A Community Education and Intervention Program for Level Crossing Risk Management in Australia

Angela Wallace and Jeremy Davey

Centre for Accident Research and Road Safety – Queensland,

Queensland University of Technology, Beams Road, Carseldine QLD 4034, Australia

Abstract

This project aims to design, implement and evaluate a community road safety program using an intervention and control community methodology. It is a 3-year national project funded by the Cooperative Research Centre for Railway Engineering and Technologies in Australia. With level crossing accidents constituting a significant proportion of death and injury associated with rail operations the need to conduct research in level crossing safety is warranted. To date, there has been little research conducted in Australia that evaluates community road safety programs targeting level crossing safety as well as identifying impediments towards the development of safe level crossing behaviour.

Introduction

There are approximately 9400 public level crossings in Australia of which approximately 2650 (30%) have 'active' protection, 6060 (64%) have 'passive' protection and the remainder have other control or protection.

Table 1: Level crossing accident fatalities, Australia: Year of death by State / Territory of registration of death, 1997-2002.

	NSW	Vic	Qld	SA	WA	Tas	NT	ACT	Australia
1997	19	15	5	1	4	0	0	0	**44**
1998	22	11	5	0	0	0	0	0	**38**
1999	5	9	1	0	4	0	0	0	**19**
2000	10	11	4	3	8	0	0	1	**37**
2001	20	13	6	1	2	0	0	0	**42**
2002	14	11	6	4	3	0	2	1	**41**

A study by the Australian Transport Safety Bureau (2003) indicated that 67% of fatalities occurred in a rural area or urban centre away from a capital city and 87% occurred in daylight (excluding dawn and dusk). Ten percent (10%) of fatalities occurred at crossings with boom gates, 41% of fatalities occurred where the warning system in place was some other type of 'active' warning system (other than boom gates) and 4% of fatalities occurred where the warning system was passive i.e. feature a static array of signs that remain constant.

Background on Level Crossing Safety Programs

Although engineering approaches have traditionally dominated risk management strategies in railway safety, research suggests that such technologies are reaching their point of diminishing returns. Due to the lack of financial viability of continuing to approach risk management from an engineering perspective, the merits of human factor research need to be examined for suitability.

Drivers engage in numerous behaviours at level crossings that may increase their risk of being involved in a crash.

As with many crashes, the contributing causes and factors are often difficult to determine, however a recent investigation of fatal crashes at railway level crossings supports the notion that human fault is a major contributor. Additionally, most crashes occur where the driver has a local knowledge and understanding of the crossing. It is essential to understand driver perceptions and actions to inform risk management strategies.

Community Road Safety (CRS) programs may be valuable in the development of level crossing safety programs. CRS programs can deal effectively with issues missed by mainstream programs and have the potential to reach individuals and groups which are not reached by conventional media.

To date, there has been no research conducted in Australia that evaluates community road safety programs targeting motor vehicle driver behavior at either passive or active level crossings.

Overview of Research Program

Matched communities will be selected as intervention or control regions (taking into account the number/type of level crossings and demographic characteristics). These regions will be selected in accordance with the characteristics and issues of level crossings throughout Australia so that strategies and initiatives can also be potentially rolled out in all jurisdictions.

Educational strategies and resources will be developed and implemented in the target regions as part of a community road safety program. Psychology, sociology and public health perspectives will inform the development of education strategies and resources for drivers which will take into account the target group and implemented in the intervention regions.

Pre-test surveys and data collection of knowledge, attitudes, beliefs and behaviours will be collected in both intervention and control communities. The educational strategies, interventions and resources will be evaluated for effectiveness using post-test surveys and other data collection methods.

Date	Milestones
Oct 03- July 04	Background scan and review. Review of established and ongoing research in Australia and overseas.
July 04	Identification of intervention and control regions. Identification of target behaviour, attitudes and knowledge
Feb 05	Base line (pre-test) data collection for intervention and control regions.
Ongoing Thru 05	Development of intervention strategies and materials.
Ongoing Thru 05	Implementation of intervention and education strategies.
Jan-March 06	Evaluation (post-test) data collection intervention and control regions.
Ongoing 05 thru 06	Statistical analysis.
Dec 06	Final development of intervention and education model.

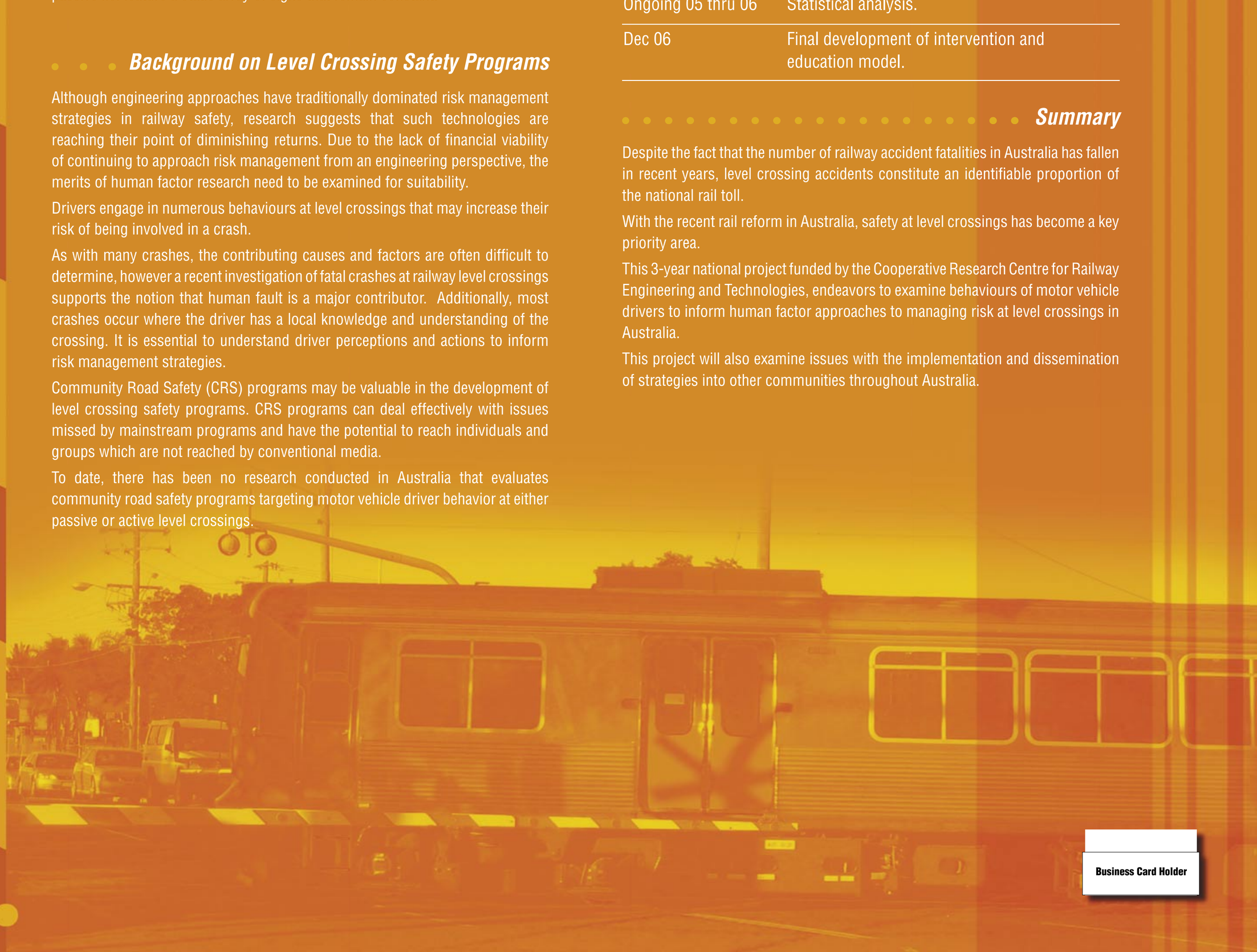
Summary

Despite the fact that the number of railway accident fatalities in Australia has fallen in recent years, level crossing accidents constitute an identifiable proportion of the national rail toll.

With the recent rail reform in Australia, safety at level crossings has become a key priority area.

This 3-year national project funded by the Cooperative Research Centre for Railway Engineering and Technologies, endeavors to examine behaviours of motor vehicle drivers to inform human factor approaches to managing risk at level crossings in Australia.

This project will also examine issues with the implementation and dissemination of strategies into other communities throughout Australia.



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