



AUSTRALASIAN RAILWAY ASSOCIATION INC

**Parliament of Australia  
House of Representatives Standing Committee  
on Communications, Transport and the Arts**

Inquiry into  
Managing Fatigue in Transport

Submission from the  
Australasian Railway Association

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## 1. About the Australasian Railway Association

The Australasian Railway Association Inc (ARA) is the peak industry body for the rail sector in Australia and New Zealand. The ARA is a unique rail association. It represents the interests of both private and government owned rail operators (both freight and passenger); track owners, manufacturers of locomotives, rollingstock, signalling and communications; equipment suppliers; maintenance and construction companies; freight forwarders, investment banks, lawyers, IT and service providers, consultants and unions.

The Association was founded in 1994 and currently has a membership of 120. Members of the Association employ over 75,000 workers in virtually all parts of both countries. The rail industry in Australia provides significant economic benefit to the country of around \$7 billion per year. Association members are also large exporters of goods and services and their rail expertise is widely recognised in the region as being of the highest quality. The Australian rail industry presently holds overseas contracts worth over \$500 million, primarily in Asia.

The majority of members (90%) are in the private sector and are profitable enterprises trading in highly competitive domestic and international markets. The Association is entirely funded by its members through membership fees.

This ARA submission to the Inquiry into Managing Fatigue in Transport is being made on behalf of a diverse group of the ARA membership which involves more than the interests of traditional operators and track owners; it also includes the interests of equipment manufacturers such as rolling stock, locomotives and signalling & communications, and maintenance and construction companies.

## 2. Causes of and contributing factors to fatigue

Addressing the 36<sup>th</sup> biennial conference of the Association of Australian Port and Marine Authorities in Adelaide in 1998, Dr Drew Dawson from the Centre for Sleep Research in South Australia said “reduced opportunity for sleep and reduced sleep quality are generally considered to be the major risk factors associated with shiftwork related accidents. Not surprisingly, the combination of these factors leads to increased fatigue, lowered levels of alertness and impaired performance on a variety of cognitive psychomotor performance tasks”.

“Experimental studies have shown that sustained wakefulness impairs several components of performance, including hand to eye co-ordination, decision making, memory, cognition, visual search performance and speed and accuracy of performance”.

“In addition to cognitive factors, effective components of behaviour such as motivation and mood, are alerted as the duration of sustained wakefulness increases”.

“Suprisingly, policymakers in western industrialised countries have generally not legislated to manage and control fatigue in a manner commensurate with the statistical risks associated with it. This attitude is in stark contrast to the response to alcohol related performance impairment”.

The traditional approach to addressing fatigue has been to regulate the hours-of-service provided by employees in the various transport modes. Industrial agreements and awards have tended to regulate the hours of work for employees, however, there is growing recognition that this approach does not take account of the effects of fatigue, sleepiness, sleep disorders and circadian factors.

The Australian rail industry has until recent years been totally government-owned and the management of fatigue has been self regulated within a framework of industrial awards and agreements. It has statutory obligations for the safety and occupational health of its employees



and operating practices and procedures which provide for the safe transport of passengers and freight.

The rail network is being progressively opened up to third party access and some governments have signalled their intentions to privatise part or all of their railway operations.

Historically the public has demanded and has been provided with safe rail operations through a self-regulation process. Under the changed third party access regime overall responsibility for ensuring safe operation of rail transport is vested with the new accreditation agencies which are generally located within the various state transport departments. There is an Intergovernmental Agreement to provide for a national approach to rail safety.

Rail is a demonstrably safe transport mode. The cost of rail accidents in Australia is estimated to be just over 1% of the total \$6.5 billion annual cost of transport accident costs in Australia. In contrast road transport accidents in Australia accounts for \$6 billion (92%) of this cost. <sup>1</sup>

Rail freight transport is seven times safer than road transport with only 0.55 fatalities per billion tonne-kilometres compared with road freight's 3.8 fatalities per billion tonne-kilometres. <sup>2</sup>

The road transport industry has developed new schemes aimed at improving fatigue management. However, they appear to rely solely on regulation of maximum hours of work, and take no account of the times of day in which work occurs.

### 3. Rail initiatives in addressing the causes and effects of fatigue

The Australian rail industry is at the forefront of research into shift worker fatigue and the application of research to rosters and work conditions.

In late 1993 representatives of various state and national rail authorities and the Public Transport Union discussed shiftwork and the workload in the Australian rail industry when it was agreed that:

- shiftwork was emerging as an important occupational health and safety issue
- historically, decisions on the health and safety risks associated with rosters and workload have been based on theory rather than practice
- rostering practice (at the time) was not based on any systematic approach to evaluating the specific demands associated with particular shift schedules and
- industry stakeholders should endeavour to assess the potential impact of alternative rostering systems on the health and welfare of train drivers and on the cost recovery of rail transport

Out of this several state and national rail organisations and the Public Transport Union established a consortium and commissioned the University of South Australia's Centre for Sleep Research to undertake a study into the effects of shiftwork and fatigue on employees, particularly operational train crews. It was considered that there would be significant benefits to the rail industry if a program was implemented to:

- develop and validate field-based measures of the impact of specific roster systems and workload on driver health, safety and well being
- develop and validate an educational initiative to improve organisational awareness of the impact of shiftwork on all aspects of the rail industry

<sup>1</sup> *Social Cost of Transport Accidents in Australia*, Bureau of Transport and Communications Economics Report 79 (1992), p. xvi and BTCE Information Paper No.7, 1995

<sup>2</sup> *Toward a methodology for comparative resource consumption: modal implications for the freight task*, ARRB Transport Research Report ARR 318, p5



The basis for the 3 year study, which commenced in 1995, involved more than 250 drivers from 14 rail depots across Australia who are engaged in the many different types of passenger and freight train operations. This research found that:

- same length shifts will be more fatiguing if they take place during natural sleep periods (between 2100 and 0800 hours) because employees are battling against their natural body
- the body rejects or minimises attempts to recover sleep between 0600 and 1200 hours
- many shift workers are unable to balance competing social and work obligations and often forfeit sleep as a result

The study provided an impetus for the Australian rail industry to change its approach to managing rosters and conditions for shift workers. Improving the health, safety and working conditions through better management of rosters not only benefits employees but it can also benefit the financial performance of rail operators.

Four rail operators involved in this initiative have now developed training and awareness packages using materials developed from the study.

The project has recently been extended for a further three years which will:

- maintain the continuing rail industry access to the expertise and data acquired over the initial three year period of the study
- evaluate the implementation of the training and education programs by each of the consortium members
- use fatigue modelling to better understand the relationship between hours of work and key organisational performance indicators associated with train driver performance
- to apply recently developed scheduling algorithms to train crewing. These algorithms have been specifically designed to allow dynamic rostering of train crews in operating environments involving fluctuating customer demands at short notice

In the USA the National Transportation Safety Board (NTSB) has recently demanded that the Department of Transportation (DOT) establish new science-based regulations governing the number of hours which key transport workers may spend on the job.<sup>3</sup> The NTSB has called for the DOT to expedite:

- a co-ordinated research program on the effects of fatigue, sleepiness, sleep disorders and circadian factors on transport system safety
- develop and disseminate educational material for transport industry workers and management regarding shiftwork, work and rest schedules, and proper health, diet and rest regimes
- review and up-grade existing hours-of-service regulations for all transport modes to assure that they are consistent and incorporated results of the latest fatigue and sleep issues research

4. Ways of achieving greater responsibility by individuals, companies, and governments to reduce the problems related to fatigue in transport

The Australian public demands a safe environment for all its endeavours whether this be in the work place, in all forms of transport and around the home and will express discontent with any movement away from acceptable limits.

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<sup>3</sup> *Daily Commercial News*, 14.6.98, p8



As stated elsewhere in this submission the Australian public has demanded a safely operated railway and these demands have been met by governments. However, the public has expressed some concerns with the changes that are occurring through the privatisation process and their continued requirements for a safe railway.

Safety on our highways and roads has also been the centre of public focus in recent times with the ever increasing number of bigger and heavier trucks and their safety implications. Driver fatigue was identified as a major challenge to the road industry in 1997, being a major casual factor in<sup>4</sup>:

- at least one in five fatal single vehicle crashes involving medium and heavy trucks and
- about one in twenty (5%) instances where the driver of a medium or heavy truck is at fault in a collision with another vehicle

In a 1998 Newspoll survey conducted for the Australasian Railway Association, 92% of respondents agreed that 'freight rail is safer for the community than large and heavy trucks'. 70% of respondents also agreed that 'there are too many large and heavy trucks currently on the road'.

Rail operators are required to provide their Accreditation Agency with details of all accidents and incidents in accordance with Australian Standard AS 4292. This information is collated on a state by state basis and efforts are being made to develop the production of national statistics. This information would be invaluable to operators to enable them to measure their own performance against other operators. The inclusion of fatigue assessment in any accident/incident would be useful.

Reports of Investigations of rail accidents should be published, subject to any relevant legal safeguards. This would ensure that the management of all rail organisations are able to make use of the findings of investigations where fatigue is found to be a factor. It is noted that this was recently agreed to in principle by Ministers in the Australian Transport Council. The Transportation Safety Board of Canada publishes investigation reports and issues a regular "Rail Safety Reflections" publication.

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<sup>4</sup> *Road safety statistics and trucks*, Federal Office of Road Safety November 1997, p5