The Parliament of the Commonwealth of Australia

Train Illumination

Inquiry into some measures proposed to improve train visibility and reduce level crossing accidents

House of Representatives
Standing Committee on Transport and Regional Services

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Canberra

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	Mr Barry Haase MP	Mr Frank Mossfield MP
	Mrs Sussan Ley MP	Mr Alby Schultz MP
	Ms Kirsten Livermore MP (from 20/08/02 to 02/12/02)	Mr Patrick Secker MP
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Committee Secretariat

Secretary	Mr Ian Dundas
Inquiry Secretary	Mr Tas Luttrell
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Terms of reference

The 2002 -2003 annual report of the Department of Transport and Regional Services refers to the implementation of a number of key strategies to:

- support safer transport services;
- lead the development nationally of more consistency in rail regulatory arrangements; and
- develop the Commonwealth's role in rail safety and investigation.

Arising from this the committee is inquiring into some of the measures that have been proposed to improve train visibility and reduce level crossing accidents. In particular, the committee is examining the practicality of installing additional lighting on trains.

List of recommendations

1

Accidents at level crossings

1.1 Accidents at level crossings are a major problem for Australia's railway networks. The financial costs to individuals, government and industry are high. The Bureau of Transport and Regional Economics reported that 'the total cost of level crossing accidents was estimated to be $32 million in 1999' and that 'About $10 million of this is thought to be due to level crossing accidents involving vehicles'. [1] There is also a serious social cost associated with the deaths and serious injuries arising from these accidents.

Inquiry Background

1.2 This inquiry into the connection between train visibility and level crossing accidents arose from issues raised with the Committee relating to the tragic loss of life in the Yarramony crossing smash - a multiple fatality at a level crossing, near Jennacubbine, in Western Australia in July 2000. The Committee expresses its appreciation to Mrs Merrilea Broad and Mrs Karen Morrissey, for bringing this matter to the Committee's attention and for the valuable comments they provided, on what must have been a very distressing experience for them. The Committee found their evidence to be compelling and given in good faith.

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1 Bureau of Transport and Regional Economics, *Rail accident costs in Australia*, 2003, p x.

1.3 After considering the information put before it, the Committee decided that further investigation into train conspicuity and level crossing accidents was warranted. After a private briefing from industry experts and state government transport departments, the Committee decided to formalise the inquiry and to produce this report.

1.4 The Committee has an ongoing interest in rail safety. Some previous reports from the committee looking at rail issues are:

- Back on Track, review of progress in rail reform[2];
- Beyond the Midnight Oil, an inquiry into managing fatigue in transport[3]; and
- Tracking Australia, an inquiry into the role of rail in the national transport network[4].

1.5 The Committee focussed on only one aspect of the problem with level crossings, however, it sees this report as a further contribution to the safe and efficient operation of the Australian transport industry.

1.6 The Committee is aware that NSW parliamentary committee on road safety, Staysafe[5], has an inquiry nearing completion, looking at safety at railway level crossings. The inquiry is focusing mainly on the status of crossings, contributing factors to crashes, measures to increase safety at level crossings, road vehicle driver behaviour and education with regard to usage of level crossings. The NSW committee should be reporting before the end of 2004.

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2 The House of Representatives Standing Committee on Communications, Transport and the Arts, *Back on Track. A Review of progress in rail reform*, May 2001.

3 The House of Representatives Standing Committee on Communications, Transport and the Arts, *Beyond the Midnight Oil. An inquiry into managing fatigue in transport*, October 2000.

4 The House of Representatives Standing Committee on Communications, Transport and Microeconomic Reform, *Tracking Australia: An inquiry into the role of rail in the national transport network*, July 1998.

5 NSW Parliament, Staysafe committee website, Level crossings Inquiry. http://www.parliament.nsw.gov.au/prod/web/phweb.nsf/frames/committees?open&tab=committees

What are Railway Level Crossings

1.7 A railway level crossing is where a road and a railway track cross paths at the same level, in contrast to a grade separated crossing where there is a physical separation between the two (e.g. a bridge). There are several different types of level crossings in Australia. The nature of the crossing strongly influences the possibility of serious accidents occurring. The characteristics of the different types of crossing are set out in the following paragraphs.

Passive level crossings

1.8 Passive level crossings have warning signs on approach to the crossings but have no mechanical or light devices. There are numerous standards for signage across Australia. Some of the more common types are the crossbuck[6], an inverted red triangle, Give Way and Stop signs.

Active level crossings

1.9 Active level crossings are protected by automatic warning systems (such as flashing lights, boom gates, ringing bells or other warning devices that are activated by approaching trains) in addition to the standard passive crossing signage on the approach to the crossings.

Maintenance level crossings

1.10 These crossings are for use by accredited railway professionals only. They are generally used to allow maintenance crews to gain access to railway facilities.

Occupational railway crossings (including private crossings)

1.11 These crossings are also referred to as accommodation crossings or permit crossings. Several other names are also used in local areas to indicate that the use relates to access between private property and public roads. Occupational crossings are required to have the approval of the track and rail owners.

6 This is a white regulatory, X-shaped, sign with the words "Railroad Crossing" in black lettering, located alongside the highway prior to the crossing.

Illegal railway crossings

1.12 A crossing is considered to be illegal when a land owner, or any other person, constructs a roadway or path crossing a railway line, without the approval of the track owner or train operator. Such crossings can be very dangerous because no site survey is undertaken and the crossing is placed as a matter of convenience for the user, sometimes without any consideration of safety factors.

Fatalities at Level Crossings

1.13 Over the past six years Australia has had on average 37 fatalities per year resulting from level crossing accidents. The table below sets out the statistics for the period 1997-2002; it includes both vehicle related and pedestrian fatalities.

Table 1.1 Level crossing accidents fatalities

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

Source *Australian Transport Safety Bureau www.atsb.gov.au/rail/pdf/crossing_fatalities.pdf*

1.14 Railway accident fatalities are recorded internationally by the Organisation for Economic Cooperation and Development (OECD). Australian fatalities annually for railway accidents are 0.2 per 100,000 of population, which is also the OECD average.

1.15 Fatalities at railway level crossings are equivalent to less than one per cent of the national road toll; but for the rail industry, level crossing accidents are the 'largest single cause of fatalities, accounting for 136 deaths in the period from 1977-2000'[7].

7 Bureau of Transport and Regional Economics, *Rail accident costs in Australia*, 2003, p 3

1.16 Over sixty percent of reported deaths at railway level crossings are pedestrians[8]. The 2003 National Railway Level Crossing Safety Strategy reports that there is hardly any information readily available on a national or systematic basis about crashes involving pedestrians. However a database is currently being compiled by the Australian Transport Safety Bureau (ATSB) to provide data which may help to determine the causes of the high number of pedestrian fatalities[9].

1.17 It seems that more information is available about level crossing accidents involving vehicles. Strangely, most fatalities occur in daylight hours, excluding dawn and dusk. A review of data from various sources lead one expert, Dr Peter Cairney, to conclude that approximately 70 per cent of vehicle / train collisions in Australia occur during daylight hours[10]. Another study suggested that eighty-five percent of accidents occurred in fine weather, eighty-four percent on a dry road, and the road was straight in eighty-nine percent of cases and level in seventy-seven percent of cases[11].

1.18 Significantly, it has been reported that most crashes occur where the driver has 'local understanding of the railway level crossing'[12] Also significantly the National Railway Level Crossing Safety Strategy reported that 32 per cent of crashes occurred at passive crossings and that 50 per cent occurred at active controlled crossings.[13]

1.19 In 36 per cent of cases at passive level crossings the road vehicle hit the side of the train. These figures suggest to the Committee that factors such as the visibility of the train as well as the characteristics of crossings warrant consideration.[14] Having said this, the Committee notes that the National Strategy says that contributory causes can be difficult to define and that generally there are several for any particular accident.[15]

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8 Australian Transport Council, *National Railway Level Crossing Safety Strategy*, August 2003. p.5

9 Australian Transport Council, Communiqué, 12 November 1999

10 Australian Transport Safety Bureau, Peter Cairney, *Prospects for improving the conspicuity of trains at passive railway crossings*, Road Safety Research report CR217, December 2003.

11 Australian Transport Safety Bureau, Monograph 10, *Level Crossing Accidents* http://www.atsb.gov.au/road/mgraph/mgraph10/mono10.pdf]

12 Australian Transport Council, *National Railway Level Crossing Safety Strategy*, August 2003. p.5

13 Australian Transport Council, *National Railway Level Crossing Safety Strategy*, August 2003. p.5

14 Australian Transport Council, *National Railway Level Crossing Safety Strategy*, August 2003. p.5

15 Australian Transport Council, *National Railway Level Crossing Safety Strategy*, August 2003. p.4

1.20 The Australian Transport Council (ATC) examined the major factors that contribute to fatal vehicle crashes at railway level crossings. Prominent among the mix of factors were alcohol and drugs, speed and vehicle driver error (See Table 1.2).

Table 1.2 Major Factors in Fatal Vehicle Crashes at Railway Level Crossings

Factor	Percentage
Adverse Weather or road conditions	9%
Alcohol/drugs (vehicle driver)	30%
Vehicle driver fatigue	8%
Unintended vehicle driver error	22%
Excessive vehicle speed	23%
Other risk taking	5%

Source, Australian Transport Council, National Railway Level Crossing Safety Strategy, August 2003, p 4

Policy development: who sets the rules

Commonwealth, state and territory governments

1.21 The Department of Transport and Regional Services (DOTARS) is the Commonwealth department responsible for transport policy. Its charter is to implement government transport policy, so as to provide transport systems that are safe, efficient, internationally competitive, sustainable and accessible for all of Australia. Associated with the portfolio, are two agencies with major responsibilities in the transport area.

1.22 One of these agencies, the Australian Transport Safety Bureau plays a major role in rail safety. It is the facilitator for the investigation of major accidents or incidents on the Defined Interstate Railway Network (DIRN).

1.23 The ATSB also administers the National Rail Safety Occurrence Database (NROD) in conjunction with the state rail safety regulators. NROD compiles national safety statistics on the Australian railway system; its database begins with statistics from 2001. The ATSB is working with rail safety regulators to broaden the coverage of the database and to provide additional statistical information on Australian rail fatalities.

1.24 Each state and territory has a transport authority and a minister responsible for transport. The committee considers that the experience and skills developed within these authorities should be used cooperatively to further standardise the industry and to make what is already a safe and efficient infrastructure, even safer. This requires national coordination and cooperation.

1.25 Policy is considered at a national level by the Australian Transport Council which consists of Commonwealth, State, Territory and New Zealand Transport Ministers. It provides advice to those governments on transport policy issues. The ATC has developed a National Railway Level Crossing Safety Strategy, which aims 'to reduce the number, cost and trauma of crashes between trains and any road users by the most cost-effective means.'[16]

1.26 The Standing Committee on Transport Rail Group (SCOT Rail Group) is a sub committee of the Australian Transport Council. The purpose of the SCOT Rail Group is to look at rail related issues from a national level, and its interaction between other modes of transport. The Committee is made up of members from all states and territories

1.27 The Australian Railway Crossing Safety Implementation Group (ARCSIG) is also a sub branch formed under the ATC. The Group's main purpose is to investigate possible ways of improving safety at level crossings. Its membership consists of governments and rail industry experts.

Non-government Organisations

1.28 The Australasian Railway Association (ARA) represents the rail industry in both Australia and New Zealand. Its membership includes representatives of most sectors of the rail industry, private and government, including: rail operators; track owners and managers; rolling stock manufacturers; track maintenance and construction sectors; suppliers; signals and communications manufacturers and suppliers; consultants and research centres. The ARA works to bring the diverse opinions of the various sectors into a single, cohesive industry viewpoint, which it then represents to a wider audience, particularly to government.

1.29 A major role for the ARA is management of the National Codes of Practice on behalf of the industry. These Codes set out guidelines and standards for the industry on safety and best practice. The Codes currently apply only to the Defined Interstate Rail Network, but work is underway to expand their coverage to the entire rail network.

16 ATC *National Railway Level Crossing Safety Strategy*, p.3

2

Improving train visibility

2.1 Considerable effort has been put into the improvement of train visibility in recent years. More powerful lighting, audible signalling devices and better marking of crossings have all been tried. Experts continue to be mystified as to why despite these efforts, some people are still not sufficiently alerted to recognise the approach or presence of a train and to avoid an accident.

Additional lighting and reflective strips

2.2 Improved lighting was one of the methods proposed to the Committee to reduce level crossing accidents. Some of the statistics reported in chapter 1 appear to the Committee to be particularly significant, when considering the potential benefits of improved lighting. Many of the fatal accidents involving vehicles hit by trains at level crossings occur during the day and at actively protected crossings.

2.3 The latter point surprises the Committee, but as Dr Eric Wigglesworth stressed in his evidence to the Committee, when other warnings are available, the visibility of trains at actively protected crossings should not be an issue if drivers are paying attention:

> It matters not a tuppence whether the locomotive has headlights, headlights and a strobe, no lights at all, or whether it is lit up like the Sydney Harbour Bridge on New Year's Eve. If the boom barriers come down, that is the information that tells a road driver

a train is coming. The conspicuity or other wise of a locomotive at those crossings is secondary.[1]

2.4 It appears that additional lighting will not lead to a significant reduction in accidents at controlled crossings. The value of additional lighting on locomotives or rolling stock to reduce the high number of accidents that occur during daylight hours is also doubtful. However it may worth considering the potential benefit to be gained from additional lighting in relation to reducing accidents at passive crossings between dusk and dawn even though the number of fatalities is low.

2.5 To provide warnings at night, locomotives are required to have effective headlights and horns. A recent Austroads report examined various types of lighting that can be used on locomotives to improve visibility.[2] These include:

- Oscillating lights - standard headlights which rotate backwards and forwards, creating a beam which sweeps too and fro across the locomotive's path, creating a constantly changing pattern of illumination against the vegetation and other features of the landscape.
- Rotating beacons, where the rotating appearance may be achieved by a mechanically rotating reflector, or by electronic discharge of separate lighting elements. These units can be used at the front of locomotives, mounted on the roof.
- Strobe lights which flash at a high frequency.
- Ditch lights - high output lights mounted approximately 1.5 m above track level and aligned to shine past the edge of the rails.
- Crossing lights – a variation on ditch lights, each light being aimed to illuminate the opposite side of the track; they can be made to flash alternately, so that the appearance is of a light alternating with a much brighter light.

1 Transcript 24 March 2004 p.5

2 Austroads, Reducing Collisions at Passive Railway Crossings, 2002, p.12

2.6 The Committee, after considering evidence concerning the conditions in which many fatal crossing accidents have occurred, is not convinced that generally placing additional lights on locomotives, or on the side of trains, will have any substantial effect in reducing the number of fatalities. The cost is likely to be considerable if lights are to be fitted to all rolling stock and would involve significant maintenance. We need a better understanding of why vehicles collide with trains during daylight hours and at controlled crossings before a broad policy of illuminating rolling stock could be advocated.

2.7 However some other options are more viable. The Committee considers that there is a case for rotating beacons to be installed on all locomotives. This could increase conspicuity during daylight hours as well as being more likely to attract attention during the night.

2.8 The Committee also considers that adhesive reflective strips or reflective paint should be applied to the sides of all railway rolling stock. It has been suggested that keeping reflective strips clean and effective might be a problem, but Committee members have seen routine maintenance programs in the rail industry which could easily be adapted to include simple cleaning processes for reflective strips. Washing down the strips would not be a significant additional cost to rail operations when compared to replacing and maintaining of electrical equipment.

2.9 Reflective strips could be yellow, red or white with contrasting bright dots to show that the rolling stock is in motion. They should be set at head-light height and must be subject to regular testing and cleaning.

2.10 The Committee notes that improving conspicuity of rolling stock has been included in the current draft Code of Practice promulgated by the Australasian Railway Association for the rail industry.[3]

2.11 The code requires rolling stock to have reflectors fitted to their sides to increase night time visibility for approaching road vehicles. Although Chapter 5 in the Code of Practice is currently still in draft form, the Committee understands that the proposed standards are likely to be accepted and believes that they should be. The requirement for reflector strips to be periodically cleaned has also been factored into the Code of Practice.

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3 Australasian Railway Association, Draft Code of Practice for the defined interstate rail network, Volume 5, Part 3 – Freight cars- Specific requirements and recommendations, Section 1 – Design and construction, p.5

2.12 The option of reflector strips is attractive when compared to additional lighting. It is cost effective and no additional requirement is forced onto the rail industry to install fail-safe lighting devices and constant electricity sources.

Recommendation 1

2.13 **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.**

3

Other measures to improve awareness of trains.

3.1 The Committee notes that there is a need for more work to be undertaken in the analysis of fatalities at level crossings. In particular there is a need for closer examination of pedestrian fatalities at level crossings.

3.2 The Committee has identified some modest measures to improve train visibility in chapter 2. It believes that in the long run, and short of converting all passive crossings to controlled crossings, further significant safety improvements will come from developments in Intelligent Transport Systems, (as discussed below). In the meantime, a lot can still be done to improve the safety of level crossings, such as improvements to active equipment, and improving signage at passive crossings.

3.3 The Rail Infrastructure Corporation (RIC) is proactively upgrading level crossings in New South Wales. In the last financial year, RIC upgraded 124 level crossings at a cost of nearly five million dollars. Another 300 further level crossings are in the process of being upgraded to having remote monitoring across the state.[1] This will still take time to deliver significant benefits and, as noted in Chapter 2, will not entirely eliminate the problem.

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1 Rail Infrastructure Corporation website, Level crossings http://www.ric.nsw.gov.au/safety/

Approaches to crossings

3.4 The angle at which the road approaches a level crossing is a major issue for both road users and train drivers. A poorly designed approach can hide an approaching train until the last seconds of the approach to a level crossing. The time required for drivers to stop a vehicle travelling at 100kph is at least 8 seconds. Dr Cairney calculated that, 'in order to detect and respond to the presence of a train the car driver should have detected it at least 8 seconds before arriving at the track' this is so the driver has at least 2.5 seconds to register the train, and 5 seconds braking time.[2]

3.5 One tool to better assess poor approaches to level crossings is the Queensland Risk Based Scoring System.[3] Queensland Transport and Queensland Rail have developed this scoring system to assess and quantify risk at level crossings. Some of the elements the scoring system looks at are:

- physical layout of the level crossing, e.g. sight distances, road alignment, speed of vehicles;
- volumes of road and rail traffic; and
- presence of existing protection devices.

3.6 This system is attracting support and interest in other jurisdictions. Austroads supported the scoring system in its report into reducing collisions at passive railway level crossings,[4] and it has been adopted by several other states, including Victoria and New South Wales[5].

2 Prospect for improving the conspicuity of trains at passive level crossings, Australian Transport Safety Bureau, CR 217, December 2003. p.21

3 The Risk Scoring Matrix is a scientific tool providing a consistent approach to all level crossings, one of the matrix's uses is to determine if a level crossing is needed for upgrade. It is discussed further in Chapter 3.

4 Austroads, Reducing Collisions at Passive Railway Crossings in Australia, 2002.

5 SCOT Rail Group: Australian Railway Crossing Safety Implementation Group,

3.7 The Committee considers that the national adoption of a risk scoring system based on the Queensland model and adapted for local conditions, would facilitate the removal of hazards in the approaches to level crossings. The system may provide a sound basis for improving the approaches to level crossings but improvements are likely to take a long time to implement for all level crossings in Australia.

Recommendation 2

3.8 **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.**

Road Signage

3.9 Road signs are placed at every railway crossing in Australia. This practice is controlled by the Australian Standard 1742.7, which identifies the minium requirement for signage at railway level crossings. While this does not improve train conspicuity, it alerts vehicle drivers to the presence of a railway level crossing.

3.10 In a recent paper, produced by Austroads, Dr Wigglesworth recommends that four issues be investigated to enhance signage at level crossings:

> The first is how best to present railway level crossing numbers to road users to enable them to inform control centres in the event of problems. The second is whether it is possible to develop an advance warning sign which intuitively conveys the message of a passive crossing. The third is whether it is feasible to provide a warning that a railway line is used by high-speed trains. The fourth is whether it is feasible to provide an indication of the general level of risk associated with railway level crossings – one suggestion is to use advisory speed as a way of indicating the risk to road users. These issues should be referred to Standards Australia.[6]

6 Austroads, Reducing Collisions at Passive Railway Crossings in Australia, 2002

3.11 The committee considers that road signage and markings, including rail crossing signage, should be standardised across Australia. This needs attention and should be investigated by Standards Australia. The committee considers that level crossing signage should include standardised markings on the road surface at the approach to level crossings – the standard rail crossbuck symbol or perhaps the train silhouette symbol could be adopted as a national standard for this purpose.

Rumble Strips

3.12 Main Roads Western Australia is trialling cost effective rumble strips at 16 passive level crossings. The trial, due to be completed at the end of July 2004 has collected data from some level crossings where there is both high speed road traffic and high speed trains, and includes the crossing at Yarramony were the tragedy referred to in paragraph 1.2 above occurred. The trial involves the placement of rumble strips on the road before the approaching signage, to alert the road vehicle operator to the upcoming crossing, in addition to the warning provided by the road signs.

3.13 Dr Wigglesworth advised the committee of a developing technology involving rumble strips, that is not currently being used in Australia. He referred to train activated rumble strips that are operated by hydraulic pressure and triggered by an approaching train. [7] Given that level crossing accidents can often be attributed to lack of driver alertness, such a system would be a useful addition to the warning devices at crossings. It would also help overcome the problem of complacency and over-confidence based on local knowledge or repeated crossing use. If activated only when a train is nearing a crossing the strips would alert drivers approaching the crossing to the changing situation. Such rumble strips would be particularly helpful where train lines are used infrequently or seasonally.

Recommendation 3

3.14 **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.**

7 Transcript 24 March 2004, p.6

Recommendation 4

3.15 **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.**

ITS and train conspicuity

3.16 Intelligent Transport Systems (ITS) provide possible solutions to increase train conspicuity. ITS are already being used as effective safety tools in the transport industry and the committee has recently reported on this matter in relation to road transport.[8] Further developments of ITS specifically for the rail industry could help to achieve a reduction in road-rail fatalities. Such systems would alert a train or a road vehicle entering a level crossing to the presence or approach of the other.

3.17 Currently there are several systems available for use in level crossing situations. One in particular, mentioned to the committee by Mr Robert James of the Sugar Research Industry, is used by the sugar industry in Queensland.[9] It is called the EV-Alert. A radio transmitting device is fitted to all locomotives, and constantly sends out a coded signal. This signal is received by an in-car (or in-tractor) device and decoded to activate a flashing light in the cabin, with a sound to warn vehicle drivers that a train is approaching or that it is in the vicinity of a train.

3.18 The system can also use the transmitting signal to activate an active crossing. The bells, flashing lights and boom barrier would only return to open status after the train had left the defined area.

8 House of Representatives Standing Committee on Transport and Regional Services, *Moving on ITS, Report on aspects of intelligent transport systems*, December 2002.

9 Transcript 24 March 2004, p.8

Education

3.19 The committee heard from Dr Cairney about the role that education can play in helping to reduce level crossing fatalities. He explained that the means already exist to deliver education programs in this area already:

> … much of Australia has very active community road safety programs which are often run by local governments and, if we are going to embark on education, this is really a ready made infrastructure for delivering this type of message.[10]

3.20 The expansion of level crossing safety education programs was supported by Austroads, which commented that:

> …many of the stakeholder organisations recognized that hardly any educational activity was undertaken in relation to safe procedures at railway level crossings.

3.21 Austroads also supported the adaptation of 'operation lifesaver', a Canadian based level crossing education program that runs in Canada and the United States of America. It was suggested by Austroads that this is a cost effective, non-profit, education program that in the USA costs US$2.5 million annually.[11] The Committee believes it would be worth investigating whether this program could be adapted for Australian conditions and culture.

Recommendation 5

3.22 **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.**

10 Transcript 24 March 2004, p.5

11 Austroads, Reducing Collisions at Passive Railway Crossings in Australia, 2002, p.19.

3.23 The Committee has, on occasion, visited the Cooperative Research Centre for Railway Engineering and Technologies, and has held discussions with Centre staff. The CRC is currently undertaking a major study into level crossing risk management. The project aims to address the 'lack of research in evaluating community education and intervention programs targeting level crossing safety'.[12] Specific objectives of the project include the development of a community based intervention and education program to promote safe level crossing behaviour.

3.24 This project will take some time to complete and the final development of the intervention and development model is not scheduled until December 2006. It may, however, lead to a better understanding of how and why level crossing fatalities occur most often in daylight and at active crossings. The Committee strongly endorses the value of such research and considers that the Australian, state and territory governments ought to support and participate in the development of the CRC's program.

Paul Neville

Committee Chair

16 June 2004

12 Program outline for Level crossing risk management: The development of a community intervention program for level crossing safety (Project 83), supplied by the CRC.

A

Appendix A - List of Exhibits

1 Documents presented by Mr Robert James, Senior Railway Engineer, Rail Safety Sugar Research Institute, 24 March 2004:

- Australian Sugar Industry *Code of Practice for Active Level Crossing Protection Systems on Cane Railways*,
- Sugar Research Institute *Cane Railway Infrastructure Data – July 2003*

2 Document presented by Mr Peter Cairney, Australian Road Research Board, 24 March 2004:

- Australian Transport Safety Bureau *Prospects for improving the conspicuity of trains at passive railway crossings – Road Safety research report CR 217*

3 Documents presented by Mr Greg Ford, Senior Business Manager (Rail Safety Unit) Queensland Transport, 24 March 2004:

- Notes for Informal Briefing to the House of Representatives Standing Committee on Transport and Regional Services.
- CD-ROM containing four papers provided by Queensland Transport.
- *Memorandum of Understanding between Local Government Association of Queensland, Queensland Rail, Queensland Department of Main Roads and Queensland Transport with respect to Management and Funding Responsibility for Level Crossing Safety*

4 Documents presented by Dr Eric Wigglesworth, 24 March 2004

- Notes for House of representatives Standing Committee on Transport and Regional Services

- Papers from American Trucking Association and USA Government authorities on railroad conspicuity.

- *Review of studies to improve safety at passive rail-highway crossings at grade*

B

Appendix B - Briefings

Wednesday, 3 December 2003 - CANBERRA

Mrs Merrilea Broad

Mr Gregory Duggan

Mrs Karen Morrissey

Wednesday, 3 March 2004 - CANBERRA

Mr William Filor
Deputy Director, Surface Safety, Australian Transport Safety Bureau

Wednesday, 24 March 2004 – CANBERRA

Mr Greg Ford
Senior Business Manager (Rail Safety Unit), Queensland Transport

Mr Robert James
Senior Railway Engineer, Rail Safety, Sugar Research Institute

Mr Peter Cairney
Australian Road Research Board

Dr Eric Wigglesworth