

---

The Parliament of the Commonwealth of Australia

# Level Crossing Safety

**An Update to the 2004 Train Illumination Report**

House of Representatives  
Standing Committee on Infrastructure, Transport, Regional Development &  
Local Government

June 2009  
Canberra

---

© Commonwealth of Australia 2009

ISBN 978-0-642-79188-7 (Printed version)

ISBN 978-0-642-79189-4 (HTML version)

Cover photograph courtesy of Jupiterimages Unlimited.



# Contents

- Foreword ..... v
- Membership of the Committee .....vii
- List of abbreviations .....ix
- List of recommendations .....xi
  
- 1 Background to the report ..... 1**
  - The 2004 Train Illumination Report* ..... 1
  - Government response to the 2004 report ..... 2
  - Train illumination in context..... 3
  
- 2 Collisions at level crossings.....5**
  - Causes of collisions ..... 7
  - Motor vehicle driver behaviour ..... 7
  - Other factors causing level crossing collisions ..... 10
  
- 3 Measures to reduce collisions at level crossings..... 13**
  - Improving train visibility..... 13
  - Australian Standard 7531 – conspicuity standard ..... 13
  - Other measures to improve safety at level crossings ..... 17
  - The 3 E’s – Education, Enforcement and Engineering ..... 17
  - Education ..... 17
  - Enforcement..... 19

Engineering.....	21
Rumble strips .....	22
Advanced warning systems .....	24
Intelligent transport systems .....	25
In-vehicle warning systems .....	27
<b>4 Improving national level crossing safety data and policy .....</b>	<b>31</b>
Lack of coordinated data and policy .....	31
Data .....	31
Policy .....	32
The National Transport Policy .....	33
The National Railway Level Crossing Safety Strategy.....	34
National Model Rail Safety Bill 2006.....	36
Committee conclusion.....	38
<b>Appendix A – Train Illumination Recommendations .....</b>	<b>39</b>
<b>Appendix B – Government Response to Train Illumination Report.....</b>	<b>41</b>
<b>Appendix C – List of Submissions .....</b>	<b>49</b>
<b>Appendix D – List of Exhibits.....</b>	<b>51</b>
<b>Appendix E – List of Witnesses .....</b>	<b>53</b>



## Foreword

Every year accidents at level crossings all over Australia lead to loss of life and millions of dollars of damage. The causes of these accidents are complex, and the proposed safety solutions varied, but the need to reduce their occurrence is clear.

The Committee's interest in level crossing safety is long running. In 2004, the Committee released a report entitled '*Train Illumination: Inquiry into some measures proposed to improve train visibility and reduce level crossing accidents*', which examined the connection between the illumination of trains, and collisions at level crossings.

Since tabling that report five years ago, there have been some major improvements in train illumination, but sadly the number of incidents at level crossings – often resulting in catastrophic consequences – remains high. Accidents such as the tragedy in Kerang in June 2007, in which eleven people were killed and 20 injured when a semi-trailer collided with a passenger train, reveal the frightening reality of level crossings safety.

In November 2008, the Committee resolved to update its 2004 report to re-examine level crossing safety; the measures that have been taken in the intervening years to improve it; as well as some potential new safety solutions that we could look to in the future.

The Committee heard that the causes of level crossing crashes are varied. While there is no single cause for all level crossing crashes, the most significant factor leading to level crossing collisions is the behaviour of motor vehicle drivers. It seems that, for a range of reasons, from familiarity to recklessness, and despite the risks, motorists continue to disobey road rules at level crossings. This report, therefore, is of a wider scope from that of the 2004 report and the Committee makes a number of recommendations focussing on the broader issue of level crossing safety.

At the same time, the Committee notes that the illumination of trains has been greatly improved by the 2007 introduction of Australian Standard 7531 which sets out both required and recommended conspicuity standards for locomotives and

rolling stock. The Committee recommends in this report that as a requirement of the Standard, better maintenance of the reflective strips applied to trains be mandated, and that the Standard be more strictly enforced.

In examining how best safety at level crossings should be improved, the Committee endorses the three tiered 'Education, Enforcement and Engineering' approach, and notes that improvements in all these areas are required in order to achieve safer level crossings. The Committee acknowledges the work that is being done by the States and Territories to educate motorists of the dangers at level crossings, but encourages further emphasis still, since it is apparent that the message is not always getting through.

The Committee also notes that certain States have moved to toughen penalties for infringements by motor vehicle drivers at level crossings, and the Committee has recommended that consistent penalties be set across all jurisdictions, and that speed limits at level crossings on major highways that currently have a speed limit of 100kph or more, be reduced to 80kph.


In terms of engineering, the Committee recommends further trials of passive rumble strips at a selection of level crossings around Australia, and a program to begin trialling active rumble strips at some of the most dangerous crossings.

Finally, the Committee examined technological solutions to level crossing safety. It reiterates its support of Intelligent Transport Systems, as stated in the 2004 report, and recommends that the Government support ongoing research into this important technology to speed its implementation. It also recommends that the Government, through the Australian Transport Council, encourage further research into the feasibility of a radio cut-in warning system which would warn motor vehicle drivers, as they approach a level crossing, of the presence of an on-coming train.

In the course of this update, the Committee became increasingly aware that there exists a distinct lack of aggregate data which details the causes of these – often horrific – crashes across Australia. With this in mind, the Committee recommends the establishment of a national database which collates data from all level crossing crashes and fatalities, nationwide. It also recommends the updating of the National Level Crossing Safety Strategy, to provide better national policy guidance with regards to level crossing safety.

The Committee believes that the introduction of the measures recommended will go some way to improving safety at level crossings, and reduce the unacceptable toll to human life and property which all too often occurs at these dangerous sites.

**Ms Catherine King MP**  
Chair



## Membership of the Committee

Chair Ms Catherine King MP

Deputy Chair Mr Paul Neville MP

Members Ms Jodie Campbell MP

Mr Jason Clare MP (until 15/06/09)

Mr Darren Cheeseman MP

Mr Don Randall MP (from 10/11/08)

Mrs Joanna Gash MP

Mr Brett Raguse MP

Mr John Sullivan

Hon Andrew Robb AO, MP (from  
10/11/08)

## Committee Secretariat

Secretary	Mr Peter Keele
Inquiry Secretary	Mr Michael Crawford
Research Officer	Ms Sophia Nicolle
Administrative Officer	Ms Kane Moir





## List of abbreviations

ARA	Australian Railways Association
ARCSIG	Australian Railway Crossing Strategy Implementation Group
ARRB	Australian Road Research Board
ATA	Australian Trucking Association
ATC	Australian Transport Council
ATSB	Australian Transport Safety Bureau
BITRE	Bureau of Infrastructure, Transport, and Regional Economics
COAG	Council of Australian Governments
CRC	Cooperative Research Centre for Rail Innovation
DITRDLG	Department of Infrastructure, Transport, Regional Development and Local Government
GPS	Global Positioning System
ICA	Interface Coordination Agreement
ITS	Intelligent Transport Systems
NRSC	National Road Safety Council
NTC	National Transport Council
NTP	National Transport Policy
PTC	Positive Train Control
QUT	Queensland University of Technology
RISSB	Rail Industry Safety and Standards Board

RTA	Road Traffic Authority
RTBU	Rail, Tram and Bus Union
SCOT	Standing Committee on Transport
SCOT	Standing Committee on Transport
UHF	Ultra High Frequency
VRCSSC	Victorian Railway Crossing Safety Steering Committee



# List of recommendations

## Recommendation 1

The Committee recommends that Australian Standard 7531 be adapted to include a mandatory requirement for on going maintenance of retro-reflective materials on locomotives, as well as stricter enforcement of the standard's requirements.

## Recommendation 2

The Committee recommends that the Department of Infrastructure, Transport, Regional Development and Local Government undertake rigorous scientific research into the efficacy of auxiliary lighting on trains as a measure to improve train conspicuity. The results of the research should be made public as soon as available.

## Recommendation 3

The Committee recommends that the Government, through the National Road Safety Council, set consistent penalties across Australia for motor vehicle driving offences at level crossings.

## Recommendation 4

The Committee recommends that the Australian Government seek, via the Australian Transport Council, the reduction of speed limits to 80 kilometres per hour at level crossings on all major highways with a current speed limit of 100 kilometres per hour, or more.

## Recommendation 5

The Committee recommends that the Government, through the Australian Transport Council, establish further trials of passive rumble strips at selected level crossings across the country.

**Recommendation 6**

The Committee recommends that the Australian Government, through the Australian Transport Council, initiate a programme to begin trialling active rumble strips at a selection of the most dangerous level crossings.

**Recommendation 7**

The Committee recommends that the Australian Government support the ongoing research into Intelligent Transport Systems to speed the implementation of this important new technology.

**Recommendation 8**

The Committee recommends that the Government, through the Australian Transport Council, encourage further research into the feasibility of a cut-in warning system which would warn motor vehicle drivers of on-coming trains as they approach a level crossing.

**Recommendation 9**

The Committee recommends that the Australian Government seek, through the Australian Transport Council, a national database which aggregates data from level crossing crashes and fatalities in all Australian States and Territories.

**Recommendation 10**

The Committee recommends that the Australian Government seek, through the National Road Safety Council, a revised National Railway Safety Strategy as part of the new National Transport Policy.

## Background to the report

### **The 2004 *Train Illumination Report***

- 1.1 In June 2004, The House of Representatives Standing Committee on Transport and Regional Services presented its report, *Train Illumination*<sup>1</sup> which examined the connection between train visibility and level crossing accidents and it reviewed the practicality of measures which had been proposed to improve train conspicuity in order to reduce level crossing accidents. The Committee made five recommendations which are included in full at Appendix A.
- 1.2 Between the tabling of this report and June 2008, there were approximately 272 road vehicle collisions at level crossings in Australia.<sup>2</sup> Although this is eighty-eight fewer than in the three and a half years prior to the 2004 report<sup>3</sup> the number of collisions remains unacceptably high, especially if there is loss of life. The Committee began investigating level crossing safety 5 years ago after a tragic accident in Western Australia which was brought to the attention of the Committee by Mrs Merrilea Broad and Mrs Karen Morrissey. In November 2008, following a crash at a level crossing between a truck

---

1 House of Representatives Standing Committee on Transport and Regional Services, *Train Illumination: Inquiry into some measures proposed to improve train visibility and reduce level crossing accidents*, June 2004.

2 According to the Rail Industry Safety and Standards Board there are more than 9400 level crossings spread across the national railway network.

3 Australian Transport Safety Bureau, Transport Safety Report, *Australian Rail Safety Occurrence Data 1 January 2001 to 30 June 2008*, October 2008, p. 10.

and a Tilt Train in north Queensland which killed two people,<sup>4</sup> the Committee resolved to update its 2004 *Train Illumination* report.

- 1.3 This accident was one of several recent level crossing accidents which have involved loss of life, the worst case being the tragic accident at Kerang when a semi-trailer collided with a Melbourne-bound passenger train on 5 June 2007. Eleven people were killed and 20 injured in this accident. A major collision between a B double truck and a freight train at Lismore, Victoria on 25 May 2006 resulted in the death of the truck driver and an estimated damage bill in excess of \$30 million.<sup>5</sup>
- 1.4 The causes of level crossing accidents are complex and involve a range of factors. The purpose of this update is to examine both the measures taken to reduce railway level crossing accidents since the Committee's 2004 report, and the efficacy of these measures.
- 1.5 To that end, the Committee resolved to update its previous report, to gather further evidence on the advances made with respect to level crossing safety in the intervening years. The Committee conducted wide research, and held a public hearing in Canberra with a number of key stakeholders.

## Government response to the 2004 report

- 1.6 The then government issued its response to the *Train Illumination* report in December 2005. It noted that:

... the Australian Government recognises that collisions at railway crossings are the most serious safety issues faced by the rail system in Australia, although the number of deaths and injuries is small compared with many other causes of road casualties.<sup>6</sup>

- 1.7 It supported the Committee's first recommendation in part, supporting the objective of improving train visibility with relatively low-cost reflective strips on locomotives and rolling stock but not

---

4 M. Wray, P. Michael, B. Judge and A. Caldwell, *Fatal crash blamed on signals*, Courier Mail, 28 November 2008.

5 Australian Transport Safety Bureau, *Railway Level Crossing Safety Bulletin*, April 2008, p. 1.

6 Australian Government, *Response of the Australian Government to the Report of the House of Representatives Standing Committee on Transport and Regional Services, Train Illumination, an inquiry into some measures proposed to improve train visibility and reduce level crossing accidents*, December 2005, p. 5.

supporting moves to make rotating beacons compulsory, 'without evidence that this would be worth the significant costs involved.'<sup>7</sup>

- 1.8 The government of the day fully supported the second recommendation and it noted that Ministers at the May 2003 meeting of the Australian Transport Council (ATC) endorsed national adoption of the Queensland Assessment Matrix for assessing risk at railway level crossings and prioritising treatments.
- 1.9 Recommendations 3 and 4 were not supported. With respect to Recommendation 3, the then government expressed support for research and trials into possible installation of rumble strips at high accident risk level crossings, but suggested that any widespread implementation program should await the outcome of the trials. Conversely, regarding Recommendation 4 the then government stated that it 'would not support detailed research into train-activated rumble strips because the available evidence suggests that they are not likely to have a favourable benefit-cost ratio or to compare favourably with other active warning alternatives'.<sup>8</sup>
- 1.10 Recommendation 5 was supported in principle, although it noted that 'responsibility for the management of [education, information and awareness] investigations rests with the Australian Railway Crossing Strategy Implementation Group (ARCSIG) and the Australasian Railways Association (ARA)'.<sup>9</sup> The complete government response is included at Appendix B of this report.

## Train illumination in context

- 1.11 The 2004 *Train Illumination* report focussed on the issue of train conspicuity as a means of addressing level crossing safety. In the intervening years, the relative importance of this cause of accidents at level crossings has arguably diminished. As will be discussed in Chapter 3 of this report, the introduction of a new conspicuity standard for locomotives has drastically improved the illumination of trains, and as such the relative significance of this issue with respect to level crossing safety, has declined. In its submission to the inquiry, the Rail, Tram and Bus Union explained that:

---

7 Australian Government, December 2005, p. 7.

8 Australian Government, December 2005, p. 11.

9 Australian Government, December 2005, p. 13.

...in terms of the magnitude of issues that have to be addressed concerning rail level crossing safety train illumination is a low order of magnitude issue.<sup>10</sup>

1.12 The Australian Rail Track Corporation submission states its belief that:

...when put in context of the accident data which shows that in excess of 75% of all level crossing accidents occur in daylight hours the adoption by industry of the new train conspicuity standard means this issue [of illumination] is now satisfactorily dealt with.

1.13 The Committee has received widespread evidence to the effect that combating other causes of accidents at level crossings, in particular the behaviour of motor vehicle drivers at level crossings, would now have a far greater impact on the number of accidents which occur at level crossings. As such, this report will outline the advances that have been made with regard to the conspicuity of trains since the 2004 report was published, but will also focus on other methods for improving the safety of level crossings more generally.

---

10 Rail, Tram and Bus Union, *Submission no. 12*, p. 4.



## Collisions at level crossings

- 2.1 The data published by Australian Transport Safety Bureau (ATSB), and included at Table 1, shows the total number of road vehicle collisions at level crossings in Australia (both fatal and non-fatal collisions) in the four years since the Committee released the *Train Illumination* report. The states with the highest number of road vehicle collisions at level crossings were Victoria and Queensland with 93 and 76 respectively. New South Wales and South Australia followed with 35 and 33 respectively, while Western Australia, Tasmania and the Northern Territory had the fewest over the period with 18, 15 and 2 respectively.

Table 1 Road vehicle collisions at level crossings, July 2004—June 2008

Year		NSW	Vic	Qld	S.A.	WA	Tas	NT	Australia
2004	July-Dec	8	8	11	5	1	2	0	35
2005	Jan-June	4	11	14	3	2	3	0	37
	July-Dec	2	15	7	5	4	2	0	35
2006	Jan-June	7	13	8	3	1	3	0	35
	July-Dec	2	14	14	7	3	2	2	44
2007	Jan-June	6	11	6	3	3	1	0	30
	July-Dec	4	8	7	3	2	1	0	25
2008	Jan-June	2	13	9	4	2	1	0	31
<b>Total</b>		<b>35</b>	<b>93</b>	<b>76</b>	<b>33</b>	<b>18</b>	<b>15</b>	<b>2</b>	<b>272</b>

Source Australian Transport Safety Bureau (2008) 'Australian rail occurrence data'

2.2 When the data is normalised at a biannual rate per million train kilometres travelled by jurisdiction and year, the order of the states is altered. The State with the highest rate of road vehicle collisions at level crossings becomes Tasmania; Victoria has the second highest, followed by the Northern Territory, South Australia, Queensland, NSW and Western Australia.<sup>1</sup>

2.3 These figures are approximate due to inaccuracies in data collection, according to the Cooperative Research Centre for Rail Innovation, which notes that 'it is well-known in the level crossing field that there is a distinct lack of accurate data relating to collisions at level crossings'.<sup>2</sup> Most jurisdictions in Australia use differing methods in the way they categorise and record the level crossing characteristics and accident data and, consequently, 'there is a lack of definitive

1 Australian Transport Safety Bureau, *Australian Rail Safety Occurrence Data 1 January 2001 to 30 June 2008*, October 2008, p. 10. Rates are: Tasmania 2.95, Victoria 0.78, Northern Territory

2 Cooperative Research Centre for Rail Innovation, *Level Crossings Research Database* website accessed on 15 December 2008, p. 5.  
<<http://www.railcrc.net.au/publications/downloads/R2100-Level-Crossings-Research-Database.pdf>>

evidence available relating to the extent and nature of level crossing collisions'.<sup>3</sup>

- 2.4 In their recent report on improving safety at level crossings, the Victorian Parliamentary Road Safety Committee concurred with this appraisal of the available data regarding level crossing collisions, stating that:

...the Committee considers data that does exist does not assist policy makers to identify issues except in the broadest of terms.<sup>4</sup>

- 2.5 The Committee considers a more consistent and coordinated approach to the collection of data on level crossing crashes would improve assessment of the causes of these crashes, and will discuss this further in Chapter 4 of this report.

## Causes of collisions

- 2.6 In order to improve the safety of railway level crossings, it is first important to identify the causes of collisions. At the site at which two modes of transport meet, there are, of course, significant inherent dangers. It is, therefore difficult to identify the particular causes of collisions at level crossings, and it is certain that there is no single cause. A number of contributing factors have been identified; and in particular, it has been made clear to the Committee that the issue of motor vehicle drivers' behaviour at level crossings often has a significant role to play in these tragedies.

## Motor vehicle driver behaviour

- 2.7 The behaviour of motor vehicle drivers has consistently been cited as the most significant factor contributing to crashes at level crossings.
- 2.8 The ATSB, which currently sits within the Department of Infrastructure, Transport, Regional Development and Local Government (DITRD LG), investigates approximately ten collisions at level crossings per year, across Australia. The April 2008 'Rail Safety Bulletin' published by the Bureau provides an overview of the

---

3 Cooperative Research Centre for Rail Innovation, 2008, p. 5.

4 Victorian Government Road Safety Committee *Inquiry into improving safety at level crossings*, December 2008, p. 24.

investigations that it conducted between April 2006 and December 2007. The Bulletin concludes thus:

While there are many underlying factors which have led to recent collisions at level crossings, almost every time the primary factor in the accident was the failure of the motorist to abide by the traffic control measures at the crossing.<sup>5</sup>

2.9 This conclusion is consistently supported by evidence the Committee has received during the course of this update inquiry. In its submission to the inquiry, the Australasian Railways Association (ARA) outlined the results of the *National Road Users Survey* undertaken in 2006, conducted by the National Railway Level Crossing Behavioural Coordination Group. The survey, which involved focus groups and interviews, as well as a quantitative survey of over 4400 road users across Australia, identified significant issues regarding self-reported behaviours and attitudes at level crossings.

2.10 Significant results included:

- 24% reported engaging in illegal usage of a level crossing one or more times. This included:
  - ⇒ crossing when a train was visibly approaching;
  - ⇒ not stopping at a Stop sign;
  - ⇒ accelerating to pass under a lowering boom barrier;
  - ⇒ not waiting for the lights and boom barriers to cease operation before proceeding across train tracks;
  - ⇒ avoiding the boom barrier by driving around it; and
  - ⇒ becoming trapped between lowered boom barriers in their effort to rush across a level crossing.
- driver inattentiveness and impatience were collectively identified as the greatest factors contributing to increased risk at railway level crossings;
- one in four reported engaging in risky behaviour at railway level crossings, yet not all participants classified crossing when a train is approaching as risky; and
- 16 to 25 year old drivers were identified as the group most at risk at railway level crossings. Interestingly, this group was self-aware of their heightened risk, yet older drivers were less aware of their own risk.<sup>6</sup>

---

5 Australian Transport Safety Bureau, *Rail Safety Bulletin*, April 2008, p. 4 .

6 Australasian Railways Association (ARA), *Submission no. 10*, p. 16.

- 2.11 The results of the survey demonstrate the severity of the issues regarding the behaviour of motor vehicle drivers at level crossings. Kevin Taylor, General Manager of the ARA confirmed this severity by stating in evidence to the Committee at a public hearing that 'driver behaviour is the biggest single problem at level crossings.'<sup>7</sup>

### Heavy vehicle driver behaviour

- 2.12 Investigations by the ATSB between April 2006 and December 2007 found that out of twelve accidents which it investigated, nine involved heavy road vehicles and four of the nine were collisions with long distance passenger trains. In the same period, three other significant accidents between heavy vehicles and passenger trains were investigated by State authorities. Nineteen people lost their lives in these accidents, thirteen on board the trains and six occupants of the road vehicles. Additionally, over 60 people were injured and the damage bill was estimated at well over \$100 million.<sup>8</sup>
- 2.13 The Rail, Tram and Bus Union (RTBU), in its submission to the inquiry states that heavy vehicle driver behaviour is of particular concern:
- The RTBU argues that driver behaviour issues, particularly heavy vehicle drivers, are a crucial issue if we are going to address the biggest rail safety risk issue the rail industry faces, a repeat of the Kerang rail disaster.<sup>9</sup>
- 2.14 In 2008, the Queensland University of Technology (QUT) published the results of a study<sup>10</sup> which aimed to capture the experiences of heavy vehicle drivers and train drivers at level crossings to determine what factors contribute towards these accidents.
- 2.15 The study found that design issues and behavioural issues were perceived to be the main causes of heavy vehicle level crossing incidents. The configuration of level crossings was found to affect heavy vehicle driver visibility and effective vehicle clearance. It also found that 'wilful violation of crossing protocols, often as a time-

---

7 Mr Kevin Taylor, Australasian Railways Association, *Transcript of Evidence*, p. 13.

8 Australian Transport Safety Bureau, *Railway Level Crossing Safety Bulletin*, April 2008, p. 1.

9 Rail, Tram and Bus Union, *Submission no. 12*, p. 11.

10 J. Davey, A. Wallace, N. Stenson and J. Freeman, *The experiences and perceptions of heavy vehicle drivers and train drivers of dangers at railway level crossings*, June 2008.

saving measure, as well as driver complacency due to high levels of familiarity<sup>11</sup> was seen as a significant behavioural factor.

- 2.16 Improving heavy vehicle driver behaviour at level crossings is of particular importance due to their capacity to cause more catastrophic damage when involved in a crash with a train. The RTBU states:

Heavy road vehicles such as road trains and larger freight trains have become the norm. It used to be somewhat rare to hear of a train derailling and/ or significant casualties on board the train as a result of a collision with a road vehicle. This is not the case today.<sup>12</sup>

## Other factors causing level crossing collisions

- 2.17 There are a number of other factors which have been identified through evidence and research as contributing to the causes of collisions at level crossings. Other factors are largely based on the awareness of the motor vehicle driver of an approaching train. In the CRC's Level Crossings Research Database, it is stated that:

...the majority [of experts] would argue that under certain conditions, the failure of a motorist to detect an approaching train is a major contributing factor in vehicle-train collisions.<sup>13</sup>

- 2.18 The Committee has received evidence that vegetation at level crossings can obscure the motor vehicle driver's sighting of an approaching train. In their submission to the inquiry, the Australian Trucking Association states that:

Priority [must be given] to ... clearing of vegetation well back from each level crossing so as to ensure clear line-of-sight for the road-user back along the rail line.<sup>14</sup>

- 2.19 Motorists' awareness of trains is also impacted on by the design or engineering of certain level crossings. In his submission to the inquiry, Mr John McCulloch explains that it is:

...often very difficult to know exactly which direction to look to locate any fast approaching trains. (Tracks at crossings are not always at right angles to the road).

---

11 J. Davey, et.al., June 2008, p. 3.

12 RTBU, *Submission no. 12*, p. 12.

13 Cooperative Research Centre for Rail Innovation, 2008, p. 33.

14 Australian Trucking Association (ATA), *Submission no. 9*, p. 6.

- 2.20 The Committee itself experienced this during a site inspection of railway level crossings in Victoria, where the railway line met the road at an extremely acute angle.
- 2.21 As discussed in the 2004 report, the illumination of an approaching train can also have a major impact on the motorist's awareness of it. The CRC Research Database quotes from a 1995 report by Carroll et al., stating:
- One important factor in the failure of motorists to detect an approaching train is the lack of visual properties on the train, other than its standard headlight.<sup>15</sup>
- 2.22 The 1995 report obviously pre-dates the introduction of the 2007 Australian Standard 7531 which will be discussed in more detail in the following chapter. The standard sets conspicuity requirements and guidelines and has had a major impact on the rate of level crossing collisions caused by poor illumination of trains.
- 2.23 The Committee concludes that while there is no single cause for all level crossing crashes, and therefore no one solution, the most significant factor leading to level crossing collisions is the behaviour of motor vehicle drivers, including drivers of heavy vehicles. As such methods to adapt and improve this behaviour have the potential to drastically reduce the number of level crossing crashes across Australia.

---

15 A. Carroll, J. Multer & S. Markos *Safety of highway- railroad grade crossings: Use of auxiliary external alerting devices to improve locomotive conspicuity*, 1995, cited in Cooperative Research Centre for Rail Innovation, 2008, p. 33.





## Measures to reduce collisions at level crossings

### Improving train visibility

#### Australian Standard 7531 – conspicuity standard

- 3.1 The 2004 *Train Illumination* report recommended that Australian locomotives and rolling stock should be fitted with reflective strips or paint, and that all trains be fitted with rotating beacon lights. As mentioned in Chapter 1, the Government accepted this recommendation in part, supporting the improvement of train conspicuity through low cost measures such as reflective strips or paint, but remained uncertain about auxiliary lighting measures.
- 3.2 Australian Standard 7531 has since been established by the Rail Industry Safety and Standards Board (RISSB). The standard, put in place in 2007, sets mandatory and recommended requirements with respect to lighting, livery and reflectors, for new rolling stock and rolling stock undergoing maintenance. The ARA surveyed rail operators to determine compliance levels and found that 83% of commercial rail operators and 52% of heritage rail operators comply with the standard.
- 3.3 It was also noted by ARA in its submission, that the percentages of commercial rail operators complying with the Standard will increase

as their stock undergo maintenance, and that many heritage rail operators often do not encounter level crossings on their routes.<sup>1</sup>

- 3.4 In their submission to the inquiry, the Australian Rail Track Corporation stated its belief that with the introduction of this new standard, the issue of train illumination is now much less significant with regards to the causes of level crossing crashes. The submission states:
- ... the adoption by industry of the new train conspicuity standard means this issue [of illumination] is now satisfactorily dealt with.
- 3.5 In a supplementary submission to the Victorian Parliamentary Committee on Road Safety's 2008 inquiry into improving safety at level crossings, Mr Patrick McKay, a former engineer with the Victorian Railways and Public Transport Corporation and current consultant to MainCo, advised the Committee of his experience inspecting rolling stock in North Melbourne in April 2008. While most were compliant with the Standard for reflective delineators, few were effectively maintained. He stated that they were often missing, damaged and 'all were dirty enough to be virtually useless.'<sup>2</sup>
- 3.6 The Committee believes that improving safety at level crossings is of utmost importance, and that increasing train illumination will go some way to achieving this goal but does not, however, represent the most significant strategy for improving level crossing safety.
- 3.7 The Committee strongly supports the introduction of the Australian Standard which sets mandatory and recommended requirements for ensuring train visibility. The Committee believes however, that it is imperative that these requirements are enforced, and that regular maintenance of reflective delineators be required.

---

1 ARA, *Submission no. 10*, pp. 20-21.

2 Mr P McKay, *Submission to the Victorian Road Safety Committee's Inquiry into Improving Safety at Level Crossings*, 28 April, p. 1, cited in the Parliament of Victoria Road Safety Committee Report *Inquiry into Improving Safety at Level Crossings*, December 2008, p. 69.

## Recommendation 1

- 3.8 **The Committee recommends that Australian Standard 7531 be adapted to include a mandatory requirement for on going maintenance of retro-reflective materials on locomotives, as well as stricter enforcement of the standard's requirements.**

### Auxiliary lighting on trains

- 3.9 The 2004 *Train Illumination* report recommended that all locomotives be fitted with rotating beacon lights. There continues to be debate amongst experts as to the effectiveness of auxiliary lighting for locomotives in improving conspicuity, particularly as data shows that 94% of level crossing crashes occur in daylight hours.<sup>3</sup> The Australasian Railway Association states categorically in its submission that it does not support the installation of additional lights on trains for a number of reasons. Of particular significance is their conclusion, from a contract report by Cairney et al,<sup>4</sup> that:

...research shows that additional lights, such as strobe lights, have no significant effect on the detection of trains or of a road user being able to estimate the time of arrival of a train at a crossing.<sup>5</sup>

- 3.10 Also, as the Victorian Road Safety Committee reports:

...a study conducted for the Western Australian Government Railways indicated that a single strobe light did not improve detection when added to locomotives already fitted with headlights and crossing lights.<sup>6</sup>

- 3.11 However, Dr Wigglesworth, in his submission, to the Victorian Parliamentary Committee's inquiry, noted that certain caveats of that study undermine the reliability of the results.

---

3 ARA, *Submission no. 10*, p. 7.

4 Cairney P, Cornwell D, Mabott N, *Contract report; Conspicuity of Enhanced Lighting Treatments for Railway Locomotives*, December 2003 p. 3.

5 ARA, *Submission no. 10*, p. 25.

6 Parliament of Victoria Road Safety Committee, December 2008, p. 68.

A more scientific experiment is required to determine the effectiveness of supplementary lighting. My preference would be for this to be carried out in the laboratory, preferably in a University Department of Optometry, Psychology or Visual Science.<sup>7</sup>

- 3.12 Further, in their submission to the Victorian inquiry the Australian Road Research Board (ARRB) advised of evidence that when compared to the use of train headlights alone, *all* auxiliary lighting is effective and increases detectability of trains or improves motor vehicle drivers' capacity to predict the time of arrival of a train.<sup>8</sup>
- 3.13 Finally, the *Level Crossings Research Database* report states that:
- Although the majority of vehicle–train collisions in Australia occur during daylight hours, when normalised for differences in traffic volume between day and night periods, collision rates are most likely to be substantially higher at night than during the day.<sup>9</sup>
- 3.14 It is clear to the Committee therefore that there is still a pressing need for effective and rigorous research to establish how effective auxiliary lighting on trains is in improving train conspicuity.

## Recommendation 2

- 3.15 **The Committee recommends that the Department of Infrastructure, Transport, Regional Development and Local Government undertake rigorous scientific research into the efficacy of auxiliary lighting on trains as a measure to improve train conspicuity. The results of the research should be made public as soon as available.**

---

7 Dr E Wigglesworth, Submission to Parliament of Victoria Road Safety Committee Report *Inquiry into Improving Safety at Level Crossings*, December 2008, p. 44.

8 ARRB, *Submission to the Victorian Road Safety Committee's Inquiry into Improving Safety at Level Crossings*, cited in Parliament of Victoria Road Safety Committee Report *Inquiry into Improving Safety at Level Crossings*, December 2008, p. 67. The Committee is advised by the Deputy Chair that rotating beacon lighting is used extensively and effectively on trains in the sugar industry.

9 Cooperative Research Centre for Rail Innovation, 2008, p. 33.

## Other measures to improve safety at level crossings

- 3.16 As noted earlier, it is the opinion of the Committee that the need to improve level crossing safety goes beyond the issue of train illumination. As such, the Committee has also assessed methods of combating the other causes of level crossing crashes.

## The 3 E's – Education, Enforcement and Engineering

- 3.17 The 'Three E's' – *education, enforcement and engineering*, are promoted by the rail industry as three areas in which the safety of level crossings could be improved. The policy is outlined in 'Zero Deaths at Level Crossings – The Rail Agenda'.<sup>10</sup> The Committee has received evidence of a number of improvements and policy changes across the States and Territories in these three areas that have been implemented since the publication of its 2004 report.<sup>11</sup> Due to the significance of motor vehicle driver behaviour, including heavy vehicle driver behaviour, as a factor leading to level crossing crashes, the Committee particularly welcomes the advances in educating drivers on the dangers of level crossings and enforcing the road rules at these particularly dangerous intersections.

### Education

- 3.18 As discussed in the previous chapter, the results of the National Road Users Survey demonstrated that high numbers of motor vehicle drivers are exhibiting considerably reckless behaviour at level crossings. It is therefore important that significant emphasis be placed on the education of motor vehicle drivers, making them aware of the dangers of level crossings.
- 3.19 The use of intensive road safety publicity campaigns is practiced in all states and territories in Australia.<sup>12</sup> These campaigns would normally reach the public using television, radio, print media, press conferences and/or displays and target issues of concern such as speeding or drink-driving. Campaigns may also be used to:

---

10 ARA, *Zero Deaths at Level Crossings – The Rail Agenda*, December 2007, p. 1.

11 Victorian Department of Transport, *Submission no. 14*; South Australian Department for Transport, Energy and Infrastructure, *Submission no. 7*.

12 Cooperative Research Centre for Rail Innovation, 2008, p. 50.

- Raise awareness of new laws;
- Change attitudes (e.g. to improve public acceptance of road safety countermeasures); and
- Change behaviour, as part of a package of measures (e.g. engineering and/or enforcement related to speeding).<sup>13</sup>

3.20 Campaigns which have been run in Australia since the *Train Illumination* report was published include:

- In South Australia, the 'Don't Play with Trains' safety campaign which was begun in 2004, has continued to be promoted into 2009. The campaign aims to inform all road users that their behaviour is the key factor in collisions at level crossings. The campaign uses two different television and radio commercials: one for motor vehicle drivers and the other for pedestrians. Both demonstrated that risk taking at level crossings is hazardous for both motor vehicle drivers and pedestrians.<sup>14</sup>
- In Western Australia, in its 2006/2007 Annual Report, the Public Transport Authority reported that as part of its *National level crossing behaviour review* it was working with the Australasian Railway Association (ARA) on a review of various level crossing safety education campaigns to evaluate their effectiveness.<sup>15</sup>
- In Queensland, the 'Rail Smart' campaign was launched in July 2006. Bringing together a number of safety related activities that QR conducts on an ongoing basis, the campaign was broadcast using television and other media and railway outlets.
- In Victoria, a \$1 million advertising campaign was launched in November 2005, including television, radio and outdoor advertising. The campaign used slightly different messages for metropolitan and regional motor vehicle drivers. In the metropolitan area, motor vehicle drivers were told: 'Don't risk it. Always keep the crossing clear', while in regional Victoria, the campaign was 'Don't risk it. Slow down and be prepared to stop'.<sup>16</sup>

---

13 Global Road Safety Partnership website accessed on 12 December 2008  
<<http://www.grsproadsafety.org/?pageid=110>>

14 DTEI, *Submission no. 7*, p. 2; also: DTEI website accessed on 22 December 2008  
<[www.transport.sa.gov.au/safety/rail/advertising\\_campaign.asp](http://www.transport.sa.gov.au/safety/rail/advertising_campaign.asp)>

15 Government of Western Australia, Public Transport Authority website accessed on 22 December 2008.  
<[http://www.pta.wa.gov.au/annualreports/2007/audited\\_indicators\\_007.html](http://www.pta.wa.gov.au/annualreports/2007/audited_indicators_007.html)>

16 Cooperative Research Centre for Rail Innovation, 2008, p. 54.

- In NSW, the RTA launched a community education campaign in June 2004, the same month that the *Train Illumination* report was published (June 2004). The campaign included outdoor billboards and press advertisements.<sup>17</sup>

3.21 The existence of awareness campaigns in several States in the last four years is welcomed by the Committee, as motor vehicle drivers behaviour has been shown to be a primary factor in causing level crossing crashes. However, as was demonstrated by the results of the 2008 *National Road Users Survey*, motor vehicle driver behaviour is still consistently problematic at level crossings. As such, The Committee believes that there is still more to do in educating motor vehicle drivers of the dangers at level crossings.

## Enforcement

3.22 Historically, fines for violating road rules at level crossings have been very low in most jurisdictions in Australia. In the last two years, several States have reassessed and increased fines for risky driving or disobeying road rules at level crossings, for example:

- In March 2007, Queensland Transport raised the existing fine for risky driving or disobeying road rules at level crossings from \$45 to \$225 and 3 demerit points.
- In New South Wales the current fine for disobeying road rules at level crossings is \$300 and 3 demerit points.
- In Victoria, following the Kerang train disaster in 2007, the Government raised penalties for infringements at level crossings. In its submission to the inquiry, the Victorian Department of Transport outlined the tightening of enforcement measures to encourage motor vehicle drivers to comply with road rules at level crossings. Noting:
  - Penalties for level crossing infringements have been toughened, rising from \$177 and three demerit points to \$430 and four demerit points. A new offence has been introduced for speeding to beat a train, crossing tracks when lights and bells are operating, or weaving in between lowered boom gates. It carries a fine of 30 penalty units, a (\$3,304) infringement, four demerit points and automatic three month licence suspension.

---

17 Level Crossing Strategy Council website accessed on 15 December 2008  
<<http://www.levelcrossings.nsw.gov.au/campaigns.htm>>

- Trials of red light/speed enforcement cameras at one metropolitan and one regional railway crossing.<sup>18</sup>
- 3.23 The Victorian Government is leading the way in better enforcing road rules at level crossings. Red light cameras have been introduced at a selection of dangerous level crossings, and will be trialled for 12 months. Those crossings fitted with cameras will also have a yellow box to indicate the potential area of danger. The cameras were installed from 2007 – 2008, with the hope of expanding the trial to more level crossings, if successful.<sup>19</sup> South Australia also plans to introduce red light/speed cameras at high incident level crossings in that State.<sup>20</sup>
- 3.24 Victoria has decreased speed limits at a number of level crossings, from 100 to 80 kilometres per hour, in most cases. A measure that has been supported by the ARA. In evidence to the Committee, Ms Pettiford, Project Officer, explained:
 

...we do not have traffic lights in the middle of a 100 kilometre per hour highway; therefore, whether it is a passive or an active crossing, why should we expect drivers on a 100 or 110 kilometre per hour road to be able to stop suddenly at a level crossing, when a train is within sighting distance? They need to reduce that speed limit to 80 kilometres per hour.<sup>21</sup>
- 3.25 Submissions from the Victorian Department of Transport and Department of Transport Energy and Industry in South Australia, both noted toughening of penalties for level crossing infringements in the two states.<sup>22</sup> The Committee supports these measures to encourage motor vehicle drivers to engage in safer behaviour at level crossings. It would like to see, however, greater consistency with regard to the penalties for improper motor vehicle driver behaviour at level crossings across the States and Territories. The Committee believes the National Road Safety Council, recently established to advise the new National Transport Policy on road safety, including safety at level crossings, (as will be discussed in Chapter 4 of this

---

18 Victorian Department of Transport, *Submission no. 14*, p. 5.

19 Victorian Department of Transport website accessed on 12 March 2009.  
<<http://www.transport.vic.gov.au/DOI/Internet/transport.nsf/AllDocs/8EE1EDA7067A3EE1CA2571AF0005EEFC?OpenDocument>>

20 DTEI, *Submission no. 7*, p. 2.

21 Ms Pettiford, Australasian Railways Association, *Transcript of Evidence*, 13 March 2009, p. 12.

22 Victorian Department of Transport, *Submission no. 14*, p. 5. DTEI, *Submission no. 7*, p. 2.



report) should aim to establish consistency in these penalties across all jurisdictions. In particular, the Committee would like to see implementation *across Australia* of reduced speed limits at level crossings on major highways.

### **Recommendation 3**

- 3.26 **The Committee recommends that the Government, through the National Road Safety Council, set consistent penalties across Australia for motor vehicle driving offences at level crossings.**

### **Recommendation 4**

- 3.27 **The Committee recommends that the Australian Government seek, via the Australian Transport Council, the reduction of speed limits to 80 kilometres per hour at level crossings on all major highways with a current speed limit of 100 kilometres per hour, or more.**

## **Engineering**

- 3.28 Aside from promoting safer behaviour in motor vehicle drivers through education and enforcement, improvements can also be made to the engineering of level crossings to improve safety.
- 3.29 In their submission to the inquiry, the Australian Trucking Association emphasises the importance of the 'Safe Systems' approach to road safety. It explains:

The approach recognises there are collective responsibilities on all parties in improving road safety, including infrastructure providers, infrastructure managers, transport regulators and road users.

Importantly, the approach recognises that human error is inevitable and that road users will make mistakes or fail to respond appropriately to prevailing conditions.

A safe transport system should make allowances for human error and seek to minimise the consequences in the event of an incident.<sup>23</sup>

- 3.30 The approach encourages the design and engineering of road systems to provide the best possible protection in times of human error. The Committee supports this approach and as such encourages engineering solutions to level crossing safety, as well as solutions designed to effect improvements in driver behaviour.

## Rumble strips

- 3.31 One predominant engineering solution which was supported in the Committee's *Train Illumination* report is the installation of rumble strips at the approach to particularly dangerous level crossings. Rumble strips can either be *passive*, if they are permanently in situ; or *active*, if they are triggered by the approach of a train. The *Train Illumination* report recommended that passive rumble strips should be installed at all high accident risk level crossings across Australia, and that the Government should invest in greater research into the efficacy of active rumble strips.
- 3.32 As outlined in the submission to the inquiry by the Victorian Department of Transport, VicRoads have installed passive rumble strips at over 200 level crossings at high speed, sealed roads.<sup>24</sup> The Victorian Parliamentary Road Safety Committee's recent report into level crossing safety points out that these rumble strips have been installed at level crossings which have low rail traffic volume, which is understood to lead to reduced motor vehicle driver vigilance, as they are not expecting to see a train. Australian Road Research Board (ARRB) has been commissioned to conduct before and after evaluation which is still underway.<sup>25</sup>
- 3.33 Passive rumble strips have also been trialled in Western Australia, where, in 2004, Main Roads Western Australia produced a report titled *Effects of Rumble Strips in Driver Speed and Behaviour at Approaches to Passively Controlled Railway Level Crossings*. The report concluded that rumble strips trialled in WA had significantly beneficial effects at

---

23 ATA, *Submission no. 9*, p. 3.

24 Victorian Department of Transport, *Submission no. 14*, p. 5.

25 Parliament of Victoria Road Safety Committee, December 2008, p. 73.

crossings with Stop signs. However, the strips were found to have negligible effects at those crossings with Give Way signs.

- 3.34 The Committee notes the difference in design between passive rumble strips in the different states. Level crossings fitted with rumble strips in Victoria, as part of the current trial there, have several sections of strips in the lead up to the crossing, beginning some distance back from the crossing, but with no strips right upon it. This design alerts the motor vehicle driver to the level crossing ahead in good time to reduce speed, however does not alert the driver at the time they reach the crossing. Other states have positioned their rumble strips closer to the intersection, which, while still alerting the driver to the crossing, does so with less time for the motor vehicle driver to brake.
- 3.35 In its submission, the Australasian Railways Association agreed with the Australian Government's rejection of the Committee's recommendations regarding rumble strips – both passive and active – in the 2004 report. It explains:

The ARA agrees with these two matters. The trial of rumble strips in Western Australia was inconclusive and recommended further trials.<sup>26</sup>

- 3.36 The Committee visited a level crossing fitted with rumble strips in regional Victoria during the course of this inquiry. The crossing was part of that State's current trial into the efficacy of passive rumble strips at some level crossings. The Committee was impressed by the effect of the strips, and believes that rumble strips have the potential to improve the safety of level crossings. The Committee, therefore, would welcome further trials in other jurisdictions to establish the broadest understanding of the efficacy of this engineering solution to level crossing safety.

## **Recommendation 5**

- 3.37 **The Committee recommends that the Government, through the Australian Transport Council, establish further trials of passive rumble strips at selected level crossings across the country.**

---

26 ARA, *Submission no. 10*, pp. 30- 31.

- 3.38 One common argument in opposition to the efficacy of *passive* rumble strips, that the Committee notes, is that drivers become accustomed to the rumble strips over time and therefore they lose their impact. As such, the Committee reiterates its recommendation from the 2004 report that further study be done into the efficacy of active rumble strips, as no full-scale trial of this technology has been undertaken in Australia to date.

### Recommendation 6

- 3.39 **The Committee recommends that the Australian Government, through the Australian Transport Council, initiate a programme to begin trialling active rumble strips at a selection of the most dangerous level crossings.**

## Advanced warning systems

- 3.40 As part of their suite of railway level crossing safety strategies, the Victorian Government has introduced automated advanced warning signs at 53 crossings in regional areas of that State. These signs are triggered by an approaching train, activating flashing lights on the sign, to provide a visible warning to drivers. The Victorian Government has invested \$11.1 million to install the signs, which are located approximately 250 metres ahead of the crossing.<sup>27</sup> The submission from the Victorian Department of Transport notes that all 53 crossings, as well as a possible 4 more, are due for completion by 30 June 2010.<sup>28</sup>
- 3.41 The Australian Transport Safety Bureau, however, highlighted the necessity that these technological advancements be 'fail-safe'. According to Mr Foley, Director Surface Investigations:
- A lot of this technology is under trial, but the central issue is that it must fail safely to be used in a rail context. In one of our investigations there was an actively protected crossing that was not fail-safe as a result of some maintenance on the

---

27 Victorian Department of Transport website accessed 12 March 2009.  
<<http://www.transport.vic.gov.au/DOI/Internet/transport.nsf/AllDocs/8EE1EDA7067A3EE1CA2571AF0005EEFC?OpenDocument>>

28 Victorian Department of Transport, *Submission no. 14*, p. 5.

signalling equipment, and the risks resulting from that are enormous. People expect such equipment to work and, if the lights are not flashing, it means that no train is coming and they will negotiate the crossing. In this case the lights were not flashing and a train was coming, which resulted in a collision.<sup>29</sup>

- 3.42 The Committee visited an advanced warning system in regional Australia during the course of this inquiry and was impressed by the efficacy of this simple solution. The Committee is also aware that Australian companies are developing solar powered advanced warning systems which will alert the motor vehicle driver with an audio warning as well as flashing lights on a sign; Partech Systems is one such company.<sup>30</sup> The use of advanced warning system technology is likely to be significant in improving the safety of level crossings. The Committee recognises, however, that the fail-safety of these devices is of great importance to their efficacy, and its assurance, prior to installation, is paramount.

## Intelligent transport systems

- 3.43 Intelligent Transport Systems (ITS) use technology to transmit information between trains, motor vehicles and infrastructure. The Committee's 2004 report concluded that 'significant safety improvements will come from developments in Intelligent Transport Systems.'<sup>31</sup>
- 3.44 The ARA, in conjunction with ITS Australia (The peak body for intelligent transport systems), held the *ITS for Railway Level Crossing Workshop* in 2008, in which participants were briefed by experts in the field – from government transport officials to technology manufacturers – on the potential of the available technology to improve safety at level crossings. At the workshop, transport industry leaders committed to further exploration of the possible

---

29 Mr Peter Foley, Australian Transport Safety Bureau, *Transcript of Evidence*, 13 March 2009, p. 28.

30 Partech Systems website accessed on 15 June 2009  
<<http://www.partechnsys.com/lcc.html>>

31 House of Representatives Standing Committee on Transport and Regional Services, *Train Illumination: Inquiry into some measures proposed to improve train visibility and reduce level crossing accidents*, June 2004 p. 13.

improvements to level crossing safety through the implementation of ITS.<sup>32</sup>

- 3.45 Intelligent Transport Systems are being developed and trailed internationally, with Japan planning to launch an active intelligent transport system in 2010.<sup>33</sup>
- 3.46 In the 2004 *Secretary's Action Plan for Highway-Rail Crossing Safety and Trespass Prevention* from the US Department of Transportation, use of ITS is also promoted.

In the future, Intelligent Transportation Systems (ITS) will provide the ability to use an in-vehicle warning of danger at highway-rail crossings and, perhaps, even provide the means to intervene before a collision occurs. Railroad Positive Train Control (PTC) systems will provide information on the direction, speed, and routing of each train; and highway-side systems will utilise this information to communicate a warning to individual motor vehicles.<sup>34</sup>

- 3.47 Domestically, the Australian Transport Council has requested that Queensland Transport lead the development of a work program for technology based solutions.<sup>35</sup>
- 3.48 The Committee has received strong evidence in support of ITS as a method for improving level crossing safety. According to the Victorian Department of Transport:

Linking intelligent vehicles and roadside to move from an autonomous to a cooperative intelligent transport system provides the opportunity to improve safety and mobility.<sup>36</sup>

- 3.49 In its submission, the ARA suggested that:
- ... the use of ITS has the potential to reduce railway level crossing crashes and ... the Australian Government should play a leading role in supporting the development, trialling

---

32 ARA, *Submission no. 10*, p. 28.

33 Parliament of Victoria Road Safety Committee, December 2008, p. 99.

34 United States Department of Transportation, *Secretary's Action Plan for Highway-Rail Crossing Safety and Trespass Prevention*, 2004, p. 4, cited in Parliament of Victoria Road Safety Committee Report *Inquiry into Improving Safety at Level Crossings*, December 2008, p. 99.

35 Parliament of Victoria Road Safety Committee, December 2008, p. 101.

36 Victorian Department of Transport, *Submission no. 14*, p. 9

and implementation of ITS applications at railway level crossings.<sup>37</sup>

- 3.50 The Committee fully supports this recommendation from the ARA, and reiterates the view expressed in its 2004 report that ITS holds high potential to increase the awareness of trains at level crossings and thus improve level crossing safety. As such the Committee supports the ATC's request to Queensland Transport and urges the Government to invest in the development and implementation of these technologies in Australia.

### Recommendation 7

- 3.51 **The Committee recommends that the Australian Government support the ongoing research into Intelligent Transport Systems to speed the implementation of this important new technology.**

### In-vehicle warning systems

- 3.52 In their evidence to the Committee, the Australian Trucking Association made the suggestion that a form of radio cut-in warning system should be trialled. Chief Executive of the Association, Mr St Clair, stated that:

If you drive into one of the tunnels in Sydney or Melbourne and there is an accident or a problem, a cut-in system operates into your car radios and talks to you. We do not understand why there cannot be just a simple electronic activation, when a train approaches and is perhaps five or 10 kilometres away from a level crossing, that cannot go out over the UHF system. Virtually every truck in Australia has a UHF system.<sup>38</sup>

- 3.53 He continued:

We just think you need a warning that says, 'Train approaching crossing number so-and-so at Baan Baan,' or wherever it is, 'and will be there in two or three minutes.' The downside is, 'Good. I've got three minutes, so I'll try to get across.' But at least people would know, because the

---

37 ARA, *Submission no 10*, p. 29.

38 Mr St. Clair, Australian Trucking Association, *Transcript of Evidence*, 13 March 2009 p. 42.

frequency of trains is often the problem they use UHF radio. If it is a sophisticated one, it is on a scan system. Channel 40 is for operating just locally between trucks over a kilometre or two. The repeater band will operate through a repeater station to 100-and-something kilometres away. So often they will have it scanning, depending on what they are doing.<sup>39</sup>

- 3.54 The Committee also observed that some Global Positioning Systems (GPS) have in-vehicle warnings built in to alert drivers to school zones. The Committee believes this may be an area where more investigation is warranted which respect to having similar alerts at level crossings. The Committee believes that the potential problem identified by Mr St Clair, that is, that further reckless driving may be encouraged in order to beat an approaching train, is true for any advanced warning mechanism. The Committee considers, however, that, for the most part, the more advance warning motor vehicle drivers have of on-coming trains, the greater chance they will have of driving appropriately. As such, the Committee would like to see further investigation and research into this proposal, and urges the Government to support this.

## Recommendation 8

- 3.55 **The Committee recommends that the Government, through the Australian Transport Council, encourage further research into the feasibility of a cut-in warning system which would warn motor vehicle drivers of on-coming trains as they approach a level crossing.**
- 3.56 Reducing the number of level crossing accidents will require a multi-faceted approach. The measures noted in this chapter, when implemented as part of a suite of measures, will assist in the reduction of level crossing accidents. Likewise, the Government's recent announcement, as part of the National Building and Jobs Plan, of funding to bring forward the installation of around 200 new boom gates and other safety measures at high risk level crossings, will also assist in this regard.<sup>40</sup> The Committee is encouraged by this

39 Mr St. Clair, Australian Trucking Association, *Transcript of Evidence*, 13 March 2009 p. 42.

40 The Hon. Anthony Albanese MP, Minister for Infrastructure, Transport, Regional Development and Local Government, *Media Release: Black Spots, Boom Gates, Regional Roads and Community Infrastructure*, 3 February 2009.



prioritisation by the Government, of level crossing safety, and hopes this marks a long-term commitment to reducing collisions at level crossings around Australia.



## Improving national level crossing safety data and policy

### **Lack of coordinated data and policy**

#### Data

- 4.1 During the course of this inquiry, the Committee has become increasingly concerned by the lack of coordinated data regarding level crossing accidents across Australia. Chapter 1 of this report noted that data from individual level crossing crashes is collected by State and Territory authorities, with no clear mechanism for aggregating this information. It has proved therefore, difficult to ascertain the number of accidents per year at level crossings, and in particular the number of fatalities. It has been even more challenging to gather any quantitative data regarding the causes of the accidents.
- 4.2 The Australian Transport Safety Bureau collects and publishes high level data on behalf of the state rail safety regulators, however they can only provide greater detail of crashes that they have investigated; which averages at approximately 10 - 12 per year.
- 4.3 Mr Peter Foley, Director Surface Safety Investigations, said in evidence to the Committee:

...one of the things that came up there [at the CRC Railway Level Crossing Workshop] was a very strong message that data, with respect to level-crossing accidents, should be

aggregated across all states. One of the projects that was given the nod during one of those meetings was to aggregate all of that data.<sup>1</sup>

- 4.4 The Committee strongly supports the suggestion to aggregate all of the data on level crossing crashes from across Australia. The Committee believes that with greater coordinated data from all jurisdictions, better national policy frameworks will result.

## Recommendation 9

- 4.5 **The Committee recommends that the Australian Government seek, through the Australian Transport Council, a national database which aggregates data from level crossing crashes and fatalities in all Australian States and Territories.**

## Policy

- 4.6 The Australian Rail Track Corporation (ARTC), in its submission to the inquiry, suggested that the problem of lack of coordination in level crossing safety policy arises because level crossing issues have historically been managed by State and Territory governments, which leads to discrepancies in policy and reporting from the different jurisdictions. The submission notes three particular problems with State management:

- there is a division of responsibility between road authorities and rail authorities at the interface;
- there are co-ordinating councils or committees in all States generally convened by State Departments of Transport; and
- there is specific funding for level crossing programmes which vary over time and between States.<sup>2</sup>

- 4.7 The submission states, however, that in recent years some progress has been made in this regard:

There has been some attempts at National co-ordination under the auspices of the Australian Transport Council and the Standing Committee on Transport.

---

1 Mr Peter Foley, ATSB, *Transcript of Evidence*, 13 March 2009, p. 23.

2 ARTC, *Submission no. 13*, p. 6.

These initiatives have been more effective in very recent years and has recently gained some impetus with the adoption of model National Rail Safety Legislation.

That legislation requires road and rail authorities to enter into interface agreements to manage the risk at level crossings.<sup>3</sup>

4.8 The Rail, Tram and Bus Union supports this, stating in its submission:

... that for over 150 years rail policy making has been generally accepted as the responsibility of the states. Restructuring of the Australian rail industry over the last 15 years has changed that equation.

The RTBU argues these structural developments are now working themselves through policy making at various levels.<sup>4</sup>

## The National Transport Policy

4.9 Within the Department of Infrastructure, Transport, Regional Development and Local Government (DITRD LG), the Bureau of Infrastructure Transport and Regional Economics (BITRE) is the Commonwealth department responsible for transport policy. BITRE provides secretariat support to the Australian Transport Council (ATC).

4.10 The Standing Committee on Transport (SCOT) is located within the ATC. Until May 2008, SCOT had a number of *modal groups*, which established policy settings for the different modes of transport. The Standing Committee on Transport *Rail Group*, a sub-committee of SCOT, oversaw national railway safety policy, including level crossing safety. The Rail Group had a sub-committee known as the Australian Railway Level Crossing Safety Implementation Group (ARCSIG) which was formed to oversee the implementation of the *National Railway Level Crossing Safety Strategy*,<sup>5</sup> which will be discussed below.

4.11 The Standing Committee on Transport (SCOT) remains a sub-committee of the ATC, however the Modal Group structure of SCOT

---

3 ARTC, *Submission no. 13*, p. 6.

4 RTBU, *Submission no. 12*, p. 8.

5 Level Crossing Strategy Council website accessed on 15 December 2008: [http://www.levelcrossings.nsw.gov.au/the\\_lcsc.htm](http://www.levelcrossings.nsw.gov.au/the_lcsc.htm).

was recently disbanded, when, in May 2008, the Australian Transport Council agreed to a program of national transport improvement – to be known as the National Transport Policy (NTP). As such the SCOT Rail Group and ARCSIG are now defunct. The NTP framework includes establishment, instead, of a National Road Safety Council (NRSC) which will act as an advisory body to the Australian Transport Council, facilitating the implementation of priority road safety measures, including the development of a package of railway level crossing safety initiatives. The safety initiatives include consideration of:

- a major trial of low-cost level crossing treatments;
- national media and enforcement initiatives for level crossings; and
- other best practice initiatives to improve level crossing safety.<sup>6</sup>

## **The National Railway Level Crossing Safety Strategy**

4.12 The Australian Transport Council released the National Railway Level Crossing Safety Strategy in August 2003. The objective of the strategy was to:

...reduce the number, cost and trauma of crashes between trains and any road users by the most cost effective means.<sup>7</sup>

4.13 The strategy includes a series of “Strategic Directions”, through which it states improvements to level crossing safety will be achieved:

- development and application of low cost active and passive countermeasures;
- development of consistent practice and identification of hazardous sites across Australia;
- identification and analysis of crash causes and factors,
- improved national data and associated information on crashes and risks;
- improved information about rail industry crash costs,
- improved information about crashes involving people with disabilities and other vulnerable road users;
- improved designs for pedestrians, people with disabilities and other vulnerable road users;

---

6 Australian Transport Council, *Joint Communiqué*, 2 May 2008, Canberra, p. 5.

7 Australian Transport Council, *National Railway Level Crossing Safety Strategy*, 2003, p. 3.

- improved road driver understanding and behaviour through improved training, information, education and awareness;
  - ensuring legislation and enforcement are appropriate for the potential consequences;
  - identification of vehicle performance parameters and railway level crossing protection timings;
  - designing railway level crossings to suit the performance of road vehicles (especially heavy vehicles), and consistent application throughout Australia; and
  - seek additional allocation of funds for railway level crossing treatments and closures.<sup>8</sup>
- 4.14 The Committee fully supports the ethos of a national response to the dangers of level crossings; however, as mentioned above, the group that was responsible for the implementation of this strategy, ARCSIG, is now defunct. As such, the status of the strategy is now uncertain.
- 4.15 As well as this uncertainty, the *National Railway Level Crossing Safety Strategy* is now six years old, and therefore the Committee believes that it should be updated to include the new developments in policy and technology with respect to level crossing safety.
- 4.16 As the ARA points out in its submission:
- There is no reference to ITS, rail safety legislation has changed, and a number of states have appointed independent investigators and regulators. The Parliaments of two States have conducted three inquiries into level crossing safety the ARA has identified level crossing safety as an important issue for research, whilst in May 2008, the Australian Transport Council agreed to the development of a package of level crossing safety initiatives.<sup>9</sup>
- 4.17 The Committee notes that the Victorian Railway Crossing Safety Steering Committee (VRCSSC) is currently in the drafting stages of 'Towards Zero: Strategy to Improve Railways Crossing Safety in Victoria', which is designed to complement and expand upon the National Railway Crossing Safety Strategy.<sup>10</sup> As such, the Committee feels it would be timely to consider producing an update to the National Strategy, so that other states may follow suit with the

---

8 Australian Transport Council, 2003, p. 8.

9 ARA, *Submission no. 10*, p. 41.

10 Victorian Department of Transport, *Submission no. 14*, p. 6.

Victorians, and produce strategies themselves, based on a more current national basis.

- 4.18 The Committee believes that as part of the National Transport Policy, which the Australian Transport Council agreed to establish in May 2008, a revised National Railway Safety Strategy should be produced which takes into account developments such as ITS technology.

### **Recommendation 10**

- 4.19 **The Committee recommends that the Australian Government seek, through the National Road Safety Council, a revised National Railway Safety Strategy as part of the new National Transport Policy.**

## **National Model Rail Safety Bill 2006**

- 4.20 The National Transport Council (NTC), an independent statutory body which makes recommendations to the ATC on transport policy, developed the *National Model Rail Safety Bill 2006* in conjunction with all rail jurisdictions, the rail industry and unions. The Bill establishes rail safety regulator reform, to achieve consistency across all jurisdictions. The Bill forms part of the Council of Australian Governments' (COAG) National Reform Agenda, and was designed to be enacted in all States and the Northern Territory. To date, the NSW Parliament has enacted the legislation, doing so in late 2008; and legislation based on the Bill has been enacted in Victoria and South Australia. Queensland, Western Australia and the Northern Territory are all proposing to enact the legislation, while Tasmania has been granted an extension by the Council of Australian Governments (COAG) until the end of 2009.<sup>11</sup>
- 4.21 Infrastructure Australia's December 2008 report to COAG noted the incomplete National Reform Agenda, and, in particular, the delay in rail safety reforms, suggesting that there is greater scope for progressing a consistent national approach to infrastructure regulation and rail safety reforms.<sup>12</sup> COAG's Reform Council released a report in March 2009 which discussed the delay in these reforms,

11 ARA, *Submission no. 10*, p. 38.

12 Infrastructure Australia, *A Report to the Council of Australian Governments*, December 2008, p. 25.



and pointed out that the delay in some States in enacting the National Model Rail Safety Bill 2006 was the main stalling factor in progressing national rail safety reforms.<sup>13</sup>

- 4.22 As the ARA points out in its submission, the significant element of this legislation with respect to level crossing safety is the *Interface Coordination Agreement* clause. It explains:

ICA's will require parties to identify potential risks at individual railway level crossings and share the ongoing safety management responsibilities.

The agreements will require the creation of one or more plans to combat the identified risks at each crossing. Not only will ICA's provide an environment to further manage risk at railway level crossings, they will ensure that rail operators and road owners work together to formulate measures that manage and alleviate identified risks at each site. The legislation calls for periodic formal reviews to ensure that the risk management plans are up-to-date and practical.<sup>14</sup>

- 4.23 It continues:

ICAs are a very important development for the proper maintenance of railway level crossings. They will replace a culture where rail operators and road owners often worked independently to combat risk at railway level crossings. ICA's bring both parties to the table, but the cost of implementing the ICA is problematic. Clearly funding is a threat to the effective use of ICAs. And if this matter is not resolved, the present culture of division will continue. The ARA recommends that State governments provide greater support to road owners to boost the effectiveness and compliance levels of ICA's.<sup>15</sup>

- 4.24 The Committee supports this recommendation from the ARA and believes that the implementation of this model legislation across Australia should be completed at the earliest opportunity.

---

13 COAG Reform Council, *2009 COAG Reform Council Report*, March 2009, p. 31.

14 ARA, *Submission no. 10*, p. 38.

15 ARA, *Submission no. 10*, p. 38.

## Committee conclusion

- 4.25 Effective, up-to-date national policy settings for level crossing safety are required and should be implemented in all jurisdictions with some urgency.
- 4.26 The Committee notes that the recent establishment of the new National Transport Policy, and the National Road Safety Council to oversee level crossing safety initiatives, it is likely that in the coming years better coordinated national policy will be produced. The Committee encourages extensive consultation with all jurisdictions in the compilation of the safety initiatives, and timely updates to all stakeholders as technologies move on.

Catherine King MP

Chair



## Appendix A – Train Illumination Recommendations

### Recommendation 1

The Committee recommends that the Australian Government take steps, through the Transport Ministers Council, to require that all locomotives and rolling stock in the Australian rail industry are fitted with standard reflective strips or reflective paint and that all locomotives are fitted with rotating beacons lights.

### Recommendation 2

The committee recommends that the Australian Government seek the national adoption of a level crossing risk scoring system based on the Queensland model and adapted for local conditions.

### Recommendation 3

The Committee recommends that the Australian Government initiate, through the Transport Ministers Council, a program to install, as a minimum, rumble strips at high accident risk level crossings.

### Recommendation 4

The Committee recommends that the Australian Government through the Transport Ministers Council, support continued research into the efficacy of train activated rumble strips with a view to the installation of these strips at the most dangerous level crossings.

### Recommendation 5

The Committee recommends that the Department of Transport and Regional Services, with state transport departments, formally look at the Canadian based level crossing education program, 'Operation Lifesaver', for the possible adoption into Australian state road safety programs.





## Appendix B – Government Response to Train Illumination Report

**7 December 2005**

### Recommendation 1

#### Support in part

- 1.1 The Australian Government supports the objective of improving train visibility with relatively low-cost reflective strips on locomotives and rolling stock. The Australian Government would not support moves to make rotating beacons compulsory, without evidence that this would be worth the significant costs involved.
- 1.2 The Austroads (2002) report Reducing collisions at passive railway level crossings in Australia found that reflective sheeting may be an effective low-cost countermeasure for crashes involving running into the side of trains at night, provided the reflectors are cleaned and replaced at suitable intervals. It noted that, in the selection of appropriate materials, it was important that they have high retro-reflectivity over a wide range of angles, as railway tracks may cross at extreme angles.
- 1.3 The use of reflective strips is already current practice for some rail operators, and the Australasian Railways Association (ARA) considers that they are likely to become standard throughout the industry.
- 1.4 Many locomotives also have flashing ditch lights or crossing lights. The ARA is currently undertaking a review of Volume 5 (Rollingstock) of the Code of Practice for Australian Rail Operations, which will provide

guidance on design and maintenance features of rolling stock and locomotives. The ARA has advised that the issue of lights and reflective strips has been given priority. A draft national locomotive lighting and visibility standard has been developed and released as part of a public consultation process. The draft standard includes proposals to address improved external lighting, reflective materials and livery and paint requirements.

- 1.5 The Committee did not put forward a strong case for the fitting of rotating beacons stating only that "This could increase conspicuity during daylight hours as well as being more likely to attract attention during the night." The Committee also stated that, after considering evidence concerning the conditions in which many fatal crossing accidents have occurred, it is not convinced that generally placing additional lights on locomotives will have a substantial effect in reducing the number of fatalities. The Australian Railway Crossing Strategy Implementation Group (ARCSIG) has noted that there are about 2,400 locomotives in Australia, and the rail industry advises that the cost of installing rotating beacons on trains would be considerable.
- 1.6 ARCSIG agreed with the Committee that rotating beacons would not be expected to provide a benefit at crossings controlled by train-activated boom gates or flashing lights. It also felt that no benefits would be derived for operations during the day. ARCSIG's view was that given that only about 30 per cent of level crossing crashes occur at night and only about 30 per cent occur at uncontrolled crossings, rotating beacons on trains would have to have a very large effect on that combined subset of crashes in order to be cost-beneficial overall. There is no evidence to suggest that this would be the case.
- 1.7 The Australian Government notes that the NSW STAYSAFE Committee recommended at a State level that "the Ministry of Transport ... identify and review the efficacy of measures to improve the conspicuity of trains, with specific attention to issues associated with trains travelling across level crossings, including but not limited to:
- locomotive ditch lights,
  - locomotive strobe lights,
  - general locomotive lighting,
  - the use of locomotive highlights
  - the use of retro-reflective marking on locomotives, goods wagons and passenger carriage."

## Recommendation 2

### Support

- 1.8 The Australian Government supports this recommendation. At the 23 May 2003 Australian Transport Council (ATe) meeting, Ministers endorsed national adoption of the Queensland Assessment Matrix (Risk Scoring Matrix, RSM) for assessing risk at railway level crossings and prioritising treatments.
- 1.9 The Australian Railway Crossing Strategy Implementation Group (ARCSIG) reported that the Australian Level Crossing Assessment Model (ALCAM) has been developed and is being implemented nationally. There is a national liaison group which coordinates practice, and reviews and refines the assessment process and model. A complementary web-based information system (WEBLX), has been developed. The potential to include pedestrian issues in ALCAM is being investigated.
- 1.10 The Australian Government notes that the NSW STAYSAFE Committee recommended that the Rail Infrastructure Corporation, in consultation with other rail agencies interstate, continue to develop and maintain a risk assessment and prioritisation programme for railway level crossings; and that the Rail Infrastructure Corporation, in consultation with other rail agencies interstate, ensure that the development of a risk assessment and prioritisation programme for railway level crossings is organised to readily identify issues associated with high-speed passenger services, and high-speed rail operations generally.

## Recommendation 3

### Do not support

- 1.11 The Australian Government supports research and trials in this area, but considers that any widespread implementation programme should await the outcome of these trials. As the Committee's report notes, Main Roads Western Australia has been trialling the use of rumble strips at high accident risk level crossings. Rumble strips are thin strips of (typically thermoplastic) material laid transversely across the road in such a way as to generate a noise when a vehicle runs over them. The noise is presumed to alert the vehicle driver of a potential hazard.
- 1.12 The trial results show that the rumble strips had a significant effect in reducing speed at crossings with a 'Stop' sign but the effect was negligible at crossings with a 'Give Way' sign. It was also thought that this result was

strongly associated with the number of strips. Main Roads WA is currently considering the merits of a further trial using more strips to determine if a significant effect can be achieved at crossings with a 'Give Way' sign and, if so, the optimum number of strips required. The Australian Railway Crossing Strategy Implementation Group (ARCSTG) is monitoring this work and will report any progress to SCOT Rail Group in due course.

- 1.13 The Australian Government notes that the NSW STAYSAFE Committee recommended that the Rail Infrastructure Corporation, in consultation with the NSW Roads and Traffic Authority (RTA) and local councils, develop a programme for the installation of gateway treatments and other perceptual countermeasures to provide better cues to motorists on roads approaching railway level crossings, including but not limited to road markings, signage, roadside infrastructure, the road pavement design and construction (e.g. road width, road surface treatment, rumble strips, etc.), and traffic signals (e.g. approach flashing lights).

## Recommendation 4

### Do not support

- 1.14 The Australian Government supports the continuation of research into different forms of warning systems, but would not support detailed research into train-activated rumble strips because the available evidence suggests that they are not likely to have a favourable benefit-cost ratio or to compare favourably with other active warning alternatives.
- 1.15 The Committee report describes train-activated rumble strips as a "developing technology". The Australasian Railways Association (ARA) noted that train activated rumble strips have the potential to incur significant costs compared with other emerging Intelligent Transport Systems (ITS) technologies.
- 1.16 The Australian Railway Crossing Strategy Implementation Group (ARCSIG) considered that they would also be less effective than flashing lights, and that care should be taken in considering the introduction of an additional warning device which drivers would need to understand, without diminishing the effect of existing standard warnings.
- 1.17 ARCSIG is currently monitoring the progress of trials of low-cost active warning devices in Victoria and South Australia. These devices offer a cheaper means of detecting a train approaching a level crossing by using a series of loops sitting on the top of sleepers on both sides of the crossing,



similar to those set into the roadways on approaches to traffic lights. The information is sent to the level crossing via a radio pulse, and a set of flashing lights can be set off on the approach of a train. These lights may be in advance of the crossing for approaching motorists, and flash yellow as a warning that a train might be approaching. Because this system employs non-railway signalling equipment, it is cheaper than the standard systems presently used for flashing red lights and booms.

- 1.18 In South Australia a Low Cost Activation System (LCAS), manufactured by Hi-LUX Technical Services PIL, has been installed on Australian Rail Track Corporation track at an active level crossing in Monarto and under blind trial mode operation (where lights activated by the system are not visible to the public) since July 2002. The performance of the LCAS has been assessed on an ad hoc basis since installation, using data logged by the system and comparing it to available data from a rail predictor unit associated with the level crossing. Data was collected between July 2002 and December 2004. The predictor system recorded 4372 rail movements while the LCAS identified 4352 comparable events - a discrepancy of 20 events in detection between the two systems. For 19 of these events the system had developed a fault and was operating in a fail-safe mode as designed. Only one event remains unexplained, representing a 0.02% failure rate in event detection. The LCAS has proven to be durable in the rail environment over an extended period and there has been no need to undertake maintenance of the unit since installation.
- 1.19 The monitored trial has been completed, although the equipment remains in place, and a final report was tabled at an ARCSIG meeting on 2 August 2005. The report concludes that the trial was successful in proving the technology. However, the issues regarding the visual aspects of the warning device and any legal implications remain unresolved and will be subject to further consideration. There are no plans for any further South Australian trials. The Victorian trial is progressing and is expected to be completed by the middle of next year.
- 1.20 The Australian Government notes that the NSW STAYS SAFE Committee recommended that the NSW Roads and Traffic Authority (RTA) and the Rail Infrastructure Corporation assess the feasibility of installing train-activated rumble strips at passive railway level crossings.

## Recommendation 5

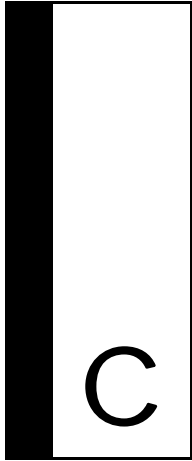
### Support in principle

- 1.21 The Australian Government supports the investigation of education, information and awareness campaigns, while noting that responsibility for the management of these investigations rests with the Australian Railway Crossing Strategy Implementation Group (ARCSIG) and the Australasian Railways Association (ARA).
- 1.22 The Australian Transport Council (ATC) endorsed the National Railway Level Crossing Safety Strategy in May 2003, together with an Action Plan of projects. These documents included a strategic action to investigate education, information and awareness campaigns, including possible adoption of 'Operation Lifesaver'.
- 1.23 The National Road Safety Action Plan for 2005 and 2006 also includes an action to "develop and implement a coordinated approach to improving public awareness of level crossing safety issues, involving road safety agencies, Standing Committee on Transport (SCOT) Rail Group and the rail industry."
- 1.24 Most states and territories currently have, or are developing, railway level crossing safety education activities.
- 1.25 The Department of Transport and Regional Services (DOTARS), through the Australian Transport Safety Bureau (ATSB), has a defined role in independent rail safety investigation and data management and in monitoring the progress of National Road Safety Action Plans, but does not have responsibility for coordinating or implementing level crossing safety initiatives. While the ATSB will continue to monitor jurisdictions' progress as part of the Action Plan monitoring, the Australian Government has not funded the ATSB or DOTARS to engage in a national level crossing coordination or education role.
- 1.26 ARCSIG notes that there is an opportunity for the states and territories to work collaboratively on railway crossing safety activities. The ARCSIG Management Plan includes a project to "investigate education, information and awareness campaigns for all stakeholders (public, engineers, police, etc) integrated with other road safety campaigns, including possible adoption of 'Operation Lifesaver'."
- 1.27 The ARA believes there is considerable merit in adopting a community-based road safety programme which might utilise some concepts from the 'Operation Lifesaver' programme. It held a National Level Crossing

Behavioural Workshop in April 2005 to develop a long term national plan to improve rail level crossing safety by changing road user behaviour. The safety improvement will be delivered through community and state-based programmes utilising education, enforcement and engineering. The workshop was attended by over 60 representatives of road, rail and police authorities in each state.

- 1.28 The ARA is taking input from the delegates at the workshop to develop a national plan and associated implementation timeline. The ARA will seek endorsement for the plan from ARCSIG and relevant authorities and then present it to SCOT for endorsement in October 2005 as a basis for detailed consultations with jurisdictions. Once these consultations are completed, the national plan will be submitted to the ATC for consideration and agreement. The ARA's current view is that the plan will be acted upon and overseen by a body yet to be decided. The body would work in close cooperation with State Railway Level Crossing Committees to manage the plan. At this stage, a launch of the plan is proposed for July 2006.
- 1.29 The Australian Government notes that the NSW STAYS SAFE Committee recommended that the Ministry of Transport, the NSW Roads and Traffic Authority and local councils review the Operation Lifesaver programme in Canada and the United States for possible use, when adapted to Australian conditions and culture in NSW.

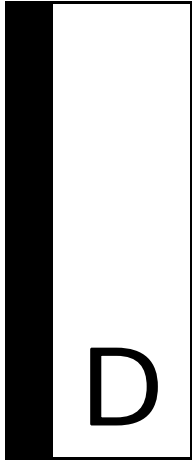




## Appendix C – List of Submissions

- 1 Mr John McCulloch
- 2 Mr Stan Stewart
- 3 Mr Doug Stewart
- 4 Fisher Electorate Office
- 5 Transport Certification Australia Limited
- 6 3M Australia
- 7 Department for Transport, Energy & Infrastructure
- 8 South Australian Freight Council Inc
- 9 Australian Trucking Association
- 10 Australian Railway Association Inc
- 11 McLean Technical Services
- 12 Rail Tram & Bus Union
- 13 Australian Rail Track Corporation Ltd
- 14 Department of Transport
- 15 Confidential



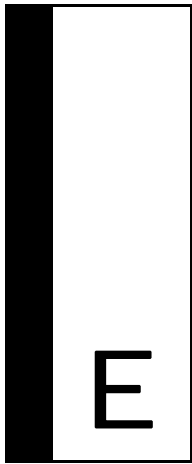


## Appendix D – List of Exhibits

- 1 **Australian Trucking Association** *ATA Rail Level Crossing: Australian Heavy Vehicle Visibility. (Related to submission No. 9)*
- 2 **Australian Railway Association Inc** *Australian Standard 7531*
- 3 **Material tabled by Australasian Railways Association at the Public Hearing, 13 March 2009**
- 4 **Australian Trucking Association** *The Use of a UHF Cut-In System for Level Crossings in Australia.*







## Appendix E – List of Witnesses

**Friday, 13 March 2009 – Canberra**

**Australasian Railways Association**

Kevin Taylor, General Manager, RISSB

Steven Rykers, Project Manager, Rolling Stock Standards

Emma Pettiford, Project Officer, RISSB

**Australian Transport Safety Bureau**

Peter Foley, Director, Surface Safety Investigation

**Rail, Tram and Bus Union**

Roger Jowett, National Transport Policy Adviser

**Australian Trucking Association**

Stuart St Clair, Chief Executive

**Australian Rail Track Association**

Timothy Ryan, General Manager, North South