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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