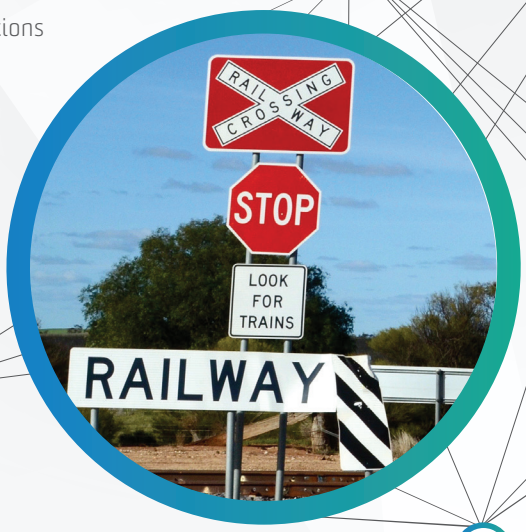
SNC-Lavalin has worked with the Australian Centre for Rail Innovation (ACRI), the Office of the National Rail Safety Regulator, Freight on Rail Group, Australian Railway Association, Rail Industry Safety and Standards Board and the TrackSAFE Foundation to identify opportunities to improve freight vehicle conspicuity and increase driver awareness when interacting with passive level crossings.

Level crossing safety is contributed to by various factors including rail vehicle conspicuity, road and rail alignment, infrastructure controls, surrounding environmental conditions, weather and other factors which can impair visibility, and road user behaviour.

Upgrades to level crossings and removal of them altogether in some locations is ongoing. Currently the number of passive level crossings in Australia greatly outweighs the number of operating freight locomotives. Therefore, should there be opportunity to improve level crossing safety through enhancements to rolling stock technology, changes in design or educational initiatives and campaigns, safety benefits may be achievable ahead of level crossing upgrades and improvements.

This project focuses on the potential opportunities that may improve rail freight vehicle conspicuity and road user awareness, associated with upgrades to train systems, introducing new technology, or adapting current educational programs. Objectives were:

- Establish a baseline understanding of train conspicuity solutions in Australia
- Conduct a literature review
- Understand international best practice and new and emerging technological solutions
- Prepare and conduct stakeholder workshops and review data
- Provide recommendations for immediate, medium and long-term opportunities



NTRO NATIONAL TRANSPORT RESEARCH ORGANISATION

METHODOLOGY

Literature reviews were conducted and project stakeholders were engaged to determine current requirements governing freight train conspicuity, and the research that drove adoption of various design best practices and technologies.

Stakeholder workshops were held, and data analysis conducted. Information received regarding level crossing locations, protection levels, collisions and near-misses was used to determine trends in accident levels and the perceived efficacy of current controls.

Potential solutions were identified, and researched. These were then categorised into immediate, medium-term and long-term opportunities.

METHODOLOGY

Literature reviews were conducted and project stakeholders were engaged to determine current requirements governing freight train conspicuity, and the research that drove adoption of various design best practices and technologies.

Stakeholder workshops were held, and data analysis conducted. Information received regarding level crossing locations, protection levels, collisions and near-misses was used to determine trends in accident levels and the perceived efficacy of current controls.

Potential solutions were identified, and researched. These were then categorised into immediate, medium-term and long-term opportunities.

PROJECT PARTNERS

SNC·LAVALIN

ACRI Australasian Centre for Rail Innovation

onrsr

FREIGHT ON RAIL GROUP

AUSTRALASIAN RAILWAY ASSOCIATION

RISSB RAIL INDUSTRY SAFETY AND STANDARDS BOARD

TrackSAFE Foundation

THE FUTURE OF MOVEMENT

NTRO NATIONAL TRANSPORT RESEARCH ORGANISATION

INFO@NTRO.ORG.AU
+61 456 560 585
73 NORTHBOURNE AVENUE
CANBERRA
2601 ACT, AUSTRALIA
NTRO.ORG.AU

CONTACT