



# NATIONAL ROAD SAFETY ACTION PLAN

2005 and 2006



The National Road Safety Strategy 2001-2010 and associated National Road Safety Action Plans are available electronically from the following Internet site: [www.atcouncil.gov.au/atcnrss.htm](http://www.atcouncil.gov.au/atcnrss.htm)

# NATIONAL ROAD SAFETY ACTION PLAN

2005 and 2006

This is the third Action Plan presented under the *National Road Safety Strategy 2001–2010* (the National Strategy). It identifies the main issues expected to influence road trauma levels in the foreseeable future, and sets out the priority areas for action in calendar years 2005 and 2006.

The Action Plan was developed jointly by all Australian jurisdictions, with input from the National Road Safety Strategy Panel, which represents a broad range of organisations with a stake in road safety. It has been endorsed by Ministers of the Australian Transport Council (ATC).

This new Action Plan deliberately builds on previous work. It recognises that many of the measures contained in the last Action Plan (for 2003 and 2004) were well-researched, cost-effective, and continue to be highly relevant to the goals of the National Strategy. However, changes have been made to reflect recent developments and new information – and as we move into the second half of the 10-year Strategy period, greater attention has been given to actions that will influence road safety beyond 2010.

An important aim of this Action Plan is to highlight the *Safe System* concept as an overarching framework for road safety intervention. The Safe System approach emphasises the way different elements of the road transport system combine and interact with human behaviour to produce an overall effect on total road trauma. The key components of the system are **safer roads and roadsides (infrastructure)**, **safer speeds** and **safer vehicles**.

The Action Plan comprises a wide range of specific initiatives grouped into five broad areas:

- 1. Safer roads and roadsides
- 2. Safer speeds
- 3. Safer vehicles

The safe system framework focuses attention on the interaction between road infrastructure, speed and vehicles. The combined effects of action taken in these areas will critically influence the number of road fatalities and serious injuries over the rest of this decade – and beyond.

- 4. Safer road users – managing road user behaviour through education, enforcement and system entry.
- 5. Other supporting measures

The mix of measures adopted in individual jurisdictions, and the details of specific measures, will vary to reflect local circumstances and priorities. The Action Plan cannot pre-empt the administrative or legislative processes required before implementation of many of these measures. However, all jurisdictions agree that planning and implementation should focus on these priority areas.

The Action Plan is not intended to be a list of everything that should or will be done to improve road safety. Action on a much broader range of measures will continue, in line with the strategic objectives of the National Strategy, and the strategies and action plans of individual jurisdictions and other organisations.

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## The National Road Safety Strategy

*The National Road Safety Strategy aims to dramatically reduce death and injury on Australian roads...*

*Our target is to achieve a 40% reduction in the number of fatalities per 100,000 population by 2010. It is a difficult target, but an achievable one. Achieving this target will save about 3,600 lives over the next 10 years. It is a target that will require strenuous effort by all parties involved in road safety. In addition to our own transport agencies we therefore ask for the continuing support of road users and user groups, the media, police, health care providers, schools, local government, vehicle builders, employers and the wider community.*

*– the National Strategy*

The *National Road Safety Strategy 2001–2010* was approved by Ministers of the Australian Transport Council (ATC) in November 2000, and came into effect on 1 January 2001. It provides a framework for coordinating the road safety initiatives of Australian, State, Territory and local governments, as well as other organisations capable of influencing road safety outcomes.

The target of the National Strategy is to reduce the annual number of road fatalities per 100,000 population by 40 per cent, from 9.3 in 1999 to no more than 5.6 in 2010. This projected reduction was based on plausible estimates of the effects of known measures.

The Strategy did not adopt an explicit injury target because there was no reliable national injury database to provide the necessary benchmark information. However, historical data indicated that measures resulting in fewer road fatalities would also tend to reduce the number and severity of injuries.

## Responsibility

Responsibility for achieving the overall goal of the strategy is shared by individual governments, with the support of other stakeholders and the community.

*Achieving the Target of this Strategy will require the support of:*

- *the whole community as road users;*
- *specific groups of users and the associations that represent them;*
- *authorities responsible for providing and managing roads;*
- *the police and justice sector;*
- *vehicle manufacturers;*
- *employers of road users;*
- *parents and schools who need to keep young people safe and prepare them to be road users;*
- *planners and designers who influence transport systems, the road environment and the need for road travel;*
- *health care professionals who attend to injured people; and*
- *governments that allocate funding to road safety programs and health services.*

*– the National Strategy*

## Strategic objectives

*The Target of this National Road Safety Strategy is to be achieved by:*

- *continuing existing effective measures;*
- *enhancing and/or achieving wider implementation of measures with further potential; and*
- *introducing new measures;*

*through pursuit of the following strategic objectives:*

- *improve road user behaviour;*
- *improve the safety of roads;*
- *improve vehicle compatibility and occupant protection;*
- *use new technology to reduce human error;*
- *improve equity among road users;*
- *improve trauma, medical and retrieval services;*
- *improve road safety policy and programs through research of safety outcomes; and*
- *encourage alternatives to motor vehicle use.*

*– the National Strategy*

## Action Plans

The ATC agreed that a series of two-year Action Plans should be developed, setting out specific measures available to achieve the objectives of the Strategy. It was intended that governments and other parties to the Strategy would introduce measures selected from successive Action Plans to suit local conditions. Each Action Plan would be reviewed toward the end of its two-year period and a further Action Plan developed and submitted for the approval of the ATC.

The first Action Plan, for 2001 and 2002, was released with the Strategy. It provided an extensive menu of possible measures for implementation, with some having much greater potential to reduce road fatalities than others.

The second Action Plan, for 2003 and 2004, provided a much clearer focus on priority action areas. It presented a smaller list of road safety measures and highlighted those likely to have the most substantial direct impact on total fatality numbers.

This new Action Plan, for calendar years 2005 and 2006, is intended to build on previous work rather than adopt a 'change for change's sake' approach. An important step in developing the Plan was to thoroughly review the progress made towards the 10-year strategic objectives and to re-assess existing action priorities.

## Development of the last Action Plan

The *National Road Safety Action Plan for 2003 and 2004* was developed amid concerns that the national fatality rate was not decreasing at sufficient pace to achieve the 2010 target. It was agreed that the second Action Plan should be more focused than its predecessor, concentrating on measures likely to have a significant impact on road trauma within a few years.

To assist with development of the Plan, an 'expert group' of road safety researchers was formed to review the assumptions underlying the Strategy target and to identify areas for priority intervention. This group was unable to determine precise reasons for the slower than expected progress, but unanimously concluded that the 10-year goal could still be achieved if future action was appropriately targeted.

The resulting Action Plan detailed a range of priority measures grouped into six major action areas:

- speed
- road environment
- driver impairment
- vehicles
- licensing and driver management
- special groups and issues.

It also stressed that fatality numbers over the rest of the decade and beyond would depend critically on action taken in the two key areas of speed management and road engineering.

## What has been done in the past two years?

Considerable progress has been made towards implementing many, but not all, of the action items outlined in the last Action Plan. However, most of these action items remain relevant: further action will result in further safety gains. A summary of progress against each of the planned action items has been compiled in a separate report, which can be viewed on the National Strategy website at: [www.atcouncil.gov.au/atcnrss.htm](http://www.atcouncil.gov.au/atcnrss.htm)

This section provides a brief summary of important initiatives that are related to the last Action Plan.

### Significant areas of progress for 2003 and 2004

- A default speed limit of 50 km/h in built-up areas was incorporated in the Australian Road Rules.
- Tightened speed compliance measures in Victoria – lower camera thresholds, extended covert operations, widespread publicity – were followed by a dramatic fall in fatalities (28 per cent over two years). Other jurisdictions initiated reviews of speed enforcement tolerances.
- The use of combined red light/speed cameras was introduced or extended in some jurisdictions. Point-to-point speed enforcement was introduced for heavy vehicles in some jurisdictions and extension to light vehicles is under consideration.
- Speed zoning reviews were initiated in several jurisdictions and specific action was taken to extend the use of lower speed zones (below 60 km/h) to areas of high pedestrian activity. In South Australia, speed limits were reduced from 110 km/h to 100 km/h on 13 per cent of the rural arterial network.

### Significant areas of progress for 2003 and 2004

- The Australian Government launched its new policy on national land transport infrastructure – AusLink – including a commitment to spend \$12.5 billion over five years to 2008–09 on a range of specific road and rail projects, maintenance, the Black Spot programme and the extension of the Roads to Recovery programme.
- Funding for black spot programmes was maintained or increased in most jurisdictions. Victoria announced it would spend \$130 million on a new two-year programme (a follow up to expenditure of a similar magnitude earlier in the decade) .
- Austroads released a report concerning the development of best practice in drink driving enforcement.
- Alcohol interlock schemes were implemented or trialled in several jurisdictions.
- New drug deterrence measures – including roadside testing programmes - were under development in several jurisdictions.
- Some jurisdictions introduced refinements to their graduated licensing schemes.
- There was a general strengthening of enforcement and community education programmes in rural areas.
- The ANCAP programme introduced credit points for vehicles with seat belt reminder systems, and commenced development of an active safety features assessment, which will encourage the uptake of ITS active safety features (including Intelligent Speed Adaptation) for light vehicles.
- A National Heavy Vehicle Safety Strategy and Action Plan were approved by the ATC in May 2003. The Strategy covers road-based, vehicle-based and behavioural measures to address safety issues for heavy vehicles, including buses. Development was coordinated by the National Transport Commission.

### Significant areas of progress for 2003 and 2004

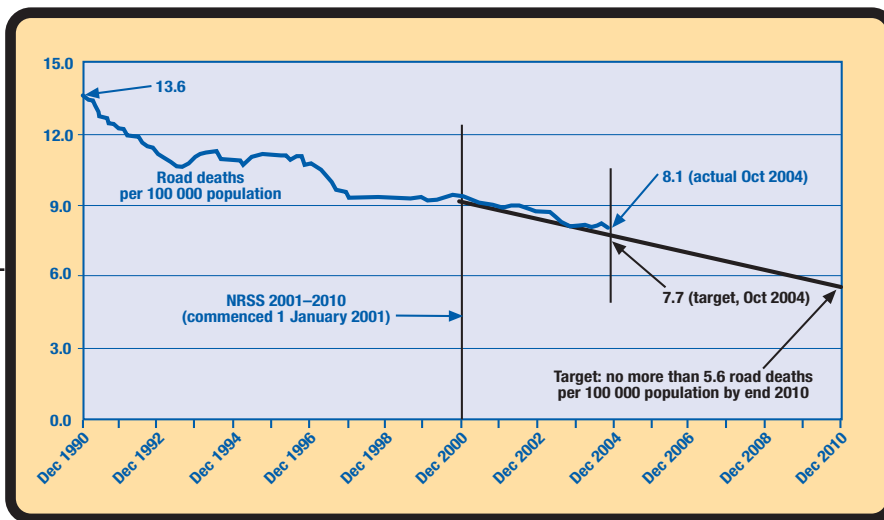
- A National Road Safety Action Plan for International Visitors was approved by the ATC in April 2004. Development was coordinated by Queensland Transport.
- A National Level Crossing Safety Strategy and Action Plan was endorsed by the ATC in May 2003.
- A project to develop frontal identification systems for motorcycles was initiated, with Victoria as lead agency and funding from most jurisdictions.
- Jurisdictions worked with the Federal Chamber of Automotive Industries (FCAI) to develop a revised Code of Practice for the advertising of motor vehicles.
- Work commenced on the development of a national Internet-based system to share information on indigenous road safety, with the WA Office of Road Safety as lead agency; and an indigenous road safety forum was held in September 2004.

## Outcomes to date

In 2003 there were 1621 fatalities on Australian roads. This was 5.5 per cent lower than the figure recorded in 2002 and marked the third consecutive year in which fatality numbers had fallen. However, the first ten months of 2004 saw a small increase of 0.2 per cent compared with the same period in 2003.

Expressed as a proportion of the population, these results suggest that the national fatality rate has been broadly on track to meet the 2010 target of 5.6 deaths per 100,000 population; but it still needs to improve at a faster pace: to make uniform progress toward the target, the rate for October 2004 should have been about 7.7; the actual rate was 8.1.

Figure 1:  
Road crash death rates per 100 000 population on a moving 12-month total  
(December 1990 to December 2010)



## REVIEW

The National Strategy aims to achieve a 40 per cent reduction in the annual road fatality rate relative to the 1999 figure of 9.3 deaths per 100,000 population. The reduction achieved to the end of 2003 was an encouraging 12 per cent, though no further improvement was registered up to October 2004. These figures reflect national trends; at a jurisdictional level, there is considerable variation in the number of fatalities per 100,000 population and in the rate of change, as shown in the tables and graphs overleaf.

For example, among the more populous jurisdictions:

- fatality rates for the 12 months to October 2004 ranged from 6.9 in Victoria to 9.7 in South Australia;
- Western Australia and Victoria had the biggest percentage reductions from 2000 to October 2004, but the WA rate (9.0) was still well above the national average;
- Victoria's rate increased from 1999 to 2001, but dropped by 27 per cent over the next two years (the reduction of 114 Victorian fatalities over this period exceeded the total national reduction of 112);
- the NSW rate declined from 9.3 to 8.0 between 2000 and 2001, but has changed little since then.

There can be more statistical variation from year to year in the smaller jurisdictions, but the ACT has maintained extremely low rates in recent years.

Factors contributing to the improvements in Victoria were noted in the previous section. In Western Australia, improvements in recent years have been attributed to the combined impact of enhanced education and enforcement programmes focused on drink driving, speeding, fatigue and non-use of seat belts, and an increased Black Spot road safety programme.

**Table 1:**  
Road death rates per 100,000 population, by jurisdiction

	NSW	VIC	QLD	SA	WA	TAS	NT	ACT	Australia
1997–1999 average	9.0	8.3	9.2	10.5	11.7	9.4	31.3	6.2	9.4
1999	9.0	8.2	9.0	10.1	11.8	11.2	25.4	6.1	9.3
2000	9.3	8.6	8.9	11.0	11.3	9.1	26.1	5.7	9.5
2001	8.0	9.2	8.9	10.1	8.7	12.9	25.3	5.0	8.9
2002	8.4	8.1	8.7	10.1	9.3	7.8	27.8	3.1	8.7
2003	8.1	6.7	8.2	10.3	9.2	8.6	26.7	3.4	8.2
2004 (12 mths to October)	7.9	6.9	8.3	9.7	9.0	11.1	19.0	3.4	8.1

**Change:**

2000 to 2002	-10%	-6%	-2%	-8%	-18%	-14%	+7%	-46%	-8%
2002 to (Oct) 2004	-6%	-15%	-5%	-4%	-3%	+42%	-32%	+10%	-7%
2000 to (Oct) 2004	-15%	-20%	-7%	-12%	-20%	+22%	-27%	-40%	-15%

**Table 2:**  
Number of road deaths, by jurisdiction

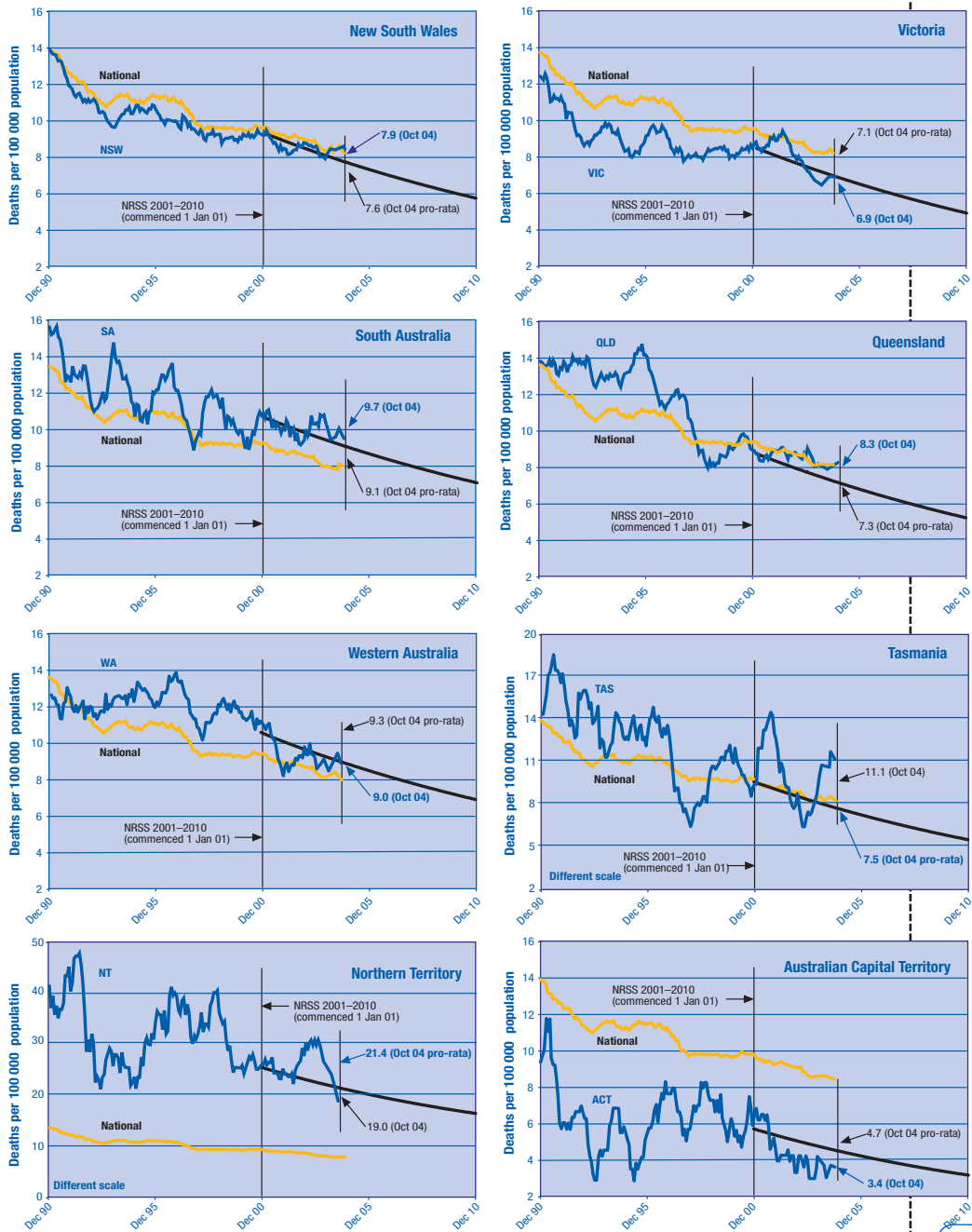
	NSW	VIC	QLD	SA	WA	TAS	NT	ACT	Australia
1997–1999 average	570	383	318	156	213	44	59	19	1762
1999	577	383	314	151	218	53	49	19	1764
2000	603	407	317	166	212	43	51	18	1817
2001	524	444	324	153	165	61	50	16	1737
2002	561	397	322	154	179	37	55	10	1715
2003	539	330	310	157	180	41	53	11	1621
2004 (12 mths to October)	535	343	318	148	178	53	38	11	1624

**Change:**

1999 to 2003	-7%	-14%	-1%	+4%	-17%	-23%	+8%	-42%	-8%
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# REVIEW

Figure 2: Road death rates per 100,000 population, by jurisdiction (on a moving 12-month average)



## Assumptions underlying the NRSS target

The targeted 40 per cent reduction in the national per capita fatality rate was based on the estimated effects of known road safety measures. After allowing for increases in vehicle use and the combined effects of individual initiatives, indicative estimates were calculated for the relative contributions of different types of measure:

Safer roads	19%
Improved vehicle occupant protection	10%
Improved road user behaviour	9%
New technology to reduce human error	2%
<b>Total reduction in population fatality rate</b>	<b>40%</b>

As noted in the last Action Plan, close to three-quarters of the targeted reduction was expected to be achieved from maintenance of real funding of road measures and the flow-through effects of vehicle safety improvements, including those already implemented in the newest vehicles. Most of the remaining gains were attributed to likely improvements in road user behaviour, especially from better compliance with existing rules on drink driving, speed and restraint usage.

A recent examination of underlying assumptions provided no grounds for revising these broad expectations. However, it has become clear that some of the specific assumptions in the behavioural area were incorrect.

For example, it is now evident that the original estimation of future gains from speed measures was highly conservative – this is borne out in both research-based evidence on the potential safety benefits of travel speed reductions (see Appendix 2), and the large fatality reductions achieved in Victoria following the strengthening of compliance measures in 2001–02.

On the other hand, projected trauma reductions from improved compliance with drink driving and seat belt laws have so far not been realised.

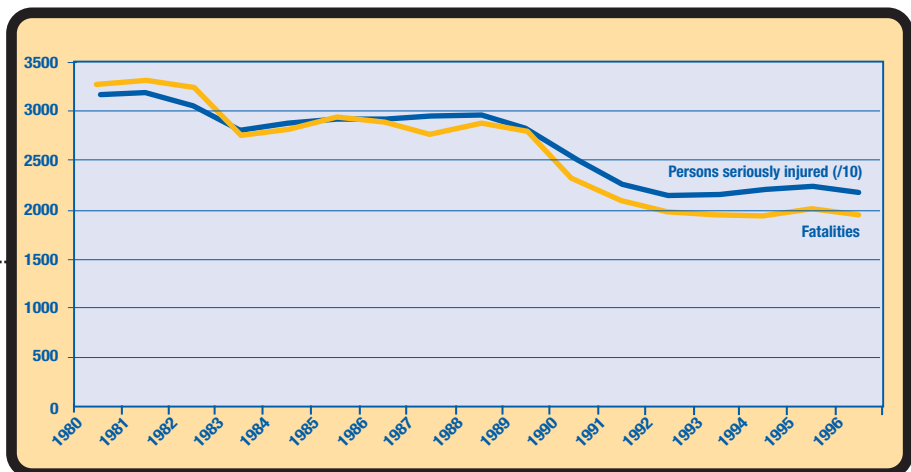
## Injuries

The National Strategy explicitly aims to reduce the burden of road injuries as well as road deaths. However, no injury reduction target was established because no national injury data series was available when the Strategy was developed. A national series of police-reported serious injuries was discontinued in 1997, when data from New South Wales ceased to be available.

Despite the absence of an injury target, the Strategy was based on an expectation that, in general, measures that reduce fatalities will also reduce the number of serious injuries. This assumption was supported by historical data showing a very close correlation between reductions in fatalities and reductions in police-reported serious injuries (see Figure 3 below).

Moreover, the planning, implementation and evaluation of specific road safety initiatives is generally based on data for road injuries, as well as fatalities. Examples include black spot programmes, traffic law enforcement campaigns, and improvements in vehicle safety design. Injury data are often the primary guide to planning and policy, because numbers are larger, and less subject to random statistical variation than fatality data.

Figure 3:  
Number of fatalities and serious injuries, 1980 to 1996



A new national data collection on injuries involving hospitalisation has been established, using data from the health sector, but this is not yet sufficiently up-to-date to provide timely data for performance monitoring purposes. Most jurisdictions have access to more up-to-date injury data from police reports, but these data cannot be aggregated at a national level because of inconsistencies in definitions and coverage.

See Section 5 (page 41) for further discussion of this issue.

## Road user groups

Road users are often categorised into groups defined by demographic characteristics or mode of travel. These groups enjoy varying levels of safety and can be affected differently by road safety countermeasures.

The 2003 and 2004 Action Plan made the point, however, that measures targeting specific groups are not necessarily the most important means of improving safety outcomes for group members. For example, the major factor in the dramatic reduction in pedestrian fatalities that occurred between 1989 (501 fatalities) and 2003 (231 fatalities) was a marginal reduction in urban travel speeds (largely associated with the introduction of speed camera programmes and traffic calming measures), rather than any measure that targeted pedestrian safety directly.

Similarly, vulnerable road users – particularly pedestrians and motorcyclists – appear to have benefited most from the vigorous speed reduction initiatives adopted in Victoria since 2001.

There are some areas where group-targeted measures can potentially make an important contribution to national road safety – for example, refining graduated licensing schemes to better address the high risks among novice drivers. But the evidence indicates that the largest reductions in total road trauma flow from more generic measures – such as infrastructure improvements and speed management initiatives – that can influence outcomes across a range of road user groups.

## REVIEW

While significant road safety gains have been made since 2000, it is clear that a continuing focus on high-return measures will be necessary to keep the National Strategy on track. To this end, the action agenda formulated two years ago remains highly relevant:

- research studies underpinning the last Action Plan are as valid now as they were then, and further research supporting the key action areas has been published; and
- despite the progress made, few of the specific actions can be regarded as fully implemented: there is much unfinished business.

In developing the Action Plan for 2005 and 2006, consideration has been given to a number of recent reports and developments in Australian road safety. They include the Australian Government's policy on national land transport infrastructure – *AusLink* – and the release of findings from a House of Representatives committee inquiry into national road safety. These and other key developments are listed in more detail in Appendix 1.

As the new Plan takes us into the second half of the current Strategy period, greater attention has also been given to the long-term needs of national road safety: laying the groundwork for initiatives that will yield benefits beyond 2010.

Key principles guiding the development of the Action Plan:

- **Focus on outcomes** – determining the primary cause of crashes or who is at fault does not necessarily point to the most effective intervention.
- **Tailor safety initiatives to individual sections of the road network** – injury and fatality rates vary enormously between roads and road lengths.
- **Invest in sound research and data** – the value of evidence-based policy has been well demonstrated – but we need to keep producing the evidence.
- **Promote information exchange and identification of best practice** – we all profit by sharing knowledge and learning from each others' experiences.
- **Attend to measures with long lead times** – some initiatives take a long time to pay dividends – prudent investment now will help to maintain the momentum beyond 2010.

## A systems framework

*...the challenge is to move our thinking from ways to limit the toll to how to create a genuinely safe road transport system, and to work out how to achieve such a system.  
– the National Strategy*

Road fatalities and injuries result from the combined effects of all elements of the road transport system, the most critical being the interaction between road infrastructure and vehicle speeds. Effective trauma reduction starts with an examination of the entire system, and proceeds with measures designed to minimise aggregate risk. This thinking is not new<sup>1</sup> – it is implicit in the structure of the National Strategy – but it needs to play a more prominent role in shaping future action priorities.

The *Safe System* perspective (illustrated on page17) provided an overarching framework for the preparation of the new Action Plan. Its presence in this document is intended to promote a more integrated approach to the development and implementation of road safety policy.

The key road transport system components under a Safe System approach are **safer roads and roadsides (infrastructure), safer speeds and safer vehicles**.

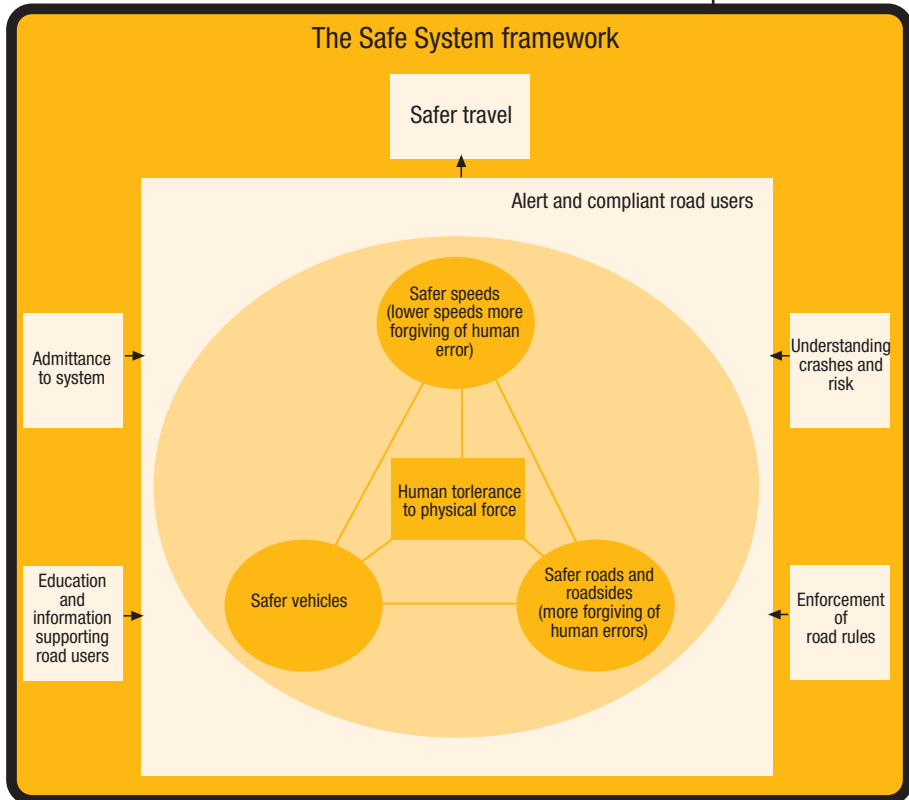
The foundation of the Safe System approach is **safer road users**. Safer road users are alert and compliant with the rules that reflect design standards for safety in the system and allow for some degree of human error. Safer road user behaviours depend on:

- **Compliance with rules** – a commitment from road users to safer driving/riding or pedestrian activity.
- **Admittance to the system** – obtaining and retaining a licence, and observing licence conditions such as graduations and sanctions.
- **Support for driving and travelling** – information and education, backed by enforcement, to minimise high-risk road user behaviour and to encourage community support for safer road use.

Ongoing efforts in these areas are vital to maintaining a safety focus in usage of the road network.

The other key supporting component of the Safe System is adequate and thorough **analysis of crash risks**.

## WHERE TO FROM HERE?



The key components of the Safe System are the areas where safety countermeasures can be developed and implemented to *significantly* reduce risk. Systems thinking focuses attention on how these elements interact to produce a total level of risk, and what complementary actions could be taken to lower the resulting overall road trauma outcome.

The prime task for transport designers, regulators and policy-makers is to minimise the total risk in the system by:

- Determining the relevant risk factors in a given situation
- Determining which factors can be *effectively* manipulated
- Determining which countermeasures will produce the desired outcomes.

## Major Action areas for 2005 and 2006

The *National Road Safety Action Plan for 2005 and 2006* identifies those areas with potential to significantly reduce road trauma over the next few years, and others that will lay the foundation for longer term gains.

The new Plan builds on previous work. It recognises that measures presented in the last Action Plan were well-researched and likely to be cost-effective – and, for the most part, are still highly relevant to the objectives of the National Strategy.

Some adjustments have been made to reflect progress made in the last two years and to accommodate new information. Greater attention is given to actions that will influence road safety beyond the current target year of 2010.

Above all, the new Plan encourages a *systems* approach to road safety intervention: aiming to achieve the best safety outcomes by selecting the right combination of measures.

The Action Plan comprises a wide range of specific initiatives grouped into five broad areas:

- 1. Safer roads and roadsides
- 2. Safer speeds
- 3. Safer vehicles
- 4. Safer road users – managing road user behaviour through education, enforcement and system entry.
- 5. Other supporting measures

The safe system framework focuses on the interaction between road infrastructure, speed and vehicles. The combined effects of action taken in these areas will critically influence the number of road fatalities and serious injuries over the rest of this decade – and beyond.

Each of these areas and associated action items are discussed in the following sections. Measures marked → are likely to have the most substantial direct impact on road trauma.

Each section also presents a chart showing how the main types of countermeasure are likely to affect different road user groups. A 3-star rating system (\*\*\*) is used to illustrate the relative benefits expected to accrue to each group.

# 1

## SAFER ROADS AND ROADSIDES

*Improving the safety of roads is the single most significant achievable factor in reducing road trauma. Further investment in safer roads is highly justified on both social and economic grounds. Road investment improves road safety through general road improvements – typically, 'new' roads are safer than 'old' roads – as well as through treatment of black spots.*

*– the National Strategy*

Road safety outcomes vary greatly across the road network, with higher casualty rates symptomatic of a poor match between the road environment and traffic speeds. From a systems view, the solution is to reduce the risk of bad outcomes by lowering vehicle speeds and/or making the road infrastructure more forgiving of human error. The latter has the advantage of meeting mobility as well as safety objectives.

The safety of the network is not only determined by the total dollars invested in road infrastructure, but also by the proportion of available funds spent on safety-focused measures. It is possible to increase safety returns, and achieve higher overall benefit-cost ratios, by directing a greater share of road funding to safety-targeted projects.

This has implications for the way in which funding agencies prioritise infrastructure projects, a point that is amplified in the *AusLink White Paper*.

In assessing proposals for funding under AusLink, the Australian Government will use criteria and evaluation methodologies that will ensure that:

- safety focused initiatives are given sufficient priority in investment decisions
- the safety implications – both benefits and costs – of all projects are fully accounted for in benefit-cost assessments
- low-cost projects with a high safety return are not overlooked simply because the scale of investment puts them below the normal threshold for detailed comparative assessment of investment options
- the economic estimation of all transport impacts is based on a common valuation method.

## Treatment approaches

Most jurisdictions already allocate funds to dedicated black spot programmes. Evaluations have shown these programmes to be highly effective, with a very favourable benefit-cost ratio.<sup>2</sup>

Black spot programmes address problems in particular locations. Some fixable problems in the road environment are more diffuse, but safety levels can be improved considerably by 'mass application' of remedial measures. A number of measures are available that can be cost-effective when appropriately targeted. Compared with new road construction, these are generally relatively low cost measures, but highly effective in safety terms.

Several reviews have stressed the potential of cost-effective road-based measures to prevent casualties associated with fatigue, either by alerting drivers before they drift off-path, or reducing the likelihood of a severe impact if a crash does occur.<sup>3</sup> Other options for addressing the problem of driver fatigue are examined in Section 4 (page 35), but many experts believe that road engineering treatments will remain the best solution in the foreseeable future.

Treatments with a high safety benefit include:

- clearance of roadside hazards, or use of barriers to reduce the hazard
- shoulder sealing, audible edge and centre lining, night-time delineation
- installation of roundabouts at intersections
- programmes to minimise the risks posed by utility poles (installing slip based poles and frangible poles, running power lines underground where possible, relocating poles away from curves and intersections, and placing them outside 'clear zones' on straight sections of road)
- separation of road users – centre barriers, pedestrian precincts, bike tracks etc.

Many of these treatments can meet the selection criteria for black spot programmes in some locations, but there is scope for substantial further safety improvements from more broadly based mass action programmes.

A similar approach can also be applied to area-based treatments, particularly when focusing on pedestrians or other vulnerable road user groups in urban areas. Such an approach can be particularly effective if used in the developing outer suburbs of our major cities.

### Measurement

Although the last Action Plan highlighted the need for more funding of mass application safety treatments, and several jurisdictions have reported relevant initiatives, it has proved difficult to measure implementation in a consistent way. The action list below responds to the need for systematic monitoring of implementation progress.

### Public information about risk levels

Safety levels on different parts of the road network vary substantially.

Engineering treatments and speed management initiatives can reduce these differences, but spreading risk evenly across the road network is unlikely to be feasible or cost-effective:

- safety treatments for roads with the highest traffic volumes tend to produce the largest safety benefits;
- speed management can reduce risks on roads with lighter traffic, but risk equalisation would require large speed differentials between the best and worst roads: beyond what could be justified in terms of overall costs and benefits of different travel speeds, and probably well beyond what the public currently regards as reasonable.

Road safety organisations have a responsibility to provide objective information to road users about the relative safety of different parts of the road network:

- to assist road users to make informed safe choices about routes, travel speeds etc; and
- to foster informed debate on different road infrastructure investment options.

A road ratings system similar to the successful EuroRAP programme would contribute to these objectives.

### Action

- All governments (Australian, State and Territory) to allocate funds for targeted road safety countermeasures, including
  - mass application of cost-effective measures on high volume roads (and road lengths) with bad crash records or high-risk characteristics
  - application of road-based countermeasures to reduce the harm arising from fatigue-related crashes
  - application of area-based treatments that meet appropriate selection criteria
  - maintenance and extension of black spot programmes.
- Implement road safety risk assessments in road planning, construction and maintenance
  - addressing the safety needs of all road user groups, including pedestrians, bicyclists and motorcyclists.
- Develop programmes to achieve safer roadsides
  - including elimination of unsafe roadside planting programmes.
- Develop a methodology to assess progress in implementing safety-oriented road treatments.
- ▶ Produce and promote information about the relative safety of different roads
  - develop an Australian ratings system similar to the EuroRAP programme.

### Systems framework links

While road improvements have a vital role to play in trauma reduction, the safe systems approach emphasises the critical interaction between road infrastructure and vehicle speeds. Speed countermeasures help to manage crash risk and injury outcomes on parts of the network where road-based treatments are infeasible or inadequate. Key action links are:

- ▶ Speed – selective speed reductions on roads with high crash rates.

### Expected benefits

Road initiatives	Car occupants	Motorcyclists	Bicyclists	Pedestrians	Young drivers	Older drivers	Rural motorists
Targeted road improvements	***	**	*	*	***	**	***
Safe roadside programmes	***	***	-	-	***	**	***
Public information	***	***	-	-	**	**	**



Speed is fundamental to the safety of the road transport system: in a given road environment, vehicle travel speeds affect both the risk of crash involvement and the severity of any crashes that happen. Speed reduction measures are therefore a potent means of improving safety outcomes, and an important complementary approach to road-based countermeasures. They have a particular role to play in treating high risk sections of the road network where engineering solutions are not an immediate option.

### Risk evidence

There is an extensive body of research showing that even small reductions in vehicle speeds result in a marked reduction in the number of road fatalities and serious injuries.<sup>4</sup>

Australian studies have provided direct evidence that speeds just 5 km/h above average in urban (60 km/h) areas, and 10 km/h above average in rural areas, are sufficient to double the risk of a casualty crash<sup>5</sup>: roughly equivalent to the increase in risk associated with a Blood Alcohol Concentration of 0.05. The evidence also indicates that 'moderate' speeding (within 10 or 15 km/h of the posted limit) makes a large contribution to serious road crashes – comparable to the contribution of more extreme speeds – because it is so common.

### Improving compliance

Achieving better compliance with speed limits is one of the most effective ways of cutting road trauma. Indeed, the substantial decline in road fatalities (37 per cent) between 1989 and 1997 owes much to the introduction of enforcement and publicity programmes designed to improve speed compliance. There is still much room for improvement.

Experience in Victoria over the past few years gives some insight into the gains that can be made in this area. Toward the end of 2001, Victoria initiated a coordinated and sustained effort to improve speed compliance. Significant changes to police enforcement practices – including more widespread use of mobile covert speed cameras, with an increase in hours of operation and the range of sites and times covered, and lowered enforcement tolerances (from mid-2002) – were supported by extensive publicity under the Transport Accident Commission's *Wipe off 5* campaign. The number of infringements issued rose sharply during 2002, but subsequently declined as compliance improved. Measured travel speeds declined on many parts of the road network, not just at enforcement sites.

These changes were followed by a large reduction in road fatalities, particularly among vulnerable road users and in urban areas. From 2001 to 2003, the total reduction in fatalities across the state was 26 per cent (compared with six per cent in the rest of Australia).

While it would be desirable to achieve complete compliance with legal speed limits across Australia, this is undoubtedly a long-term goal at best. In the interim, a realistic and beneficial objective would be to ensure that 85th percentile speeds on all roads are no higher than the posted limit.

### Reducing limits

Further substantial road trauma reductions can also be obtained by lowering speed limits. Australia has relatively high speed limits across much of its road network, compared with limits set by most other OECD countries on similar roads. For many parts of our undivided rural network, research suggests that reducing limits to 85 km/h or 90 km/h would not only improve safety outcomes, but would lead to overall economic gains (taking into account the effects on vehicle operating costs, travel time and vehicle emissions).<sup>6</sup>

Speed limits should reflect an appropriate balance between safety and mobility. Australian jurisdictions generally set limits for a given section of road according to a range of criteria, including road characteristics, crash records and measured free speeds. However, there are indications that too much weight is sometimes given to measured speeds (typically 85<sup>th</sup> percentile speeds) – based on the dubious assumption that most drivers make well-balanced speed choices – and not enough weight is given to objective assessments of risk.

### Potential benefits of speed reduction initiatives

To further illustrate the scale of potential safety benefits, Appendix 2 provides research-based estimates of the effects of uniform reductions of 5 km/h and 10 km/h in vehicle travel speeds across the entire network in an Australian State. Even a 5 km/h uniform reduction would reduce total serious casualty crashes by 27 per cent. A uniform 10 km/h reduction would reduce serious casualties by 40 per cent. Other research indicates that the effect of such a reduction on fatalities would be even larger than the effect on casualties.

This Action Plan does not propose uniform speed reductions across the road network, but significant benefits can be captured by a balanced approach including selective speed limit reductions, improved enforcement and intensive public education.

### Implementation barriers

Despite the powerful case for stronger speed reduction measures, action to date has been less vigorous than might have been expected. Public scepticism about the legitimacy of speed management has put pressure on governments to avoid rigorous enforcement of limits and, more generally, to look for road safety solutions other than speed countermeasures.

Promoting better understanding about speed issues is clearly very important, but also very difficult to achieve. This is partly because personal experience offers little insight into the links between travel speed and risk. Serious crashes are quite common events on our road system, but are actually very rare in the lives of individual drivers – consequently, experience tends to reinforce the belief that moderately fast driving is perfectly 'safe'.

The problem is compounded by a steady stream of misinformation from a small, but vocal, section of the community intent on perpetuating harmful myths:

- that moderate speeding is not a safety issue
- that speed management measures do not reduce road trauma
- that speed enforcement activities are principally designed to raise revenue.

A sustained response to these issues is needed to bring about the kind of culture change achieved in relation to drink driving. Public education campaigns have a central role, but it is also important to directly challenge the normalisation (or glamorisation) of speeding in the mass media. Recent tightening of the voluntary industry code for vehicle advertising, which prohibits the portrayal of speeding and other unsafe driving practices, is a step in the right direction.

### Action

- Education and information programmes to support speed management initiatives (highly relevant to all following action items)
  - focus on communicating the extent of safety improvement that can be achieved through better speed management.
- Extend integrated publicity and enforcement campaigns geared to maximising compliance with speed limits.
- ▮ Develop and promote an evidence-based guide on best practice in speed enforcement, taking into account
  - evidence that hidden speed cameras can achieve greater casualty reductions than more visible operations that allow offenders to adjust their speed before they are caught<sup>7</sup>
  - the safety outcomes of reduced enforcement tolerances in some jurisdictions
  - the need for a balance between complementary approaches: tightly targeted enforcement programmes (highly visible operations at dangerous locations, producing localised effects) and broader deterrence programmes (less predictable, designed to reduce average speeds across the network).
- ▮ Continuous (automatic) speed enforcement on high volume roads, and other roads with high crash rates.
- ▮ Implement frontal identification systems for motorcycles, so that automated speed enforcement measures apply to motorcycles on the same basis as other vehicles
  - rider safety would be improved by a reduction in overall traffic speeds, but speeding is a much more common factor in motorcycle fatalities than in fatal crashes generally.
- ▮ Undertake detailed monitoring of travel speeds (independent of enforcement action): good information on outcomes is essential to further develop best practice.
- ▮ Review criteria for setting speed limits, with a particular focus on the weight given to measured free speeds (eg 85th percentile speeds) compared with more objective assessments of risk.

## SAFER SPEEDS

### Action

- Selective extension of the use of urban speed limits of 40 km/h or lower (for example, in local shopping precincts, school zones and other areas of high pedestrian activity)
  - and where appropriate, reduce 60 km/h limits to 50 km/h in selected areas.
- Identify road sections with high crash risk or record, and apply lower speed limits if infrastructure remedies are not an immediate option.
- ▶ Assess the effectiveness of the voluntary industry code on the depiction of speed in vehicle advertising
  - if necessary, develop and implement a mandatory code.

### Systems framework links

Speed reduction initiatives complement the use of infrastructure measures to achieve acceptable safety outcomes. New vehicle-based technologies may have implications for future approaches to speed management.

Key action links are:

- ▶ **Roads** - targeted safety upgrades
  - public information about the relative safety of different roads
- ▶ **Vehicles** - in-vehicle systems to promote compliance.

### Extected benefits

Speed initiatives	Car occupants	Motorcyclists	Bicyclists	Pedestrians	Young drivers	Older drivers	Rural motorists
Public education & information	**	**	**	**	***	**	**
Improved enforcement	***	***	***	***	***	**	***
Lower speed limits	***	***	***	***	***	**	***

# 3

## SAFER VEHICLES

Because of long lead times for vehicle safety improvements, there are limited options for new initiatives that will impact significantly before 2010. Almost all of the predicted savings up to 2010 in the National Strategy were from vehicle improvements already implemented or scheduled.

However, it is important to accelerate the uptake of vehicle safety features, and to lay the groundwork for improvements likely to have substantial benefits in the longer term.

Improving public understanding of vehicle safety issues is an important way of raising the overall safety of the vehicle fleet. Consumer information about vehicle safety is available from the Australian New Car Assessment Program (ANCAP) and from crashworthiness ratings (for used vehicles) based on analysis of crashes on Australian roads. Greater awareness of these ratings among both corporate and individual vehicle purchasers would enable more informed consumer decisions, and provide incentives for industry to supply more vehicles with advanced safety features. This could lower the price of features currently available as options. Decisions made by corporate vehicle purchasers flow through to the used car market, and thus affect the safety characteristics of the broader fleet.

The first two Action Plans called for the introduction of an Australian Design Rule (ADR) requiring vehicles to be fitted with intrusive audible seat belt warning devices. Research commissioned by the Australian Transport Safety Bureau (ATSB) had shown that such devices could have a substantial long-term effect in reducing vehicle occupant injuries in Australia, and that cost-effective options were available.<sup>8</sup>

A subsequent regulation impact statement (released for public comment in 2004) did not support the case for an ADR, in part because manufacturers were already introducing enhanced seatbelt reminders on a voluntary basis. There are concerns, however, that industry response to this issue might fall short of the desired standards and pace of implementation. Jurisdictions should continue to explore regulatory and non-regulatory options for accelerating the introduction of effective systems.

The range of other in-vehicle systems with safety potential is developing at a rapid rate. Of particular interest to Australian road safety are technologies that could significantly improve compliance with speed limits. For example, overseas research indicates that Intelligent Speed Adaptation systems – which provide feedback to the driver when local speed limits are exceeded, and can even be set to prevent speeding – have large potential

safety benefits (with potential reductions in fuel consumption and emissions).<sup>9</sup> A trial is already being conducted with fleet vehicles in Australia. Other systems, including quite simple options like changes to speedometer displays, also warrant investigation.

There is also renewed interest in encouraging adoption of daytime running lights (DRL). A review commissioned by the ATSB concluded that widespread use in the general vehicle fleet could bring significant crash reductions for relatively modest cost.<sup>10</sup> The case for regulatory action needs to be further examined.

On the other hand, there are growing concerns about the potentially adverse safety effects of in-vehicle entertainment and communication systems, particularly those involving visual display units. Some initial research on this issue is being undertaken in NSW.

### Action

- Accelerate the introduction of effective audible seat belt warning devices to all new vehicles, by
  - considering the case for regulatory action (review the Regulation Impact Statement)
  - examining options to strengthen relevant ANCAP specifications and incentives
  - using government purchasing power to apply market pressure to the vehicle industry.
- ▶ Jurisdictions to join in a coordinated government strategy to use fleet purchasing power to influence vehicle safety standards.
- ▶ Encourage corporate and individual vehicle purchasers to select safer vehicles, through campaigns to promote awareness of ANCAP safety ratings and used-vehicle safety ratings
  - promote display of occupant protection safety ratings on new and used vehicles at point of sale (if ratings are available for the relevant model).
- ▶ Research vehicle compatibility implications of the increasing diversity of the Australian vehicle fleet, and review potential countermeasures (which could include road-based, vehicle-based and behavioural measures to reduce the frequency or severity of multi-vehicle crashes).
- ▶ Investigate potential of in-vehicle technology to improve compliance with speed limits, and accelerate the introduction of cost-effective technology; options for review include
  - Intelligent Speed Adaptation
  - maximum speed limiting
  - speedometer displays that focus on the range covered by legal speed limits
  - black box recording technology.

### Action

- ▶ Examine the case for daytime running lights on all new vehicles supplied to the Australian market and prepare a Regulation Impact Statement if appropriate.
- ▶ Promote consumer awareness of safety issues concerning vehicles with a high centre of gravity (particularly four-wheel drive vehicles with high ground clearance).
- ▶ Extend ANCAP to include assessment of active safety and a pole impact test.
- ▶ Investigate potential safety effects of in-vehicle entertainment systems and other devices with visual displays
  - identify action needed to prevent adverse effects.

### Systems framework links

Improving the inherent safety of the vehicle fleet is difficult and requires long lead times. Other major components of the transport system – particularly road design and speed management – therefore need to accommodate the level of occupant protection provided by existing vehicles. Speed management initiatives could be enhanced by the uptake of in-vehicle technologies.

Key action links are:

- ▶ **Speed** - improve compliance with speed limits.

### Expected benefits

Vehicle initiatives	Car occupants	Motorcyclists	Bicyclists	Pedestrians	Young drivers	Older drivers	Rural initiatives
Seat belt warning devices	***	-	-	-	***	**	***
Crashworthiness & compatibility measures	***	*	*	*	***	**	***
In-vehicle technologies	***	**	**	**	**	**	**



## Managing road user behaviour through education, enforcement and system entry

Fundamental to the safety of the road transport system is the effective regulation and management of people who use the system. Licensing laws and road rules establish appropriate competency standards, conditions of access, and boundaries of acceptable behaviour. But to be effective, these need to be supported by measures to encourage road user compliance.

Elsewhere in this document, speeding has been identified as one of the most important behavioural issues in road safety. But there are other significant problem areas that can be treated through better management of road users. These include the continuing problem of driver impairment and the over-representation of novice drivers among road casualties.

### Driver impairment

Despite past achievements, impairment related to alcohol, other drugs or fatigue is still a major contributing factor to road fatalities and injuries.

There is scope for further safety gains through deterrence, education, rehabilitation, technological remedies and harm minimisation approaches. However, different strategies are needed to deal with different types of impairment: for example, there is no foreseeable prospect of an effective enforcement-based approach to fatigue using roadside tests of impairment.

### Alcohol and other drugs

All jurisdictions have had considerable success in reducing the contribution of alcohol to road trauma, but about 26 per cent of driver and rider fatalities still have a blood alcohol concentration above the legal limit.

## SAFER ROAD USERS

This figure varies considerably among jurisdictions, which suggests that there is considerable scope for further gains through identification and application of best practice approaches to deterrence.

Although there is scope for more strategic deployment of resources available for drink driving deterrence programmes, this is an area where 'working smarter' is no substitute for working hard. Effective deterrence depends on convincing potential offenders that offences are very likely to be detected and punished. This perception cannot be maintained without intensive enforcement. There is concern in many jurisdictions about high drink driving rates in rural areas. This reflects both the difficulties in applying Random Breath Testing effectively in rural areas, and the lack of alternative transport options (such as trains, buses or taxis) in many rural areas. Specially adapted programmes are needed to reduce drink driving in rural areas.

The actual penalties in place for alcohol and drug offences are also an important aspect of deterrence. There may be a need for more effective penalties, including options such as vehicle sanctions.

There is evidence that a substantial proportion of drink drivers – particularly recidivist offenders – have serious alcohol abuse problems, often paralleled by broader psychological and social problems. Alcohol interlock programmes and rehabilitation programmes have had some success in changing the behaviour of recidivist offenders who are resistant to mainstream deterrence and publicity programmes.<sup>11</sup>

In terms of substance impairment, alcohol is the biggest single contributor to road trauma; however, recent information from the Victorian Institute of Forensic Medicine indicates that other drugs warrant further examination and action.

The development of effective drink and drug driving strategies is hampered by inadequate data on alcohol and drug involvement in serious crashes. Routine blood sampling and drug testing are currently limited to fatally injured drivers, but need to be applied consistently and extended to all drivers involved in fatal or serious crashes.

### Fatigue

The contribution of fatigue to serious road crashes is difficult to quantify, but some estimates suggest that fatigue may approach alcohol as a factor in serious crashes.

Fatigue among long distance heavy vehicle drivers is a major area of concern for the community, governments and the road transport industry, but fatigue among light vehicle drivers is the cause of most serious fatigue-related road crashes.

Changes in road user behaviour in other areas – such as drink driving, seat belt use and speed – have contributed significantly to reductions in road fatalities. In these areas, change has occurred as a result of a combination of information campaigns and regulatory measures backed by enforcement.

There appears to be little prospect of addressing fatigue among non-professional drivers through regulation and enforcement.

Because of the absence of 'enforcement backup', information campaigns relating to fatigued driving face a challenge. However there is evidence from survey research that awareness of fatigue as a major risk factor is increasing, and it is important to build on that with well-targeted public information about risk factors, warning signs and preventive strategies.

A considerable amount of research is being conducted on fatigue warning devices, but to date the effectiveness of these devices in preventing casualties remains unproven. As discussed on page 20, many experts believe that the greatest potential for reducing fatigue-related trauma lies with the application of cost-effective road engineering treatments.

### Action (driver impairment)

- Enhance drink driving deterrence
  - maintain or increase resources for enforcement and public education
  - improve strategic focus: (for example, achieving the best combination of general deterrence and effective targeting of particular locations and times).
- Strengthen measures to reduce drink driving in rural areas through
  - effective deterrence programmes
  - community education initiatives
  - provision of alternative transport options
  - extension of Responsible Serving of Alcohol programmes.
- ▶ Promote more extensive use of alcohol interlock programmes to change the behaviour of repeat offenders.
- ▶ Promote the use of drink driving rehabilitation programmes for repeat offenders.
- ▶ Review the need for more effective drug and alcohol penalties
  - consider vehicle sanctions including immobilisation or confiscation as alternatives to alcohol interlocks.
- ▶ Develop and evaluate improved drug deterrence measures
  - build on existing measures by targeting drugs known to be involved in serious crashes (both passenger cars and heavy vehicles).

### Action (driver impairment)

- ▶ Introduce blood sampling and drug testing for all drivers involved in fatal and serious crashes – implementation to be progressed according to the following priorities
  - all fatally injured drivers
  - all truck drivers involved in fatal crashes
  - all drivers involved in fatal crashes
  - all drivers involved in serious crashes.
- ▶ Address fatigue through further public education for all drivers on risks, warning signs and preventive strategies.

### Systems framework links

- ▶ **Roads** - targeted safety upgrades.

### Expected benefits

Driver impairment	Car occupants	Motorcyclists	Bicyclists	Pedestrians	Young drivers	Older drivers	Rural initiatives
Alcohol and drug deterrence	***	***	*	*	***	**	***
Alcohol interlock programmes	***	*	*	*	**	*	**
Fatigue countermeasures	**	*	**	**	**	*	**

### Licensing and driver management

Driver licensing sets competence standards for entry to the road system; special licence conditions can be used to reduce the risks faced by novice drivers and riders while they are developing their competence, and the licensing system is the basis for applying sanctions to those who break the road rules.

Novice drivers have a high crash rate in their first years of solo driving. In Europe there is growing interest in the use of post-licence driver development programmes to address this problem; some promising results have been reported, but more rigorous evaluation is needed.

Higher crash rates are also experienced by older drivers approaching the end of their driving careers. There may be scope to reduce the risk exposure among this group by introducing some form of graduated exit from the licensing system.

Among drivers and motorcycle riders involved in fatal crashes at least 5 per cent of drivers and 19 per cent of motorcycle riders do not have a valid licence.

A requirement to display a licence on demand is important to deterrence of unlicensed driving; it is also important to the enforcement of special licence conditions, such as alcohol interlocks and the zero alcohol limit on novice drivers, and to achieving certainty in the application of other penalties.

Licence suspension is an important deterrent penalty but many recidivist offenders continue to drive without licences. There is a need to consider alternative sanctions or other measures that can bring these drivers back into the licensing system.

The Australian Road Rules prohibit the use of hand-held mobile phones when driving. Evidence is accumulating that use of hands-free units also involves a significant increase in crash risk but there is debate about the extent to which further legal restrictions would reduce serious crashes.

### Action (licensing and driver management)

- ▶ Examine, and if effective introduce, extensions to graduated licensing systems to improve the safety of novice drivers. Options for examination include
  - night-time driving and/or passenger restrictions, which have been effective in other countries
  - transitional arrangements from provisional to full licensing.
- ▶ Examine options for graduated exit from the licensing system for older drivers.
- ▶ Conduct a large-scale scientific trial of a post-licence driver development programme.
- ▶ Require all drivers and riders to carry their licence and produce it when requested by police.
- ▶ Resource the use of in-vehicle technology to enable access to on-line licence databases.
- ▶ Review sanctions to ensure they maximise deterrence
  - including the use of vehicle sanctions, such as immobilisation, for serious offences.
- ▶ Examine the need for specific measures to bring unlicensed drivers back into the system.
- ▶ Identify and respond to issues related to in-vehicle driver distraction
  - monitor emerging research, including the impacts on different risk groups
  - encourage voluntary fleet policies that prohibit the use of all mobile phones while driving.
- ▶ Develop road safety applications for automatic number plate recognition technology.

## SAFER ROAD USERS

### Expected benefits

Driver management	Car occupants	Motorcyclists	Bicyclists	Pedestrians	Young drivers	Older drivers	Rural initiatives
Licensing improvements	***	**	**	**	***	**	***
Post-licence driver education	***	*	**	**	***	*	**
Deterrence measures	***	***	**	**	***	*	**

# 5

## OTHER SUPPORTING MEASURES

### Injury data

The historical relationship between fatality and serious injury trends suggests that measures targeting fatality reductions have a positive effect on overall road trauma. Nevertheless, the availability of good injury data is important for developing well-designed countermeasures and monitoring outcomes. The recent creation of a national statistical collection based on hospitalisation data promises to fill a major gap in this area, but the timeliness of information needs to be significantly improved. Greater insight is also required into the nature and impact of severe long-term injuries.

### Complementary strategies

The measures outlined in other sections of this Action Plan are intended to improve safety outcomes across all road user categories and community groups. These actions will be complemented by a range of other initiatives and strategic processes targeting specific problem areas in road safety, notably: indigenous road users, international visitors, heavy vehicle crashes and bicycle safety.

### Railway level crossings

There are approximately 100 crashes between a road vehicle and a train in Australia each year, and about 8 per cent of these result in deaths.<sup>12</sup> About 22 pedestrians die each year as a result of being hit by a train at a railway crossing. Fatalities at railway level crossings are only a small proportion of the deaths that occur on roads each year, but they are one of the most serious safety issues faced by the rail system in Australia. Level crossing crashes are often severe and dramatic, and are generally reported widely and emotively in the media.

Coordinated road and rail safety initiatives are required to respond effectively. In consultation with the rail industry, the Standing Committee on Transport's Rail Group is developing a strategic approach to improving safety at railway level crossings. This comprehensive strategy is expected to include public awareness and education on railway level crossing safety for road users, including pedestrians. In November 2002 the ATC agreed that level crossing safety awareness and education be addressed in the *National Road Safety Action Plan for 2003 and 2004*. A National Level Crossing Safety Strategy and Action Plan was endorsed by the ATC in May 2003.

## OTHER SUPPORTING MEASURES

Other broader priority areas identified in this road safety Action Plan also have relevance to level crossing safety: for example, impaired driving or speeding are factors in a substantial proportion of level crossing crashes.

### Action

- ▶ Improve the national hospitalisation data series (in particular, reduce time lags) and explore data sources on severe long-term injuries.
- ▶ Work with indigenous communities to identify and implement locally relevant initiatives that improve road safety outcomes for indigenous people. (These initiatives would complement and enhance the road safety measures listed elsewhere in this Action Plan that would improve road safety for indigenous people).
- ▶ Complete the development of an Internet-based clearing house to share effective indigenous road safety initiatives among stakeholders and communities (to be complemented by national forums on road safety for indigenous people).
- ▶ Implement road safety measures identified in the following national strategies and action plans:
  - National Road Safety Action Plan for International Visitors.
  - National Heavy Vehicle Safety Action Plan.
  - The National Bicycle Strategy.
- ▶ Develop and implement a coordinated approach to improving public awareness of level crossing safety issues, involving road safety agencies, SCOT Rail Group and the rail industry.

## Major reports and developments in road safety

- In May 2003, the ATC approved a National Heavy Vehicle Safety Strategy and Action Plan. The Strategy covers road-based, vehicle-based and behavioural measures to address safety issues for heavy vehicles, including buses. Development was coordinated by the National Transport Commission.
- In March 2004, the SaferRoads programme was launched as a joint initiative of the Australian Automobile Association, the Australian Local Government Association, the Australian Trucking Association and the Australian College of Road Safety. The programme aims to promote awareness of road trauma as a preventable public health issue, with particular focus on the need to invest in a more forgiving road infrastructure.
- In June 2004, the Australian House of Representatives Standing Committee on Transport and Regional Services released the findings of its inquiry into road safety. The Committee's report *National Road Safety – Eyes on the Road Ahead* puts forward a wide-ranging discussion and list of recommendations in support of a strong national approach to road safety.
- In June 2004, Austroads – the Australasian association of road transport and traffic authorities – released its strategic plan for 2004–07. Priorities for improving road safety emphasise the need for a *safe system* framework for action, focusing on
  - road risk assessment, treatment and standards (including speed management)
  - driver licensing
  - safer vehicles.
- In June 2004, the Australian Government released its new policy on national land transport infrastructure through the *AusLink White Paper*. Under AusLink, the National Highway System and Roads of National Importance are replaced with a broader and more strategic network of transport corridors, including Australia's key rail links. The paper outlines the basis of the Australian Government's long-term investment in land transport, and recognises improved safety as one of the salient objectives.

## APPENDIX 1

- In 2003, South Australia established a Road Safety Advisory Council with an independent chair and representatives of key stakeholders. A Road Safety Ministerial Council was also established.
- Other important reports made available were:
  - Victorian Government Response to the Parliamentary Road Safety Committee Inquiry into Road Safety for Older Road Users.
  - Queensland Government Response to Parliamentary Select Travelsafe Committee's reports on the safety of young drivers and riders.
  - *Arriving Safely* – road safety strategy for Western Australia 2003–2007.
  - *Queensland Road Safety Strategy 2004–2011 and Queensland Road Safety Action Plan 2004–2005*.
  - *Positioned for Safety* – road safety strategic plan of the Motorcycle Council of NSW.

# Potential casualty reductions from reduced travel speeds

## Estimated Reductions in Serious Casualty Crashes From Reductions in Travel Speeds

Centre for Automotive Safety Research  
The University of Adelaide

### Expected Reductions in Serious Casualty Crashes in South Australia Assuming a 5 km/h Speed Reduction Among All Vehicles

<i>Speed Limit Zone</i>	<i>% of Serious Crashes Affected</i>	<i>Estimated % Reduction in these Serious Crashes</i>	<i>% Reduction in All Serious Crashes</i>
60 km/h (local streets)	8.0	26	2.1
60 km/h (arterial roads)	45.6	26	11.9
70 km/h	2.1	26	0.5
80 km/h	7.5	30	2.3
90 km/h	0.8	30	0.2
100 km/h	13.8	30	4.1
110 km/h	19.6	30	5.9
<b>Total</b>	<b>97.4</b>	<b>-</b>	<b>27.0</b>

### Expected Reductions in Serious Casualty Crashes in South Australia Assuming a 10 km/h Speed Reduction Among All Vehicles

<i>Speed Limit Zone</i>	<i>% of Serious Crashes Affected</i>	<i>Estimated % Reduction in these Serious Crashes</i>	<i>% Reduction in All Serious Crashes</i>
60 km/h (local streets)	8.0	38	3.0
60 km/h (arterial roads)	45.6	38	17.3
70 km/h	2.1	38	0.8
80 km/h	7.5	46	3.5
90 km/h	0.8	46	0.4
100 km/h	13.8	46	6.3
110 km/h	19.6	46	9.0
<b>Total</b>	<b>97.4</b>	<b>-</b>	<b>40.3</b>

### Notes:

- Serious casualty crashes are crashes reported to police with at least one hospital admission or fatality.
- 2.6 per cent of crashes occurred on 'other' speed limit roads (no reductions are assumed on these roads).
- Reductions are based on RARU speed studies (CR 204 and CR 207).<sup>13</sup>
- It is estimated that 15 per cent of 60 km/h speed zone crashes occur on local streets.
- Assumes RARU reductions (casualties in general) apply to serious casualty crashes.
- Assumes no reduction in risk for alcohol affected drivers, non-free speed vehicles and vehicles executing an illegal manoeuvre.

### The Safe System Framework

- <sup>1</sup> A discussion of the emergence of systems thinking in road safety can be found in:  
World Health Organization (2004). *World Report on Road Traffic Injury Prevention: Summary*. WHO, Geneva.

### Safer roads and roadsides

- <sup>2</sup> A detailed evaluation of the National Black Spot Programme is presented in:  
Bureau of Transport Economics (2001). *The Black-Spot Program 1996–2002: An Evaluation of the First Three Years*. BTE Report 104, Canberra.
- <sup>3</sup> 'Several reviews have stressed the potential of cost-effective road-based measures to prevent casualties associated with fatigue':  
Evans J (1998). 'Road based fatigue countermeasures'. Proceedings of *Road Safety Research Policing and Education Conference*, Land Transport Safety Authority, NZ.  
NHTSA (1996). *Drowsy driving and automobile crashes*. Report by NCSDR/NHTSA expert panel on driver fatigue and sleepiness, National Highway Traffic Safety Administration, US.  
Hartley LR, Penna F, Corry A and Feyer A–M (1998). *Comprehensive Review of Fatigue Research*. Institute for Research in Safety & Transport Report (Number 116), Murdoch University, WA.

### Safer speeds

- <sup>4</sup> 'There is an extensive body of research showing that even small reductions in vehicle speeds result in a marked reduction in the number of road fatalities and serious injuries.'  
Reviews and summaries of the research literature are provided by:  
DETR – Department of Environment Transport and the Regions (2000). *New Directions in Speed Management: A Review of Policy*. London.  
ECMT – European Conference of Ministers of Transport (1996). *Road Safety: Speed Moderation*. Paris, France.

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- <sup>5</sup> 'Australian studies have provided direct evidence that speeds just 5 km/h above average in urban (60 km/h) areas, and 10 km/h above average in rural areas, are sufficient to double the risk of a casualty crash':

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- <sup>6</sup> Estimates of the economic impacts of different rural speed limits are provided in:

Cameron M (2003). *Potential Benefits and Costs of Speed Changes on Rural Roads*. Report CR216, Australian Transport Safety Bureau, Canberra.

- <sup>7</sup> Research on hidden and visible speed cameras:

Keall MD, Povey LJ and Frith WJ (2002). 'Further results from a trial comparing a hidden speed camera programme with visible camera operation.' *Accident Analysis and Prevention*, 2002, V34–6.

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### Safer vehicles

<sup>8</sup> Research on intrusive seat belt warning devices:

Fildes B, Fitzharris M, Koppel S and Vulcan P (2002). *Benefits of Seat Belt Reminder Systems*. Report CR211, Australian Transport Safety Bureau, Canberra.

<sup>9</sup> A summary of overseas research on intelligent speed adaptation is provided in:

Regan M, Young K and Haworth N (2003). *A Review of Literature and Trials of Intelligent Speed Adaptation Devices for Light and Heavy Vehicles*. Report AP-R237, Austroads, Sydney.

<sup>10</sup> A review of the benefits and costs of daytime running lights is presented in:

Cairney P and Styles T (2003). *Review of the Literature on Daytime Running Lights (DRL)*. Report CR218, Australian Transport Safety Bureau, Canberra.

### Safer road users

<sup>11</sup> Studies on rehabilitation programmes and alcohol interlocks include:

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### Other supporting measures

<sup>12</sup> Railway level crossing fatalities:

Ford G and Mathews A (2002). 'Analysis of Australian grade crossing accident statistics'. Proceedings of 7th *International Symposium on Railroad Highway Grade Crossing Research and Safety*, Monash University, February 2002.

### Appendix 2

<sup>13</sup> RARU speed studies:

Kloeden CN, Ponte G and McLean AJ (2001). *Travelling Speed and the Risk of Crash Involvement on Rural Roads*. Report CR204, Australian Transport Safety Bureau, Canberra.

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