



NATIONAL ROAD TRANSPORT COMMISSION

SUBMISSION

by the

NATIONAL ROAD TRANSPORT COMMISSION

to the

HOUSE OF REPRESENTATIVES

TRANSPORT & REGIONAL SERVICES COMMITTEE

INQUIRY into NATIONAL ROAD SAFETY

CONTENTS

Executive Summary	1
1. Introduction.....	5
1.1 The National Road Transport Commission.....	5
1.2 Transition to the National Transport Commission	5
2. International Benchmarking of Heavy Vehicle Safety Performance	5
2.1 Benchmarking Study.....	5
2.2 International Comparisons	6
2.3 Recommendations of the Benchmarking Study	9
3. Contribution of Road Transport to the Road Toll.....	10
4. National Heavy Vehicle Safety Strategy	11
4.1 Relationship to the National Road Safety Strategy	11
4.2 Growth in the Freight Task	12
4.3 Principles Underlying the Heavy Vehicle Safety Strategy	12
4.4 Strategy Target	13
4.5 Strategic Objectives	13
4.6 Endorsement by the Australian Transport Council.....	13
5. National Heavy Vehicle Safety Action Plan 2003 – 2005	14
5.1 Overview of the Action Plan	14
5.1.1 Increased seatbelt usage by heavy vehicle drivers	14
5.1.2 Safer roads.....	15
5.1.3 More effective speed management.....	15
5.1.4 Reduced driver impairment.....	16
5.1.5 Safer heavy vehicles	17
5.1.6 Enhanced driver and industry management	17
5.1.7 Effective enforcement.....	18
5.1.8 Targeted research and education	18
5.2 Review Process.....	19
6. Heavy Vehicle Driver Fatigue Review	19
6.1 A Multi Option Approach	20
6.2 General duty to Manage Fatigue and a Fatigue Code of Practice	21
6.3 Greater Enforcement Powers and Strengthened Chain of Responsibility Powers.....	21
6.4 Record Keeping	22
7. Reform of the Heavy Vehicle Compliance and Enforcement Laws.....	22
7.1 Conventional Compliance: Model Road Transport Reform (Compliance and Enforcement) Bill	23
7.2 Consistency of Enforcement.....	25
7.3 Incentives and Privileges Schemes to Enhance Compliance	26
7.4 Education, Training and Communications-Based Compliance Strategies	26
7.5 Monitoring and Ongoing Research.....	26
8. Review of the Regulatory Approaches to Heavy Vehicle Speed	26

9. Performance Based Heavy Vehicle Operational Standards	28
10. Intelligent Access Project	30
10.1 What is IAP?.....	30
10.2 Road Safety Improvements	31
11. Summary.....	32
12. References.....	36



Executive Summary

The National Road Transport Commission is a reform agency established to improve the efficiency, safety, and environmental effects of road transport by introducing nationally uniform or consistent transport policies and laws.

Since it was established in 1992, the NRTC has developed national policies for most areas of road transport law. Our approach involves rigorous analysis, transparency, broad consultation, and scrutiny through the regulatory impact process. The NRTC works in close partnership with governments, transport agencies, police, the road freight and passenger sectors, motoring and other organisations to identify and develop practical reforms.

Of the annual road toll of some 1970 fatalities, around 330 people are killed each year in crashes involving a heavy vehicle. Crashes involving heavy vehicles (trucks and buses) are estimated to cost around \$2 billion a year of the total \$15 billion cost of road crashes.

While there were improvements in the road toll associated with heavy vehicles in the early to mid 1990s when fatalities fell substantially, the number of fatalities has remained relatively static since 1996. Since then the freight task has increased substantially, as have the registrations of articulated vehicles.

The total freight task is expected to almost double in the next 20 years. Non-bulk freight, carried primarily by trucks, is expected to continue to increase at around 1.25 times the annual rate of economic growth which means road freight is expected to carry over 200 billion tonne-km by 2020. Even allowing for some modal shift, it is likely there will be significantly more trucks on the road.

The challenge is to develop and implement well-designed strategies and initiatives that are able to more than offset the impact of growth

To guide the development of future policies to improve the safety of the Australian road transport industry, the NRTC commissioned a report to benchmark the safety performance of Australia's road transport sector against the safety performance of similar industries in a range of OECD countries.

International Benchmarking

The *Truck Safety Benchmarking Study*¹ found that Australia's heavy vehicle fatality rate per kilometre travelled is 47% higher than the USA, 39% higher than the UK, comparable to Germany and Canada, 20% lower than Sweden, 45% lower than France, and 55% lower than New Zealand.

The study concluded that the higher fatality rates on Australian roads compared to Great Britain and the United States may be largely explained by the lower proportion of truck travel on divided and limited access roads in Australia, and possibly truck speed limits.

¹ Vulcan P., Haworth N., and Sweatman P., *Truck Safety Benchmarking Study*, NRTC March 2002.

The study² focused on a range of areas that have the potential to improve the safety performance of the heavy vehicle industry. These include road standards, targeted low cost road safety treatments, single vehicle crashes, day and night time driving, measures to improve the safety of truck occupants, front and rear underrun protection, appropriate speed limits, and data collection.

Based on assumptions outlined in the study,³ it can be shown that if Australian roads were upgraded to having similar proportions of divided and limited access roads, as in the United States or Great Britain, the Australian truck fatality rate could be expected to be similar to that in these countries and well below the rates in Canada and Germany.

Upgrading of the Australian road system to these standards could take several decades and require significant investment. There are, however, lower cost road and roadside treatments which could achieve some of the potential benefits more rapidly and at a fraction of the cost. In the meantime there is also potential to achieve reductions in the truck fatal crash rate through measures directed at road user behaviour and the vehicle.

The study⁴ also pointed to the importance of speed limits and speed management. It concluded that speed may also be a contributory factor to the higher Australian truck fatal crash rate, although actual speeds depend on the extent of speed enforcement and use of speed limiters.

National Heavy Vehicle Safety Strategy

To provide a framework to coordinate actions to improve the safety of the heavy vehicle industry, the National Road Transport Commission joined with the Australian Transport Safety Bureau, State and Territory administrations, and industry stakeholders in the development of a *National Heavy Vehicle Safety Strategy* and *Action Plan*. These were endorsed by all Commonwealth, State, and Territory transport Ministers at the Australian Transport Council⁵ in April 2003.

The *National Heavy Vehicle Safety Strategy* sets out challenges, principles, targets, strategic objectives, and actions for all parties and jurisdictions to improve safety in the heavy vehicle sector. The initial *Action Plan* sets out proposed actions over the period 2003 to 2005.

Two issues need to be addressed in policies designed to meet the objectives of this Strategy. They are:

- Growth in the traffic task and possible growth in the heavy vehicle fleet are often seen as predictors of increased heavy vehicle crashes, fatalities and hospitalisation.

² Vulcan *et al* 2002.

³ Vulcan *et al* 2002.

⁴ Vulcan *et al* 2002.

⁵ The Australian Transport Council is comprised of all Commonwealth, State, and Territory transport Ministers.

- Growth is not inextricably linked with an increase in the road toll. In fact, over the past 30-40 years, overall road fatalities and serious injuries have fallen despite significant increases in fleet size and travel.

The *National Heavy Vehicle Safety Strategy* has eight strategic objectives. These closely reflect the revised strategies of the National Road Safety Strategy outlined in the *National Road Safety Action Plan 2003-04*. The strategic objectives are:

- increased seatbelt usage by heavy vehicle drivers;
- safer roads;
- more effective speed management;
- reduced driver impairment; and
- safer heavy vehicles.

Three specific areas provide cohesion to ensure the primary measures are achieved and the outcomes are maximised. They are:

- enhanced driver and industry management;
- effective enforcement; and
- targeted research and education.

Actions to implement these strategic objectives are set out in the *National Heavy Vehicle Safety Action Plan 2003 – 2005*. This sets out actions to be carried out by all the organisations who are parties to the Heavy Vehicle Strategy. These include;

- The Commonwealth Government,
- State, and Territory Governments,
- National Road Transport Commission,
- The road transport industry (Australian Trucking Association, Natroads, Transport Workers Union),
- The bus and coach industry (Bus Industry Confederation),
- Austroads,
- Occupational health and safety agencies,

Progress with the action plan will be monitored and regular reports will be made to Ministers at the Australian Transport Council.

The National Road Transport Commission (and its successor body the National Transport Commission), is responsible for a range of specific initiatives from the Heavy Vehicle Safety Action Plan. These are;

- Monitoring and reporting progress of the Action Plan,
 - Reviewing the Action Plan in conjunction with the Australian Transport Safety Bureau and key stakeholders,
 - Heavy vehicle fatigue review,
 - Reform of the heavy vehicle compliance and enforcement laws,
 - Review of the regulatory approaches to heavy vehicle speed,
 - Performance based heavy vehicle operational standards, and,
-

- Application of intelligent transport systems (the intelligent access project).

The *National Heavy Vehicle Safety Strategy* and the associated *National Heavy Vehicle Safety Action Plan 2003 – 2005* provide a cohesive structure to address heavy vehicle safety issues. They have broad support from all jurisdictions, and the road transport and bus and coach industries.

If implemented by all the parties involved, the Strategy and Action Plan have the potential to make a real and sustained improvement to heavy vehicle safety, and the national road toll.



1. Introduction

1.1 The National Road Transport Commission

The National Road Transport Commission (NRTC) was established under the *National Road Transport Commission Act 1991* following an inter-governmental agreement between all Premiers, the Prime Minister, and Chief Ministers of the Australian Capital Territory and the Northern Territory. The Commission's role is to overcome barriers to more efficient road transport by introducing nationally uniform or consistent transport policies and laws.

In 1997 the NRTC's Act was extended for a second six year term. The revised *National Road Transport Commission (Amendment) Act 1998* sets out fourteen principles for the NRTC. These can be summarised as:

- make road transport and road use more innovative, efficient and safe;
- introduce greater national transport uniformity and consistency;
- reduce the environmental costs of road transport; and
- reduce the costs of administration of road transport.

These Acts (and the Agreements embodied within them) set out the role of the Commission and its responsibilities, the responsibilities of the governments that are party to the Agreements, processes to be followed by the Commission in preparing reforms and conducting its responsibilities, as well as processes to be followed by the governments involved. The NRTC comprises six Commissioners, who report directly to the Australian Transport Council, the council of all Australian Transport Ministers.

The Commission's aim is to contribute to the development of a transport system that meets Australia's growing land transport needs. Enhancing the safety of road transport is a principal consideration of our work.

1.2 Transition to the National Transport Commission

Following the recent review of the NRTC (*the Second Review*), the functions of the NRTC have been broadened to form a new National Transport Commission which will cover road, rail, and intermodal transport. The Intergovernmental Agreement has been revised, and the *National Transport Commission Act 2003* was passed by the Commonwealth Parliament in September 2003, and will come into effect on 14 January 2004.

2. International Benchmarking of Heavy Vehicle Safety Performance

2.1 Benchmarking Study

To guide the development of future policies to improve the safety of the Australian road transport industry, the NRTC commissioned Professor Peter Vulcan, Dr Narelle Haworth, and Dr Peter Sweatman to prepare a report to benchmark the safety performance of Australia's road transport sector against the safety performance of similar industries in a range of OECD countries.

Comparisons were made of truck fatalities in Australia, the United States of America, Canada, New Zealand, the United Kingdom, France, Germany, and Sweden.

The *Truck Safety Benchmarking Study*⁶ was completed in March 2002, and published by the NRTC (ISBN 1 877093 08 4) to help guide the development of the *National Heavy Vehicle Safety Strategy*.

2.2 International Comparisons

The study found that Australia's heavy vehicle fatality rate per kilometre travelled is 47% higher than the USA, 39% higher than the UK, comparable to Germany and Canada, 20% lower than Sweden, 45% lower than France, and 55% lower than New Zealand.

The number of persons killed in crashes involving a truck per 100 million km of truck travel is lowest in the United States (1.7) and Great Britain (1.8), while the rate is somewhat higher in Canada (2.1), Germany (2.2) and Australia (2.5), with France (4.4) and New Zealand (5.5) having considerably higher rates.

Table 1 Number of persons killed per 100 million kilometres travelled (fatality rate).

Nation	Trucks			All vehicles		Ratio of fatality rates trucks: all vehicles	Percent fatalities with trucks involved
	GVM exceed tonnes	Fatality rate	Year	Fatality rate	Year		
Australia	4.5	2.49	1996/95	1.2	1995	2.07	14.9
New Zealand	4.5	5.52	$\frac{1997 - 99}{1997}$	1.67	1998/95	3.30	20.3
Great Britain	3.5	1.79	1998	1.2	1998	1.49	16.8
France ⁽¹⁾	3.5	4.4 ⁽²⁾	1995	1.50	1995	2.93	13.6
Germany	3.5	2.22	1998	1.24	1998	1.79	19.4
Sweden	7.0	3.12 ⁽³⁾	1998/97	0.79	1998	3.94	15.3 ⁽⁴⁾
Canada	4.54	2.10	1998/99	0.94	1998/99	2.23	16.3 ⁽⁵⁾
United States	4.54	1.69	1998	0.98	1998	1.72	13.0

⁽¹⁾ France only counts fatalities within 6 days of crash (30 days elsewhere)

⁽²⁾ exposure corrected for change to GVM>5 tonnes in travel data

⁽³⁾ data from Swedish National Road Administration

⁽⁴⁾ percent of fatal crashes involving trucks

⁽⁵⁾ fatal truck crashes as a percentage of all fatalities

Source: Vulcan P., Haworth N., and Sweatman P., *Truck Safety Benchmarking Study*, NRTC March 2002.

⁶ Vulcan *et al* 2002.

The truck fatality rate per registered vehicle, as shown in Table 2 below, shows a somewhat different relationship between countries because the distance travelled per truck varies between countries. Thus the much greater distances travelled by the average truck in Canada (54,751 km) and the United States (43,302 km) compared with Australia (30,046 km) result in the Canadian rate (11.48) being considerably above the Australian rate (7.47) and the United States rate (7.34) being approximately the same as the Australian rate.

Table 2 Number of persons killed in truck crashes per 10,000 vehicles registered.

Nation	Trucks		All vehicles	
	Fatality rate	Year	Fatality rate	Year
Australia	7.5	1996/95	1.46	1998
New Zealand	14.0	$\frac{1997 - 99}{1997}$	2.17	1998
Great Britain	13.7 ⁽¹⁾	1998	1.26	1998
France			3.02	1998
Germany	7.6	1998	1.57	1998
Sweden			1.18	1998
Canada	11.5	1998/99	1.67	1998
United States	7.3	1998	1.99	1998

⁽¹⁾ may be inflated by crash data including non-GB trucks but registration data being GB-registered only

Source: Vulcan P., Haworth N., and Sweatman P., *Truck Safety Benchmarking Study*, NRTC March 2002.

The *Truck Safety Benchmarking Study*⁷ analysed the characteristics of truck crashes in a great deal of detail. The results of this analysis can be summarised as follows:

- About two-thirds of fatal truck crashes involved articulated trucks in Australia (63%), Canada (64%) and the United States (70%). The percentages were much lower in Great Britain (38%) and New Zealand (19%), which may reflect the greater use of “truck and dog” trailers in these countries.
- The percentage of single vehicle crashes (including pedestrians) is higher for Australia (25%) than for the other countries (14% to 20%).
- The percentage of persons killed who are truck occupants is higher in Australia (19%) than in the other countries (10% to 16%).
- The percentage of crashes at night is higher for Australia (39%) than in France (29%), New Zealand (28%) and Great Britain (18%).
- The percentage of crashes which occur in speed zones of 100 km/h or greater is 58%, in Australia, 70% in New Zealand, but only 24% in Canada.

⁷ Vulcan *et al* 2002.

- The percentage of crashes in urban areas in Australia (42%) is higher than that in Canada (29%), New Zealand (28%), Germany (25%) and Sweden (21%).
- The percentage of crashes on freeways in Australia (2.0%) and New Zealand (2.5%) is much lower than that for United States (26%), Germany (21%) and presumably Great Britain (not known precisely). Similarly the percentage of crashes on divided roads in Australia is lower than that in the United States (43%), Great Britain (34%) and presumably Germany (not known precisely).

There are a number of characteristics of fatal **articulated** truck crashes in Australia which differ from those in the comparison countries for which data is available.

- The fatal crash rate per 100 million km travelled is much higher for Australia (3.0) than for Canada (1.5) and for Great Britain, although it is less than for New Zealand (5.0).
- The percentage of single vehicle crashes in Australia (25%) and New Zealand (25%) is much higher than in Canada (15%) and Great Britain (10%).
- The percentage of crashes at night in Australia (45%) is higher than in Canada (35%), New Zealand (31%) and Great Britain (25%).
- In Australia 22% of the fatalities are occupants of the articulated truck, compared with 12% in Canada and 15% in New Zealand.
- The percentage of crashes on divided roads (17%) is lower than in Canada (25%) and Great Britain (25% on motorways plus unknown on other divided roads).

The *Truck Safety Benchmarking Study*⁸ also referred to a United States study⁹ which reported that the truck fatal crash rate on rural limited access roads was 4.5 times less than on “other rural roads”. In urban areas the rate was approximately 2.8 times less on the limited access roads. Similarly the truck fatal crash rates were more than 3 times greater at night than in the daytime. On the other hand when adjusted for road class and time of travel, the differences for various truck configurations were not large, except for bobtail tractors (prime movers without a trailer). The rate for a semi-trailer was 31% greater than for a rigid truck, but 17% less than that of a rigid truck towing a trailer. The rate for a bobtail tractor, however, was more than twice that of a semi-trailer.

Based on simple assumptions, it can be shown that if Australian roads were upgraded to having similar proportions of divided and limited access roads, as in the United States or Great Britain, the Australian truck fatality rate could be expected to be similar to that in these countries and well below the rates in Canada and Germany.

Compared with the other countries, Australia has the highest proportion of single vehicle fatal crashes and the highest proportion of truck occupant fatalities. There is potential to reduce truck occupant fatalities through less night-time driving, improved

⁸ Vulcan *et al* 2002.

⁹ Campbell, K.L., Blower, D.F., Gaths, R.G., and Wolfe, A.C. (1988). *Analysis of Accident Rates of Heavy Duty Vehicles*, The University of Michigan Transportation Research Institute, UMTRI 88-17.

fatigue control, more protective cabin structures and increased use of seat belts by truck occupants.

In regard to multi-vehicle crashes there is also potential to reduce car occupant fatalities by providing improved truck rear and front underrun barriers. In addition, side-underrun barriers or skirts have the potential to reduce fatalities of unprotected road users.

2.3 Recommendations of the Benchmarking Study

Vulcan *et al*¹⁰ made the following recommendations:

- In order to significantly improve the safety of truck operations in particular, and road safety generally, the construction of divided highways, removal of roadside hazards and provision of other low cost safety treatments should be accelerated, where possible. Where warranted, consideration should be given to limited access roads (roads that are grade separated and have dual carriageways).
- While these road improvements have considerable potential in the longer term, in the meantime there is also potential to reduce the truck fatal crash rate through a range of measures directed at the vehicle and road user behaviour.
- In order to address the fact that Australia has a higher proportion of truck fatal crashes at night and a higher proportion of single vehicle crashes, the road safety risks of day and night-time truck operation should be quantified and compared. If night-time fatal crash risks are substantially higher than daytime risks, consideration should be given to the development, in consultation with the freight industry, of operating practices which reduce the amount of truck travel at night, or improve the fatigue management of night time travel.
- Measures should be taken to improve the safety of truck occupants, which is both a road safety and an occupational health and safety issue. Consideration should be given to the adoption of a cab-strength standard such as that used in Sweden. The wearing of seat belts by truck occupants should be further encouraged and enforced where practicable.
- In order to provide improved protection for road users other than truck occupants, consideration should be given to adoption of the ECE Regulations for Rear Underrun Protection (No.58), Front Underrun Protective Devices (No.93) and Lateral Protection of Trailers and Semi-trailer Goods Vehicles (No.73).
- Consideration should be given to adopting speed limits that better manage the risks of the road and traffic environment for each class of vehicle, as has been attempted in many European countries and some States in the United States.
- In order to better monitor and understand truck safety in Australia, more timely and complete data about fatal truck crashes should be collected. Consideration should be given to supplementing the current monthly provision

¹⁰ Vulcan *et al.* 2002

of data on fatal articulated truck crashes with similar data on rigid truck crashes.

- In order to enable further progress to be made in research relating to truck safety, arrangements should be made for collection of truck travel data, especially on the major truck routes. As a first step, an investigation should be undertaken of what data could be obtained from existing collections.

3. Contribution of Road Transport to the Road Toll

Of the annual road toll of some 1970 fatalities, around 330 people are killed each year in crashes involving a heavy vehicle. The number of crashes resulting in a hospitalisation involving a heavy truck are about three times those involving a fatality. In view of the markedly better safety performance of buses and coaches, crashes involving hospitalisation for this sector is about ten times those involving a fatality. Table 3 below provides details of fatalities between 1990 and 2002.

Table 3: Fatalities resulting from crashes involving heavy rigid trucks, articulated trucks or buses by type and year, Australia 1990-2002.

Year	Heavy rigid	Articulated	Buses	Total
1990	152	263	46	461
1992	141	181	39	361
1994	127	179	40	346
1996	104	194	38	336
1997	115	171	27	313
1998	106	179	29	313
1999	108	191	32	331
2000	N/A	208	24	331
2001	N/A	178	32	-
2002	N/A	202	35	-

Source: Australian Transport Safety Bureau, *Fatality Files for 1990, 92, 94, 96, 98, 99, 2001, 2002.*

Note: Some crashes involve both heavy rigid and articulated trucks.

While there were improvements in the early to mid 1990s when fatalities resulting from heavy vehicle crashes fell substantially, the number of fatalities has remained relatively static since 1996. Since then the freight task has increased substantially, as have the registrations of articulated vehicles.

Bus travel is the safest mode of road transport with less than one occupant fatality per 100 million passenger kilometres traveled. However, there were still 93 fatalities and 988 hospitalisations among bus occupants between 1990 and 1997. Most of these fatalities occurred in low speed urban areas and involved another vehicle. They do not include fatalities and serious injuries suffered by others who were not bus

occupants. The issue of school bus safety and occupant protection remains a significant community concern.

Crashes involving heavy vehicles (trucks and buses) are estimated to cost around \$2 billion a year out of the total \$15 billion cost of road crashes.

4. National Heavy Vehicle Safety Strategy

The National Road Transport Commission has a broad range of responsibilities. These include specific responsibilities for the road transport industry. To provide a framework to coordinate actions to improve the safety of the heavy vehicle industry, the Commission has joined with the Australian Transport Safety Bureau in the development of a *National Heavy Vehicle Safety Strategy*¹¹ and *Action Plan*.¹²

These have been developed in conjunction with State and Territory transport authorities, community stakeholders and with the road transport and bus and coach industries. To identify the principal issues that would need to be addressed the National Road Transport Commission and the Australian Transport Safety Bureau convened a National Heavy Vehicle Seminar in October 2002. Organisations represented at the Seminar covered a wide range of the road transport industry, Commonwealth State and Territory governments, and road safety researchers.

The *National Heavy Vehicle Safety Strategy*¹³ sets out challenges, principles, targets, strategic objectives, and actions for all parties and jurisdictions to improve safety in the heavy vehicle sector. The initial *Action Plan*¹⁴ sets out proposed actions over the period 2003 to 2005.

4.1 Relationship to the National Road Safety Strategy

The *National Heavy Vehicle Safety Strategy* has been designed to complement the broader National Road Safety Strategy 2001-2010, and to focus on the factors which are critical in reducing the number of fatal and serious injury crashes involving heavy vehicles, whether the heavy vehicle was at fault or not.

The overall national road safety target is to achieve a reduction of 40% in the number of fatalities per 100,000 population by 2010. The purpose of this Strategy is to make an appropriate contribution to this target, taking into account the expectation of a continuing increase in freight movements, and the potential shift in the mode of passenger transport from cars to buses.

Because of the nature of the shared responsibilities of heavy and light vehicles for serious crashes involving heavy vehicles, a strong focus will continue to be placed on

¹¹ *National Heavy Vehicle Safety Strategy* (NRTC), endorsed by the Australian Transport Council in April 2003.

¹² *National Heavy Vehicle Safety Action Plan 2003 – 2005* (NRTC), endorsed by the Australian Transport Council in April 2003.

¹³ NRTC, April 2003.

¹⁴ NRTC, April 2003.

initiatives proposed in the *National Road Safety Strategy* and *Action Plan* for car drivers and other road users.

As with the broader National Strategy covering all road users, this *National Heavy Vehicle Safety Strategy* (and its associated *Action Plan*) focuses on areas where available research and industry advice suggests that maximum road safety outcomes can be achieved on a national basis in the period to 2010.

4.2 Growth in the Freight Task

An efficient road freight industry is vital to Australia's economic competitiveness. The total transport and storage industry contributes about 5.6% to GDP and employs nearly 5% of the workforce.

The total freight task is expected to almost double in the next 20 years. Non-bulk freight, carried primarily by trucks, is expected to continue to increase at around 1.25 times the annual rate of economic growth which means road freight is expected to carry over 200 billion tonne-kms by 2020. Even allowing for some modal shift, this is likely to mean significantly more trucks on the road.

Passenger transport in urban areas is forecast to grow at 1.3% per year. Shifting the passenger task from cars to buses or trains represents a significant challenge facing all Australian governments. However, it will provide an opportunity to reduce conflicts between passenger cars and heavy vehicles, particularly in urban areas.

Two issues need to be addressed in policies designed to meet the objectives of this Strategy. They are:

- Growth in the traffic task and possible growth in the heavy vehicle fleet are often seen as predictors of increased heavy vehicle crashes, fatalities and hospitalisation.
- Growth is not inextricably linked with an increase in the road toll. In fact, over the past 30-40 years, overall road fatalities and serious injuries have fallen despite significant increases in fleet size and travel.

The challenge is to develop and implement well-designed strategies and initiatives that are able to more than offset the impact of growth.

4.3 Principles Underlying the Heavy Vehicle Safety Strategy

The *National Heavy Vehicle Strategy* reiterates the principles outlined in the broader National Road Safety Strategy:

- the road toll should not be accepted as inevitable and increasing heavy vehicle activity need not present a barrier to significant reductions in the level of heavy vehicle road trauma;
 - the priority given to road safety should reflect the high value that the community places on the preservation of human life;
 - there is a balance to be struck between furthering many legitimate community objectives and increasing exposure to the risk of road trauma, including economic and employment benefits associated with greater road freight cartage and other vehicle traffic;
-

- policy development must be guided by sound data and research;
- safety measures that can be justified in terms of overall community benefits should be implemented;
- responsibility is shared between the road transport industry and the community for reducing the number and severity crashes involving heavy vehicle; and
- progressive industry management promotes safety in their transport operations.

4.4 Strategy Target

The strategy is intended to make a significant contribution to the *National Road Safety Strategy 2001 – 2010* target of reducing the number of road fatalities per 100,000 population by 40% from 9.3 in 1999 to no more than 5.6 in 2010. This strategy would also aim to achieve a significant reduction in the number and severity of serious injuries resulting from crashes in which a heavy vehicle is involved.

A complementary objective should be to bring the Australian heavy vehicle crash rate per 100 million km travelled as close as possible to best international practice. Currently world best practice is 1.7 fatalities per 100 million truck km travelled. The current Australian rate is 2.5 fatalities per 100 million truck km travelled. This is consistent with the broader national objective.

4.5 Strategic Objectives

The *National Heavy Vehicle Safety Strategy* has eight strategic objectives. These closely reflect the revised strategies of the National Road Safety Strategy outlined in the National Road Safety Action Plan 2003-04. The strategic objectives are:

- increased seatbelt usage by heavy vehicle drivers;
- safer roads;
- more effective speed management;
- reduced driver impairment; and
- safer heavy vehicles.

Three specific areas provide cohesion to ensure the primary measures are achieved and the outcomes are maximised. They are:

- enhanced driver and industry management;
- effective enforcement; and
- targeted research and education.

4.6 Endorsement by the Australian Transport Council

The *National Heavy Vehicle Safety Strategy 2003 – 2010*, and *National Heavy Vehicle Safety Action Plan 2003 – 2005* were endorsed by all Commonwealth, State, and Territory transport Ministers at the Australian Transport Council (9) in April 2003.

5. National Heavy Vehicle Safety Action Plan 2003 – 2005

5.1 Overview of the Action Plan

The National Heavy Vehicle Safety Action Plan 2003 – 2005 has been structured to focus on a relatively small number of measures that can be pursued on a national basis. Other measures may be pursued separately by individual jurisdictions and organisations. These national measures will provide the impetus for significant improvements if they are supported by all parties and implemented.

Research has demonstrated that most of the strategic actions will provide cost-effective outcomes that will significantly reduce the level of trauma arising from crashes involving a heavy vehicle.

In a proportion of fatal crashes involving a heavy vehicle, a car driver is at fault. The causes of those crashes are similar to those for all serious car crashes. Consequently, the measures necessary to combat and minimise those crashes are contained in the broader National Road Safety Action Plan 2003 and 2004, which was released by the Australian Transport Council in December 2002. Particular emphasis has been placed on actions required to curb speed, alcohol and drug impairment, and road infrastructure conditions – factors that also play an important role in crashes between heavy vehicles and cars.

The National Heavy Vehicle Safety Action Plan concentrates largely but not totally on actions that relate to initiatives not covered by the broader National Road Safety Action Plan. It will augment the National Action Plan to provide better outcomes for reducing serious crashes involving heavy vehicles.

5.1.1 Increased seatbelt usage by heavy vehicle drivers

A very high proportion of truck drivers who have been killed in crashes were not wearing seatbelts. Around 40 unbelted drivers are killed each year. Belted drivers are less likely to be killed. The aim of these actions is to ensure that by 2010, the heavy vehicle driver seatbelt wearing rates will match the rate achieved by car drivers. If this is achieved, it would reduce unbelted driver fatalities by about 45%. Specific actions proposed are:

- Develop an Australian Design Rule for integrated lap/sash seatbelts in heavy vehicle driving positions.
 - Develop a design code for the retro-fitting of integrated lap/sash belts in the driving positions for existing heavy vehicles.
 - Implement a national education program to address driver perceptions of poor cab strength and rollover and educate drivers on benefits of seatbelts.
 - Operators to implement management practices to ensure seatbelt wearing by all heavy vehicle drivers.
 - Enhance enforcement of heavy vehicle driver seat belt wearing.
 - Develop proposals for a new Australian Design Rule to improve cabin strength to ECE standards.
-

5.1.2 Safer roads

A significant improvement in the safety of truck operations in particular, and in road safety in general, would be achieved by the construction of divided highways, removal of roadside hazards, and the provision of low cost safety treatments. Selective investment in roads with high truck volumes will pay off in terms of reduced crashes involving heavy vehicles, particularly for the high percentage of multi-vehicle crashes for which passenger vehicle drivers are responsible.

Maintenance of current levels of investment in Black Spot programs and general road construction could be expected to contribute around 29% of the total reduction in heavy vehicle fatalities expected from this strategy. Additional targeted investment in remedial projects with a high safety return would yield substantial additional fatality reductions. Specific actions proposed are:

- Undertake black spot and mass action programs (e.g. broad-based shoulder sealing, pavement widening, audible edge lining, removal of dangerous fixed objects, measures to avoid heavy/light vehicle crashes) on high-risk sections of road.
- Austroads to review the Road Safety Audit Guidelines to ensure that the procedures and checklists for all stages take full account of the needs and special characteristics of heavy vehicles.
- When undertaking Stage 5 road safety audits (i.e. audits of existing roads), priority should be given to high freight segments with high truck crash rates or high potential for crash involvement.
- Research and review the design standards for roads which have high levels of truck traffic, and provide advice on the safety benefits and the costs and the overall viability of moving from current standards.
- Identify sensible low cost measures for improving the safety of rural roads with relatively high levels of truck traffic.
- Review whether the Austroads Guidelines for urban road construction take adequate account of the need to maintain safe margins between heavy and light vehicles on major urban truck arterial roads.
- Develop infrastructure investment criteria that reflect the costs of heavy vehicle crashes. Use a nationally consistent approach to make infrastructure investment decisions about road improvements.

5.1.3 More effective speed management

Travel speeds affect both the frequency of crashes and their severity. Even small changes in travel speed have a substantial impact on the risk of involvement in a serious crash. Heavy vehicle compliance with proscribed speed limits should be improved significantly and speed limits be reviewed and reduced where warranted. The following actions address both low-level speeding and gross speeding. An improvement in speed management could contribute around 30% of the total reduction in heavy vehicle fatalities expected from the strategy. Specific actions proposed are:

- Reduce gross speeding through stricter penalties and improved enforcement. Develop and implement national compliance and enforcement provisions that specifically address speed.
- Improve the effectiveness of speed limiting to enhance the performance of the devices, and limit opportunities for tampering.
- Speed limits for all vehicles be reviewed on urban and rural roads with high crash rates to determine whether there is any benefit in changing the speed limit. Reviews should encompass speed limit changes on high risk sections of road.
- Develop national guidelines to support best practice in speed enforcement.
- Examine the merits of a coordinated national approach to the use of technology to enforce speed limits at both low and gross violation levels.
- Examine the scope for enhancing the “Three Strikes and You’re Out” speeding policy by:
 - extending it to all states;
 - examining how the transfer of information between jurisdictions can be improved;
 - assessing the opportunity for having graduated penalties for lower speed breaches; and
 - examining how information can be given to owners to make them aware when penalties have been imposed on their drivers.
- Extend continuous conspicuous (automated) speed enforcement on high volume roads or roads with high crash rates.
- Examine the scope for the uptake of intelligent speed adaptation systems.

5.1.4 *Reduced driver impairment*

Fatigue is an important health and safety issue for heavy vehicle drivers and other road users alike. Fatigue is also a major risk for the light vehicle drivers and a significant contributing element in crashes between heavy and light vehicles. It is important that the Strategy and *Action Plan* address both symptoms and causes when proposing solutions to manage fatigue.

The impact of recreational drugs in the driving population is also an issue of concern. Drink driving continues to be a problem with drivers of light vehicles and (to a lesser extent) rigid trucks.

Governments and industry will enhance programs to reduce the impact of fatigue, stimulants alcohol and other drugs on road crashes, particularly those involving heavy vehicle drivers.

Reduced heavy vehicle driver impairment could contribute about 18% of the potential reductions in fatalities expected from this Strategy. Specific actions proposed are to:

- complete and implement nationally the fatigue reform currently being developed by the National Road Transport Commission;
-

- extend road-based fatigue countermeasures including crash prevention measures (such as audible edge lining, wider seals) and harm minimization (barriers, clear zones) on major transport routes;
- provide regular and adequate heavy vehicle rest areas to support in fatigue management by drivers and operators;
- develop and implement a fatigue Code of Practice;
- undertake enforcement and ensure appropriate penalties to minimise drink driving among all drivers;
- reduce the use of stimulants and other drugs by commercial drivers by -
 - reviewing enforcement and legislation, especially in relation to drivers grossly impaired by drugs;
 - developing and evaluating improved drug deterrence measures;
 - industry promoting the introduction of company drug policies that clearly set down the obligations of management and drivers in relation to drug use;
 - peak industry bodies fostering this policy in industry accreditation schemes.

5.1.5 Safer heavy vehicles

There are several important areas in which the design of heavy vehicles could improve the safety of heavy vehicle drivers or other road users. They include better seatbelt design, improved cabin strength, and front, rear, and side under-run barriers.

Safer heavy vehicles could contribute about 5% of the potential reductions in fatalities expected from this Strategy by 2010. Specific actions proposed are to:

- complete the development of a regulatory impact statement and Australian Design Rules to cover side, rear and front under-run protection for heavy vehicles;
- explore the scope for retrofitting existing vehicles with under-run protection to accelerate the outcomes from the measures;
- develop a design code for retro-fitting of integrated lap/sash belts; and
- review bus seatbelt retrofit guidelines to improve the accuracy of, and compliance with, the guidelines.

5.1.6 Enhanced driver and industry management

Driver safety can be enhanced through a range of personal, commercial and governmental structures. The responsibility needs to be shared by the road transport industry and associated industries, government and the community. Specific actions proposed are:

- Industry to ensure compliance with the Compliance and Enforcement legislation requirements, including Chain of Responsibility provisions being developed by the NRTC.
 - Adopt and enforce occupational health and safety (OHS) work safety practices by –
-

- the implementation by industry parties of combined legislative OHS obligations using a consultative and systematic risk management approach;
- integration of OHS risk management approaches into industry accreditation schemes;
- improved coordination by transport and OHS regulatory bodies.
- Industry accreditation and training schemes to include strategies focussed on fatigue management, within the heavy vehicle roadworthiness, speed management and seatbelts.
- Industry to develop a code of practice for drivers and operators consistent with the Third Heavy Vehicle Reform Package.
- Improve the focus of safety issues in driver training packages, i.e. fatigue management, roadworthiness, speed management and seatbelts.

5.1.7 *Effective enforcement*

Effective enforcement must be well targeted and should focus on the whole supply chain to help bring about a compliance culture throughout the industry. While technology already plays an important role in enforcement, there is a range of “smart” technologies available that may assist achieving improving compliance rates in the future. Specific actions proposed are:

- To implement quickly and uniformly the Compliance and Enforcement legislation, including Chain of Responsibility provisions being developed by the NRTC.
- To investigate means to prioritise on-road enforcement and improve the role of technology in achieving strategic compliance objectives.

5.1.8 *Targeted research and education*

An ongoing research program is vital to identify ways to reduce crashes involving heavy vehicles. Good research is dependent on good data, so the actions below have an emphasis on both data collection and analysis. Education of both the heavy vehicle industry and other road users is also important in ensuring the benefits of research are realised. Specific actions proposed are:

- To develop a heavy vehicle research program that will underpin the *National Heavy Vehicle Safety Strategy*.
 - The Commonwealth to maintain a national heavy vehicle crash database, and all states and territories to collect and provide the necessary data.
 - To monitor and report on speed distribution data for both heavy and light vehicles.
 - States and Territories to develop programs that take account of the findings of heavy vehicle safety research and focus on areas that will provide greatest safety benefits.
 - Review of the safety issues relating to light commercial vehicles.
 - Jurisdictions should contribute to the concepts and planning of national public education campaigns where research shows that there is benefit in a national
-

approach. For example, a nationally coordinated public education campaign on seatbelt wearing may achieve more than several individual state-based programs.

- To evaluate the potential for vehicle-based intelligent transport systems including communication systems to improve crash notification, particularly in remote areas.

5.2 Review Process

The implementation of the National Heavy Vehicle Safety Action Plan is being coordinated by a task force comprising the National Road Transport Commission, the Australian Transport Safety Bureau, State and Territory jurisdictions, the Australian Trucking Association, Natroads, the Transport Workers Union, and the Bus Industry Confederation. The task force will develop proposals to update the Action Plan in 2004.

The National Road Transport Commission is monitoring implementation of the Action Plan and will report annually to Ministers at the Australian Transport Council.

6. Heavy Vehicle Driver Fatigue Review

In the transport industry generally,¹⁵ the combination of factors including shift work, long shifts, extended periods of consecutive shifts without a day off, and work in unfavourable conditions often provide the preconditions for a fatigue problem. This is particularly so in the road transport industry where:

- surveys indicate that the experience of fatigue (and fatigue impairment) while driving is a regular part of the work experience of many drivers;
- heavy vehicle driver fatigue is an important factor in crashes involving driver fatalities and injuries; and
- heavy vehicle drivers spend a large amount of time on the road and the consequences of heavy vehicle accidents are highly visible.

The House of Representatives Standing Committee on Transport, Communications, and the Arts 2000 report *Beyond the Midnight Oil, An Inquiry into Managing Fatigue in Transport*,¹⁶ covered this issue in some detail. As a result of concerns expressed in this report, the NRTC has undertaken a review of the regulatory approach to managing heavy vehicle driver fatigue.

¹⁵ A full discussion of the issue is covered in the House of Representatives Standing Committee on Transport Communications and the Arts report *Beyond the Midnight Oil An Inquiry into Managing Fatigue in Transport*, 'The Neville Report', Canberra, October 2000.

¹⁶ House of Representatives Standing Committee on Transport Communications and the Arts report *Beyond the Midnight Oil – An Inquiry into Managing Fatigue in Transport*, 'The Neville Report', Canberra, October 2000.

The review has also taken into account concerns expressed by the general community, by regulators, and by the industry itself, regarding the negative outcomes for road safety of fatigue

The aim of the review is to achieve improvements in road safety through the development and implementation of policies and practices to assist in the management of fatigue in drivers of heavy vehicles.

A proposal for a new regulatory regime is to be submitted by the NRTC to the Australian Transport Council for consideration by Ministers in the near future. The regulatory proposal is an integrated package of measures that seeks to:

- remove anomalies in the current prescription of work and rest requirements;
- better address the factors which cause fatigue;
- strengthen the obligations of parties in the transport chain whose decisions may influence fatigue outcomes;
- provide guidance and education about fatigue management to parties in the transport chain; and
- increase compliance through more effective enforcement, targeted offences, sanctions and record keeping requirements.

The focus has been on creating the opportunity for sleep, shifting the emphasis for fatigue management to management practices and control over fatigue precursors and achieving consistency with an OHS approach to such issues.

Key features of the proposed regulatory regime are:

6.1 A Multi Option Approach

The proposed regime will comprise of three options:

- standard hours – a default option prescribing minimum rest and maximum working hours;
- Basic Fatigue Management – an optional set of more permissive minimum rest and maximum working hours but with some mandatory fatigue management and compliance-assurance responsibilities imposed on operators; and
- Advanced Fatigue Management – an optional approach to fatigue management based on risk management, alternative compliance and quality assurance approaches. Operators adhere to agreed standards and operating limits in return for maximum work and minimum rest hours defined by the regulatory agency according to the operator's specific fatigue risks and fatigue management system.

The multi option approach recognises the diversity of the road transport industry and the need for flexibility. The staged approach of the three options has been designed to enable operators to progress to more flexible options, commensurate with their operational requirements, by ensuring that the costs and difficulties are minimised. At the same time operators who run operations suitable for a base option and have little or no fatigue risk are not subjected to unnecessary costs. Similarly the need for night driving and extended shifts and the problem of accumulated sleep deficit, has been addressed in the parameters, particularly in the limited flexibility option, with the

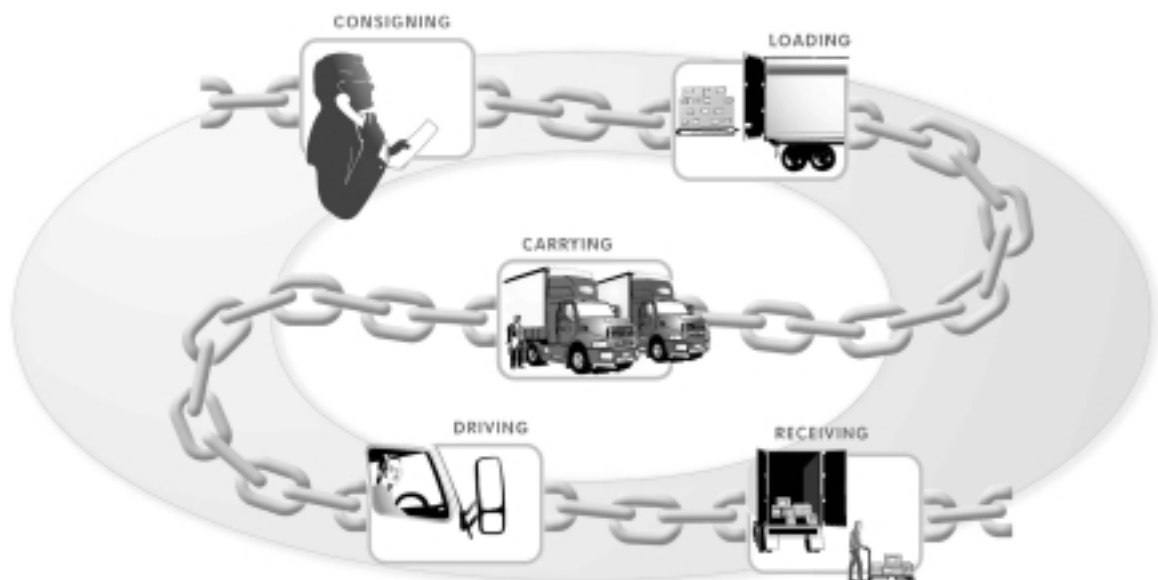
provision of flexibility while at the same time recognising the fatigue, and subsequently road safety, risk caused by these key fatigue precursors.

6.2 *General duty to Manage Fatigue and a Fatigue Code of Practice*

It is proposed that the legislation will contain a general duty to manage fatigue that will bear on all parties in the transport chain including operator (employers), drivers, consignors and receivers. The general duty will act like a general duty under OHS legislation. A fatigue code of practice to assist operators and drivers in managing their responsibilities under the proposed regulations is also being developed. Again the Code will operate in the same way as other codes under OHS legislation in that it will provide guidance on how obligations can be met.

6.3 *Greater Enforcement Powers and Strengthened Chain of Responsibility Powers*

Enhanced enforcement powers, sanctions and penalties will be implemented mainly through the recently developed draft *Road Transport Reform (Compliance and Enforcement) Bill* (Compliance and Enforcement Bill).¹⁷ Powers under the Bill will assist enforcement authorities in the gathering of evidence. Chain of responsibility provisions are proposed to be strengthened to ensure that those who are in a position to influence a decision to breach the road transport regulations are held accountable for their actions. Importantly parties under the chain of responsibility provisions will be subject to absolute liability. This means a person upon whom a duty is imposed must actively consider whether the way in which they intend to carry out the specified activity will satisfy that duty, and must ensure that they are in a position to prove that the duty was met if called upon to do so at some later date.



¹⁷ Model, *Road Transport Reform (Compliance and Enforcement) Bill 2003*, (NRTC)

6.4 Record Keeping

Strengthened record keeping provisions and replacement of drivers' logbooks with a work diary that provides trip details and has provision for signing by consignors and receivers will provide the necessary record trail.

The development of a new regulatory regime is only one element of the review. The full review encompasses:

- a) review of the operation of the Transitional Fatigue Management Scheme (TFMS);
- b) technical review of the Road Transport Reform (Driving Hours) Regulations;
- c) evaluation of the Queensland fatigue management program pilot;
- d) surveys of drivers and operators on operational and fatigue management practices and experiences of fatigue;
- e) report on comparison of fatigue management practices of operators under prescriptive regulation and operators not subject to prescriptive regulation;
- f) report of a technical expert group on options for regulatory approaches to managing driver fatigue (Fatigue Expert Group);
- g) review of driver fatigue detection and prediction devices (Review of the Research on Impacts of Day and Night Driving);¹⁸
- h) the preparation of guidelines for drivers and operators on napping strategies as a fatigue management technique;
- i) development of national guidelines for rest areas for drivers of heavy vehicles; and
- j) investigation of the application of driver specific monitoring devices (electronic logbooks).

Items (a) to (g) have been completed and the results used in the development of the proposed regulatory proposal. Guidelines on napping strategies as a fatigue management technique), national guidelines for rest areas and investigation of driver specific monitoring devices will be completed in 2004.

This approach will provide a more integrated approach to the management of fatigue which will provide a range of laws, policies and tools which will have the potential to make significant improvements in the safety of the heavy vehicle sector.

7. Reform of the Heavy Vehicle Compliance and Enforcement Laws

Within its 'Compliance Outcomes' work program, the National Road Transport Commission is developing a package of compliance and enforcement measures to improve road safety. When implemented, the package will involve a comprehensive

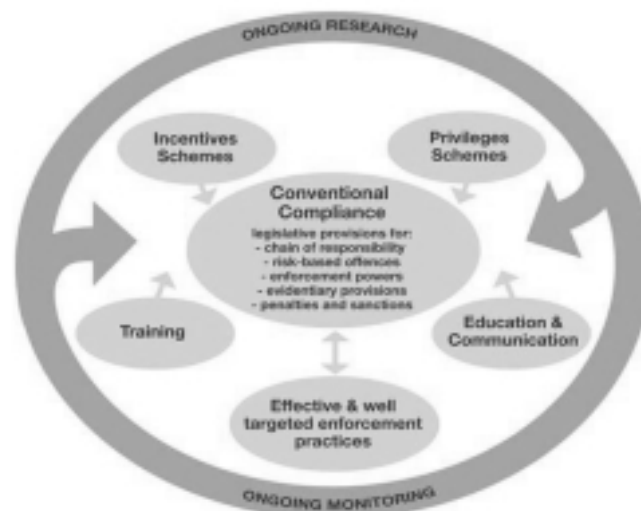
¹³ Buxton, P., Hartley, L., & Buxton, S., *A Review of Research Comparing the Impacts of Day and Night Driving on the Fatigue of Drivers of Heavy Vehicles*, NRTC, November 2001 (ISBN Error! Reference source not found.).

and nationally consistent program, comprising conventional compliance legislation complemented by a range of other strategies, including:

- consistent, effective and well-targeted enforcement;
- incentives-based strategies, which encourage industry to take responsibility for its own performance (eg. alternative compliance schemes);
- privileges-based strategies (eg. permit and licensing schemes), which grant a certain privilege, such as access to certain routes, on demonstration of compliance;
- education and training of enforcement officers and industry;
- effective communication between enforcement officers, regulatory authorities and industry; and
- monitoring of the effectiveness of enforcement outcomes.

The Compliance Outcomes program is represented in Figure 1.

Figure 1. Smart Compliance Program



7.1 Conventional Compliance: Model Road Transport Reform (Compliance and Enforcement) Bill

Central to the NRTC's Compliance Outcomes Program is strong, conventional (criminal sanctions-based) compliance legislation, which will underpin all of the other compliance strategies.

Over the past three years, the NRTC, in conjunction with transport agencies, police and industry, has developed a set of model 'best practice' compliance and enforcement provisions for heavy vehicles. These provisions are contained in the model *Road Transport Reform (Compliance and Enforcement) Bill*, drafted by NSW Parliamentary Counsel on behalf of all jurisdictions.

The model national Bill aims to improve compliance with the standards and operating requirements applicable to heavy vehicles (vehicles over 4.5 tonnes), and to support national 'chain of responsibility' initiatives.

The model laws make available nationally consistent provisions, including stronger powers for enforcement officers, evidence to enable investigations and prosecutions, general offences and defences, and a range of innovative sanctions and penalties.

The Bill was submitted at the end of August this year to Australian Transport Ministers for vote, and an outcome of the vote is expected by 3 November. If approved by Ministers, the States, Territories and the Commonwealth can commence developing their own legislation to give effect to the provisions. The intended timing for the introduction of all jurisdictional legislation is Spring 2004.

The Bill will provide for the first time, nationally consistent provisions in relation to:

Chain of responsibility

Included in the Bill are new chain of responsibility provisions that will extend liability to all responsible parties in the heavy vehicle logistics chain – that is, beyond vehicle operators and drivers to all those involved in the consignment, packing, loading and receiving of goods and passengers. At the moment, only operators and drivers can be held accountable for heavy vehicle mass and dimension limits and load restraint offences. This is despite the fact that other parties in the transport chain such as consignors, receivers and loaders may have contributed to a road transport offence by making unreasonable demands or not providing proper information.

Nationally consistent enforcement powers

The improved inspection and investigation powers in the Bill are needed to effectively enforce (or give ‘teeth’ to) new national chain of responsibility provisions in the areas of truck driver fatigue management, speeding heavy vehicles, and the heavy vehicle loading limits and operating requirements. These new powers will enable officers to pursue all relevant parties in the chain of responsibility, whether they are drivers, operators or ‘off-road’ parties such as consignors, loaders and operators of intelligent transport systems.

Risk-based offences

The Bill will introduce a new, more rational ‘risk-based’ classification of breaches. Breaches will be categorised according to the severity of risk – minor, substantial or severe – that they pose to safety, infrastructure and competitive equity. This risk-based categorisation of offences is linked to certain enforcement powers and sanctions available under the Bill and will assist enforcement agencies and courts throughout Australia to treat like offences more consistently, and in proportion to the potential risks posed by the mass, dimension and load restraint offences concerned.

National sanctions and penalties

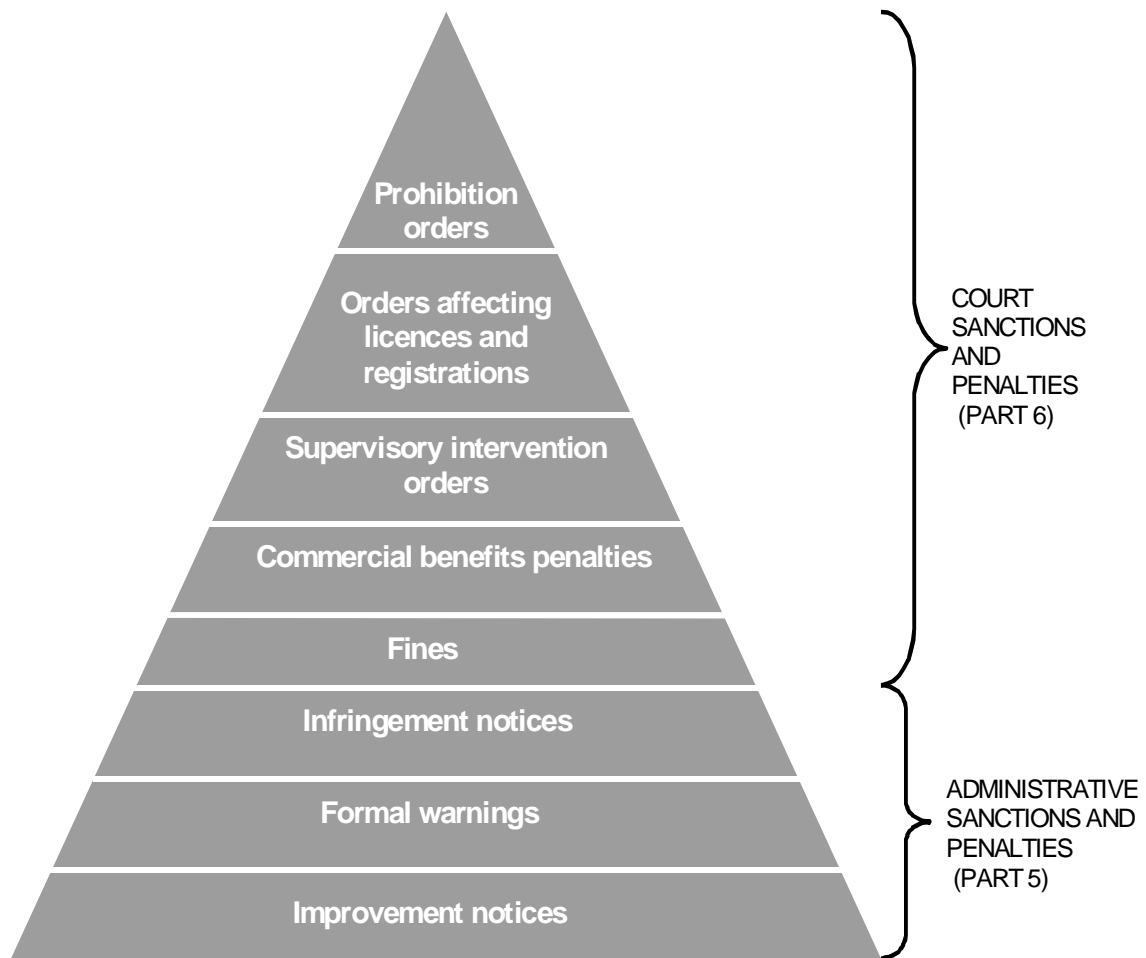
Traditionally, the main penalty for road transport breaches has been a fine imposed by a court. Maximum fines were quite low compared to fines for other offences and this, combined with the fact that they tended only to be imposed on drivers and operators, meant that road transport monetary penalties alone have not operated effectively as deterrents.

The administrative-based and court-imposed sanctions and penalties proposed in the Bill are intended to be effective deterrents. They have been tailored to address

specific types of offenders (for example, first-time offenders, those who might benefit from compliance supervision, ‘systematic or persistent’ offenders) and specific consequences (for example, offences involving a risk to safety or the reaping of large commercial profits from the wrongdoing).

Used separately, or, where appropriate, in combination, these new sanctions and penalties will enable the most effective sanctions strategy or strategies to be applied to the particular offender and the particular circumstances.

Figure 2. Hierarchy of national sanctions and penalties



The Bill will also provide the building blocks for future national compliance and enforcement reforms for the road transport law. In current reform projects, the NRTC is developing additional specific compliance and enforcement provisions for driving hours/fatigue management, speeding heavy vehicles and vehicle standards that are intended to be included in future amendments to the Bill.

7.2 Consistency of Enforcement

Consistent legislative provisions are essential tools for achieving consistent enforcement on-the-road. Nationally agreed guidelines on how to administer the provisions and how to assess and process breaches are also essential.

Implementation of the new compliance and enforcement provisions will involve the simultaneous introduction of national administrative guidelines. These guidelines are being developed by Austroads (the association of jurisdictional road authorities) and cover such matters as the measurement of vehicle mass and dimensions, and the effective exercise of the new mass, dimension and load restraint enforcement powers along the chain of responsibility. A number of these guidelines have already been completed, with the remaining sets to be completed in time for introduction of the provisions.

Further, the NRTC is developing a national strategy to identify and improve the sharing of compliance and enforcement data between jurisdictions and agencies.

7.3 Incentives and Privileges Schemes to Enhance Compliance

The NRTC has produced model provisions for alternative compliance schemes and performance-based standards. Issues associated with incentives and privileges schemes to enhance compliance are being considered with the road transport industry.

7.4 Education, Training and Communications-Based Compliance Strategies

Over the next twelve months, the NRTC will be working with transport authorities and industry to assist nationally consistent education and training of enforcement officers, industry and all parties in the new national chain of responsibility provisions.

National competency standards and qualifications are being developed for road transport compliance officers to ensure that the new enforcement powers and functions provided for in the Bill are administered effectively, by appropriately skilled personnel to nationally endorsed competency standards. On this project, the NRTC is working with Queensland Transport as lead agency, with funding from the Australian National Training Authority.

As well, South Australia is leading the development of a national communications strategy that will optimise the communication of information on the implications of the Bill to those potentially affected, including to 'off-road' parties such as those involved in consigning, loading and packing goods for road transport and receivers.

7.5 Monitoring and Ongoing Research

To evaluate the success of new compliance and enforcement policies, provisions and guidelines, as well as to keep abreast of advancements in compliance and enforcement systems and technology, the NRTC will initiate projects to monitor compliance outcomes and perform ongoing research and analysis.

A vital area for research is the information needed for enhanced compliance. The NRTC is working with Austroads to identify trends in heavy vehicle speed and mass limits compliance using an analysis of available Culway and other weigh-in-motion data.

8. Review of the Regulatory Approaches to Heavy Vehicle Speed

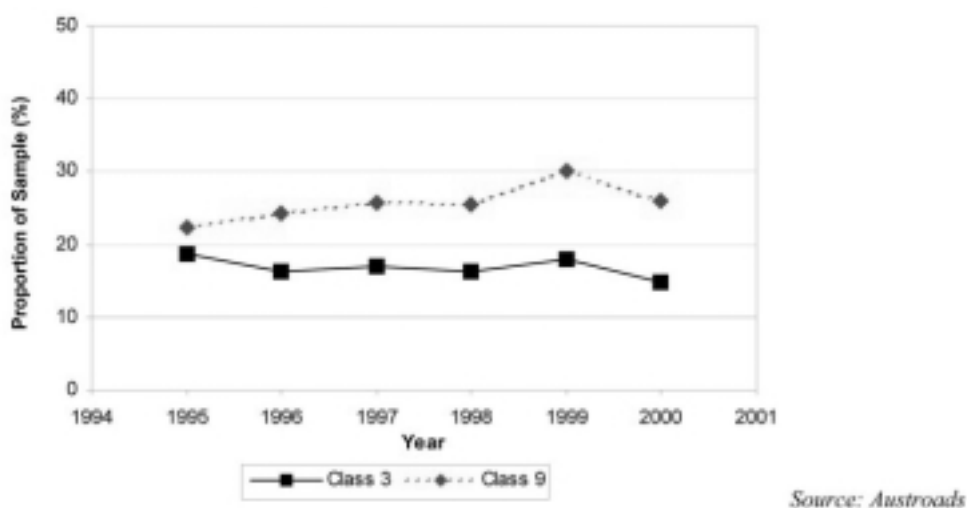
The National Road Transport Commission is reviewing the regulatory approach to heavy vehicle speed. The project will include the development of chain of

responsibility provisions tailored to address heavy vehicle speed and is part of the NRTC work program for 2003–04.

The review has been prompted, in part, by the apparent increase in heavy vehicle speeding. More specifically, data from South Australia and Victoria shows that from 1995 to 2002 there has been an upward trend in the percentage of heavy vehicles travelling above the permitted speed limit, particularly for B-doubles and road trains.¹⁹ This is of particular concern because of the suggested link between low level speeding and increased crash risk and crash severity for heavy vehicles²⁰.

Below is a figure that demonstrates the increase in trend for Austroads class 9, being six axle articulated vehicles.²¹

Figure 3. Australian speeding trend – Austroads Class 3 & 9 vehicles



The initial steps in the review are the development of a policy options paper (to be released for public comment in March 2004) and an analysis of the available heavy vehicle speed data (currently being undertaken by ARRB Transport Research). The outcomes of the data analysis will inform the policy options paper.

The review is being undertaken in the context of the re-appraisal of heavy vehicle compliance and enforcement in both general and specific terms. The culmination of this re-appraisal is the development of the draft *Road Transport Reform (Compliance*

¹⁹ 'Speeding Heavy Vehicle Trends', VicRoads and Transport South Australia, National Heavy Vehicle Safety Seminar, Melbourne, October 2002.

²⁰ Brooks, Chris. *Speed and Heavy Vehicle Safety*, paper presented to the National Heavy Vehicle Safety Seminar, Melbourne, October 2002.

²¹ 'Speeding Heavy Vehicle Trends', VicRoads and Transport South Australia, National Heavy Vehicle Safety Seminar, Melbourne, October 2002, p. 2.

and Enforcement) Bill, which, at the time of writing, is under consideration by the Australian Transport Council.

The draft *Road Transport Reform (Compliance and Enforcement) Bill* contains both general provisions for the compliance and enforcement of heavy vehicles over 4.5 tonnes, and specific provisions for mass, dimension and load restraint offences. The general provisions create the overarching regulatory regime whilst the specific provisions apply the chain of responsibility concept to mass, dimension and load restraint requirements.

The review of the regulatory approach to heavy vehicle speed compliance is being undertaken in the context of the overarching regulatory regime being created by the *Road Transport Reform (Compliance and Enforcement) Bill*.

Previous work undertaken by the NRTC focussed on speeding by speed limited heavy vehicles over 12 tonnes gross vehicle mass (GVM) in excess of 15km/hour over the speed limited speed. The policy developed involved an early application of the chain of responsibility concept as it held the operator liable for the excessive speeding of drivers by focusing on the operator's requirement to maintain the speed limiter.

The current review seeks to broaden the application of the chain of responsibility principles to include coverage of low level speeding, rather than simply focussing on gross levels of speeding. It is also intended to apply the more sophisticated model of chain of responsibility evident in the *Road Transport Reform (Compliance and Enforcement) Bill*.

When this work is completed and implemented by State and Territory jurisdictions, enforcement agencies will have enhanced powers to manage excessive speed in the road transport industry.

9. Performance Based Heavy Vehicle Operational Standards

Heavy vehicles in Australia are regulated predominantly by prescriptive standards that evolved over a long period and often differ between States and Territories. The NRTC and Austroads are well advance with a major project to modernise regulations by moving to a nationally consistent performance-based approach to the regulation of heavy vehicle operations as an optional alternative to the existing prescriptive regulations.

Under a performance-based approach to heavy vehicle regulation, standards would specify the performance required from vehicle operations rather than mandating how this level of performance is to be achieved. In Australia this approach to regulation has been adopted in other sectors, such as occupational health and safety and food standards, and is now well established as the approach preferred by regulatory review agencies.

Performance-based standards seek to align regulatory requirements more closely with the realities of how vehicles perform, how they are driven and operated, and the characteristics of the road network. This approach aims to significantly improve safety and can also increase productivity and reduce the amount of road wear caused by heavy vehicles undertaking a specific transport task.

Traditionally, heavy vehicles have been regulated by tightly defined prescriptive limits, such as mass and size limits, which provide little scope for innovation. Many of the intrinsic safety issues such as stability, handling and controllability, high-speed tracking, and gradeability are not evaluated and are only indirectly controlled, if at all. Less than optimal safety outcomes can result from the prescriptive standards, and some potentially beneficial technologies are excluded from consideration.

Safety is one of the fundamental reasons for regulating vehicle size and weight. However, the link between the prescriptive size and weight limits, and the safety outcomes they are aimed at achieving, is rather indirect. For example, by regulating maximum height we are, in part, trying to achieve a level of vehicle stability. But, within this maximum height envelope a wide range of vehicle stabilities is possible going from very poor to quite good.

Similarly, wheelbase-related dimensions and length are specified in regulations primarily to control the swept path occupied by the vehicle when negotiating corners. However the effect of this prescriptive control is again rather indirect, meaning that the “road fit” of such vehicles may be poor. An unintended effect is also possible because, in complying with these prescriptive dimensions, a vehicle’s handling and dynamic stability can be affected adversely.

Under performance-based standards, the interactions of vehicles with the roads they will be used on are taken into account more explicitly. In determining whether a specific vehicle can operate on a particular road, the vehicle’s capabilities and the relevant road standards and traffic conditions can be examined jointly to decide whether the whole operation meets the performance standards.

A wide range of performance measures has been developed over many years of international research for the evaluation of heavy vehicle performance. A key selection of these performance measures has been carefully developed and found to be both practical and relevant for the evaluation of the Australian heavy vehicle fleet. Accident studies have found some relationships between these measures and crash risk, providing a sound basis on which to set minimum performance levels.

In summary, performance-based standards aim to improve the intrinsic safety performance of heavy vehicles and achieve a better fit between them and the classes of road on which they may be used. The cost of road wear and damage caused by heavy vehicles can be reduced, and increased productivity reduces the number of trucks required for the transport task providing further safety benefit by reducing crash risk exposure.

The following are the key objectives and benefits that can be attributed to a performance-based approach to the regulation of heavy vehicles:

- improvements in road safety, traffic operations, asset management and environmental outcomes
 - better matching of the capabilities of vehicles and the road system
 - increased productivity and innovation in vehicle design and operation
 - a national basis for the regulation of heavy vehicles
 - consistency in the application of assessment techniques that are performance based
-

- consistency in permitting local and specific-use vehicles.

These proposed standards were submitted to the ATC for approval in November 2003. Rules for implementation of these performance standards and a supporting administrative and compliance framework are being developed in subsequent project phases and are scheduled to be submitted to the ATC in mid to late 2004.

These are to be accompanied by additional standards for noise and emissions, the details of which are still under development. These additional standards will ensure that performance-based vehicles are quieter and cleaner than other heavy vehicles.

Better outcomes for safety, the environment and for all road users and communities are expected to result from the performance-based regulation of heavy vehicles. The national set of safety performance standards will require a substantially higher degree of safety from performance based vehicles than many existing vehicles in exchange for greater flexibility in vehicle design. The infrastructure protection standards ensure that PBS vehicles will cause no more road or bridge wear than their prescriptive equivalents, but may be more productive, thus reducing exposure to crash risk.

10. Intelligent Access Project

10.1 What is IAP?

Jurisdictions are faced with challenges in providing more effective compliance mechanisms, and the introduction of alternative and differing freight vehicle types. Additionally, transport operators are seeking improved access and concessions from jurisdictions in the use of the road network. With the freight task set to double over the next 15 to 20 years, all stakeholders are faced with both challenges and opportunities to better manage the road network.

The NRTC, Austroads members, and the Department of Main Roads in Queensland are carrying out a joint project to investigate and pilot the application of advanced intelligent transport systems to heavy vehicle compliance.

The Intelligent Access Project (IAP) will apply vehicle telematics to monitor heavy vehicle compliance via the tracking of vehicle location and reporting of associated other parameters. This will provide a third generation of access to the road network, by complementing General Access (first generation) and Restricted Access (second generation) with "*Intelligent Access*".

It is anticipated that private sector service providers would provide the services to underpin the IAP. These service providers would ideally combine these IAP services (ie. compliance monitoring) with other commercial services, some of which are already available. Further, there will need to be a certification and auditing regime established to ensure that private sector service providers meet jurisdictional requirements. It is expected transport operators would be prepared to use IAP on a fee-for-service basis to gain improved access to the road network. Under the IAP approach, jurisdictions will be informed of transport operator non-compliance by service providers. The IAP will be a pre-requisite to entering schemes that would offer benefits to the transport operator to be signed-up for these types of service.

On 23 May 2003, the Australian Transport Council endorsed the results of a feasibility project,²² and recommendations on the further development of IAP. This work is being carried out by NRTC in conjunction with Austroads under a steering committee chaired by the Queensland Department of Main Roads

10.2 Road Safety Improvements

The IAP feasibility project²³ found that IAP can provide significant benefits to governments across all areas of activity. Additionally the transport industry can benefit from improved productivity.

Importantly improved road safety was a key benefit resulting from IAP usage. A sensitivity analysis of benefits as a function of freight vehicle IAP take-up was undertaken. For a theoretical scenario of maximum take-up (ie. 100 percent), the benefits in the form of improved speed and driving hours compliance was \$90 to \$170 million per annum. The assumptions made in the analysis were as follows:

- the potential fleet size for IAP that contributed to benefits was the articulated fleet in Australia, estimated at 62,500 vehicles,
- vehicles/drivers being monitored by IAP would be compliant 95 percent of the time. (ie. a 5 percent non-compliance rate was assumed and compared with the current estimated levels of non-compliance for the particular parameter being monitored), and
- no account of penalties or fines as a result of the 5 percent non-compliant behaviour was made.

It was also identified that the benefits would not accrue linearly with take-up, as it is likely that the initial participants to the IAP would be complying operators.

Some important benefits arising from the use of IAP could not be easily evaluated in pure economic terms. Governments also stand to benefit from the IAP in the following ways:

- to gain 'unparalleled confidence' in terms of compliance to access conditions,
- as a 'tool' for jurisdictions to address access risks in dealing with access requests from transport operators, and
- as a means to better manage the community concerns with respect to heavy vehicle movements.

A very important and direct benefit resulting from IAP implementation is the ability for governments to optimise their road freight policy and operations activities. That is, through the IAP, governments can fundamentally change their business practices to meet challenges and expectations.

²² Austroads Report AP-R223, *Intelligent Access Program (IAP) – Feasibility Project*.

²³ Austroads Report AP-R223.

11. Summary

The National Road Transport Commission is a reform agency established to improve the efficiency, safety, and environmental effects of road transport by introducing nationally uniform or consistent transport policies and laws.

Since it was established in 1992, the NRTC has developed national policies for most areas of road transport law. Our approach involves rigorous analysis, transparency, broad consultation, and scrutiny through the regulatory impact process. The NRTC works in close partnership with governments, transport agencies, police, the road freight and passenger sectors, motoring and other organisations to identify and develop practical reforms.

Of the annual road toll of some 1970 fatalities, around 330 people are killed each year in crashes involving a heavy vehicle. Crashes involving heavy vehicles (trucks and buses) are estimated to cost around \$2 billion a year out of the total \$15 billion cost of road crashes.

While there were improvements in the road toll associated with heavy vehicles in the early to mid 1990s when fatalities fell substantially, the number of fatalities has remained relatively static since 1996. Since then the freight task has increased substantially, as have the registrations of articulated vehicles.

The total freight task is expected to almost double in the next 20 years. Non-bulk freight, carried primarily by trucks, is expected to continue to increase at around 1.25 times the annual rate of economic growth which means road freight is expected to carry over 200 billion tonne-km by 2020. Even allowing for some modal shift, this is likely to mean significantly more trucks on the road.

The challenge is to develop and implement well designed strategies and initiatives that are able to more than offset the impact of growth.

To guide the development of future policies to improve the safety of the Australian road transport industry, the NRTC commissioned report to benchmark the safety performance of Australia's road transport sector against the safety performance of similar industries in a range of OECD countries.

The *Truck Safety Benchmarking Study*²⁴ found that Australia's heavy vehicle fatality rate per kilometre travelled is 47% higher than the USA, 39% higher than the UK, comparable to Germany and Canada, 20% lower than Sweden, 45% lower than France, and 55% lower than New Zealand.

The study concluded that the higher fatality rates on Australian roads compared to Great Britain and the United States may be largely explained by the lower proportion of truck travel on divided and limited access roads in Australia, and possibly truck speed limits.

The study²⁵ focused on a range of areas that have the potential to improve the safety performance of the heavy vehicle industry. These include road standards, targeted

²⁴ Vulcan *et al* 2002.

²⁵ Vulcan *et al* 2002.

low cost road safety treatments, single vehicle crashes, day and night time driving, measures to improve the safety of truck occupants, front and rear underrun protection, appropriate speed limits, and data collection.

Based on assumptions outlined in the study,²⁶ it can be shown that if Australian roads were upgraded to having similar proportions of divided and limited access roads, as in the United States or Great Britain, the Australian truck fatality rate could be expected to be similar to that in these countries and well below the rates in Canada and Germany.

Upgrading of the Australian road system to these standards could take several decades and require significant investment. There are, however, lower cost road and roadside treatments which could achieve some of the potential benefits more rapidly and at a fraction of the cost. In the meantime there is also potential to achieve reductions in the truck fatal crash rate through measures directed at road user behaviour and the vehicle.

The study²⁷ also pointed to the importance of speed limits and speed management. It concluded that speed may also be a contributory factor to the higher Australian truck fatal crash rate, although actual speeds depend on the extent of speed enforcement and use of speed limiters.

To provide a framework to coordinate actions to improve the safety of the heavy vehicle industry, the National Road Transport Commission joined with the Australian Transport Safety Bureau, State and Territory administrations, and industry stakeholders in the development of a *National Heavy Vehicle Safety Strategy and Action Plan*. All Commonwealth, State, and Territory transport Ministers endorsed these at the Australian Transport Council²⁸ in April 2003.

The *National Heavy Vehicle Safety Strategy* sets out challenges, principles, targets, strategic objectives, and actions for all parties and jurisdictions to improve safety in the heavy vehicle sector. The initial Action Plan sets out proposed actions over the period 2003 to 2005.

Two issues need to be addressed in policies designed to meet the objectives of this Strategy. They are:

- Growth in the traffic task and possible growth in the heavy vehicle fleet are often seen as predictors of increased heavy vehicle crashes, fatalities and hospitalisation.
- Growth is not inextricably linked with an increase in the road toll. In fact, over the past 30-40 years, overall road fatalities and serious injuries have fallen despite significant increases in fleet size and travel.

²⁶ Vulcan *et al* 2002.

²⁷ Vulcan *et al* 2002.

²⁸ The Australian Transport Council is comprised of all Commonwealth, State, and Territory transport Ministers.

The *National Heavy Vehicle Safety Strategy* has eight strategic objectives. These closely reflect the revised strategies of the National Road Safety Strategy outlined in the *National Road Safety Action Plan 2003-04*. The strategic objectives are:

- increased seatbelt usage by heavy vehicle drivers;
- safer roads;
- more effective speed management;
- reduced driver impairment; and
- safer heavy vehicles.

Three specific areas provide cohesion to ensure the primary measures are achieved and the outcomes are maximised. They are:

- enhanced driver and industry management;
- effective enforcement; and
- targeted research and education.

Actions to implement these strategic objectives are set out in the *National Heavy Vehicle Safety Action Plan 2003 – 2005*. This sets out actions to be carried out by all the organisations who are parties to the Heavy Vehicle Strategy. These include;

- The Commonwealth Government,
- State, and Territory Governments,
- National Road Transport Commission,
- The road transport industry (Australian Trucking Association, Natroads, Transport Workers Union),
- The bus and coach industry (Bus Industry Confederation),
- Austroads,
- Occupational health and safety agencies,

Progress with the action plan will be monitored and regular reports will be made to Ministers at the Australian Transport Council.

The National Road Transport Commission (and its successor body the National Transport Commission), is responsible for a range of specific initiatives from the *National Heavy Vehicle Safety Action Plan*. These are:

- Monitoring and reporting progress of the Action Plan;
 - Reviewing the Action Plan in conjunction with the Australian Transport Safety Bureau and key stakeholders;
 - Heavy vehicle fatigue review;
 - Reform of the heavy vehicle compliance and enforcement laws;
 - Review of the regulatory approaches to heavy vehicle speed;
 - Performance based heavy vehicle operational standards; and,
 - Application of intelligent transport systems (the intelligent access project).
-

The *National Heavy Vehicle Safety Strategy* and the associated *National Heavy Vehicle Safety Action Plan 2003 – 2005* provide a cohesive structure to address heavy vehicle safety issues. They have broad support from all jurisdictions, and the road transport and bus and coach industries.

If implemented by all the parties involved, the Strategy and Action Plan have the potential to make a real and sustained improvement to heavy vehicle safety, and the national road toll.



12. References

Australian Transport Safety Bureau, *Fatality Files for 1990, 92, 94, 96, 98, 99, 2001, 2002*.

Austroroads Report AP-R223, *Intelligent Access Program (IAP) – Feasibility Project*.

Brooks, C., *Speed and Heavy Vehicle Safety*, National Heavy Vehicle Safety Seminar, Melbourne, October 2002.

Buxton, P., Hartley, L., & Buxton, S., *A Review of Research Comparing the Impacts of Day and Night Driving on the Fatigue of Drivers of Heavy Vehicles*, NRTC, November 2001 (ISBN **Error! Reference source not found.**).

Campbell, K.L., Blower, D.F., Gaths, R.G., and Wolfe, A.C. (1988). *Analysis of Accident Rates of Heavy Duty Vehicles*, The University of Michigan Transportation Research Institute, UMTRI 88-17.

House of Representatives Standing Committee on Transport Communications and the Arts report *Beyond the Midnight Oil – An Inquiry into Managing Fatigue in Transport*, ‘The Neville Report’, Canberra, October 2000.

Model, Road Transport Reform (Compliance and Enforcement) Bill 2003, (NRTC).

National Heavy Vehicle Safety Action Plan 2003 – 2005 (NRTC), endorsed by the Australian Transport Council in April 2003.

National Heavy Vehicle Safety Strategy (NRTC), endorsed by the Australian Transport Council in April 2003.

National Road Transport Commission (Amendment) Act 1998 (Cth).

National Road Transport Commission Act 1991 (Cth).

National Transport Commission Act 2003 (Cth).

Road Transport Reform (Driving Hours) Regulations 1999 (NRTC).

Speeding Heavy Vehicle Trends, VicRoads and Transport South Australia, National Heavy Vehicle Safety Seminar, Melbourne, October 2002.

Speeding Heavy Vehicle Trends, VicRoads and Transport South Australia, National Heavy Vehicle Safety Seminar, Melbourne, October 2002, p. 2.

Vulcan P., Haworth N., and Sweatman P., *Truck Safety Benchmarking Study*, NRTC March 2002 (ISBN 1 877093 08 4).

ADDITIONAL INFORMATION HELD BY THE COMMITTEE

ATTACHMENT TO SUBMISSION NO. 36

**ATTACHMENTS, APPENDICES AND PHOTOGRAPHS PROVIDED WITH
SUBMISSIONS ARE HELD IN THE COMMITTEE OFFICE**
