



**Submission to the**

**House of Representatives Standing  
Committee on  
Transport and Regional Services**

**Inquiry into National Road Safety  
Road Trauma - a Preventable Health Issue**

**October 2003**

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## Summary of Recommendations

A summary of AAA recommendations to this Inquiry are outlined below.

- AAA believes that the National Road Safety Strategy target of a 40% reduction by 2010 is achievable and should remain.
- The National Road Safety Action Plans need to include details of accountabilities for implementing the stated initiatives. The Commonwealth Government needs to state which initiatives it will implement and should also encourage this commitment from the States and Territories.
- AAA believes road trauma should be seen and treated as a preventable health issue nationally.
- AAA believes that proven initiatives that relate to creating safer roads need to be implemented by the Commonwealth and State Governments as the key road safety priority area.
- AAA urges a shift in emphasis in road trauma measurements from “fatalities” to “crashes, injuries and serious injuries” as these more accurately reflect the long term economic and social impact of road crashes.
- Blackspot programs have been highly effective and AAA urges the Commonwealth Government to continue investing in such programs, at higher levels, given the proven return to the community of many times the cost.
- AAA believes that ‘bottom up’ oriented Blackspot programs should be supplemented by ‘top down’ road infrastructure improvement programs to improve the inherent safety of the National Highway System to include design features such as sealed shoulders, high standards of safety related line-marking and signing and best possible standards of roadside safety.
- To enhance the safety of new and existing roads undergoing improvements, road safety audits should be made compulsory for all projects.
- The Austroads report on best practice alcohol interlock programs should be revised to include up to date research and should be expanded to include details of best practice alcohol rehabilitation programs and processes.
- This Inquiry should review the issue of inappropriate portrayals of speed in advertising and provide a more effective solution than the current arrangements with the voluntary code of conduct.

- A national road user safety and mobility strategy is needed to ensure effective measures are implemented to prevent any potential increase in road trauma associated with the ageing population.
- Any national approaches to driver training must fully consider all of the scientific crash evaluations and should in the first instance monitor the outcomes of the NSW Young Driver Development pilot program.
- Australian guidelines and design rules need to be developed to ensure that in-vehicle devices in all new cars will have a positive impact on driver performance.
- AAA believes that both State and Commonwealth Governments should make improved trauma management a priority, especially in rural Australia.
- The Commonwealth Government should provide leadership through the development and implementation of a fleet purchasing policy that requires 'state of the art' vehicle safety features in all new cars purchased. This could be based on existing policies such as the Monash University Accident Research Centre (MUARC) model.
- The Commonwealth Government should promote vehicle crashworthiness by joining the State Governments, the New Zealand Government and all Australian motoring Clubs in becoming a partner of ANCAP, with an annual contribution of at least \$500,000.
- The Commonwealth Government must recognize that road safety is a shared responsibility between the road authority, the vehicle manufacturer and the driver. The Commonwealth can take a lead in encouraging this shared responsibility.
- The Commonwealth should consider the establishment of some form of Ministerial Coordinating Council or Interdepartmental Committee (including Treasury, Health, Family Services, Industry and Transport) to ensure the maximum benefits from the National Road Safety Strategy are realised.

# 1. Introduction

## 1.1 About AAA

The Australian Automobile Association (AAA) welcomes the opportunity to make this submission to the House of Representatives Standing Committee on Transport and Regional Services Inquiry into Road Safety.

The AAA serves as the federal secretariat of the state and territory motoring clubs, its members being the:

- National Roads and Motorists' Association Limited (NRMA);
- Royal Automobile Club of Victoria (RACV);
- Royal Automobile Club of Queensland (RACQ);
- Royal Automobile Association of South Australia (RAA SA);
- Royal Automobile Club of Western Australia (RAC WA);
- Royal Automobile Club of Tasmania (RACT);
- Automobile Association of Northern Territory (AANT); and
- Royal Automobile Club of Australia (RACA).

Through these organisations, the AAA represents the interests of over 6 million motorists and, indirectly, all Australian motorists at the national and international levels.

AAA is a member of the Alliance Internationale de Tourisme (AIT) and Federation Internationale de l'Automobile (FIA) whose total membership exceeds 100 million motorists. In cooperation with the AAA, these organisations provide international consumer representation in a broad range of fields, including road safety.

AAA Constituent Clubs are heavily involved in road safety activities in each State, including conducting advocacy and information programs to address the safety of roads, vehicles and road users. This predominantly involves conducting road audits/hazard investigations, lobbying for road improvements, promoting young driver safety and conducting education in schools, assisting with the appropriate selection and use of child restraints, road safety for older drivers and funding and conducting road safety research.

The Clubs also part-fund the Australian New Car Assessment Program (ANCAP). This program involves crash testing cars and rating them for crashworthiness. This program provides valuable consumer information on the relative occupant protection performance of new vehicles sold in Australia, and is linked to similar programs overseas.

At the national level, AAA is involved in a number of road safety activities, including chairing the management committee of ANCAP and technical liaison with EuroNCAP. AAA is a participant on the National Road Safety Strategy Panel, and provides input to reviews of Australian Design Rules pertaining to the

safety of vehicles. AAA is also involved in developing harmonized vehicle standards through its international affiliate AIT and the FIA Foundation for the Automobile and Society, who participate in WP 29 at the United Nations.

## **1.2 Submission to the Inquiry**

The terms of reference for the Inquiry into National Road Safety are to:

- review strategic objectives, priority areas and proposed measures in the National Road Safety Strategy 2001-2010 and the National Road Safety Action Plans and consider whether these remain appropriate;
- identify any additional measures or approaches that could or should be adopted to reduce road trauma; and
- identify factors that may be impeding progress in reducing road trauma and suggest how these could be addressed.

Each of these terms of reference have been addressed in this submission, with a particular focus on what the Commonwealth Government needs to do to ensure that the national road safety target is achieved.

## 2. Background to Road Safety in Australia

Australia has made significant progress in reducing the road toll since 1970. Much of this improvement occurred between 1970 and 1994 (see Figure 1 below), primarily as a result of major initiatives such as compulsory seat belt usage, random breath testing and targeted education programs.

However, since the mid 1990's, the road toll has 'plateaued'. This levelling off resulted in the development of the National Road Safety Strategy (NRSS) and associated Action Plans.

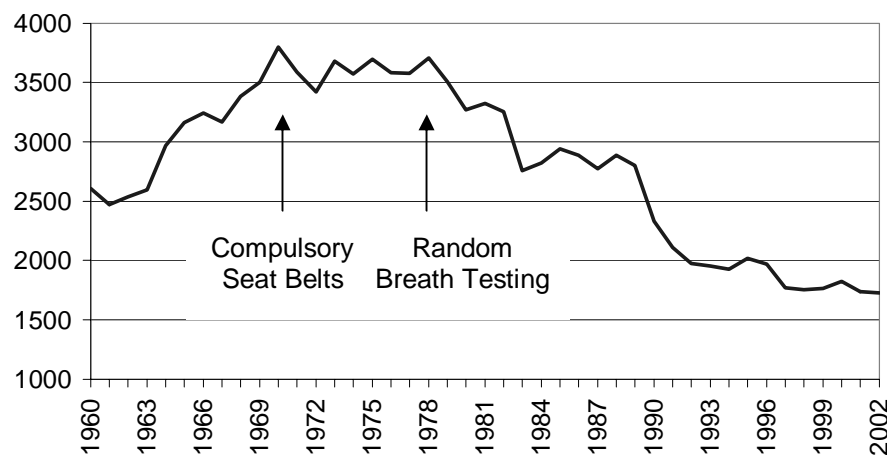


Figure 1: Australian Road Toll 1960-2002 (ATSB, 2003).

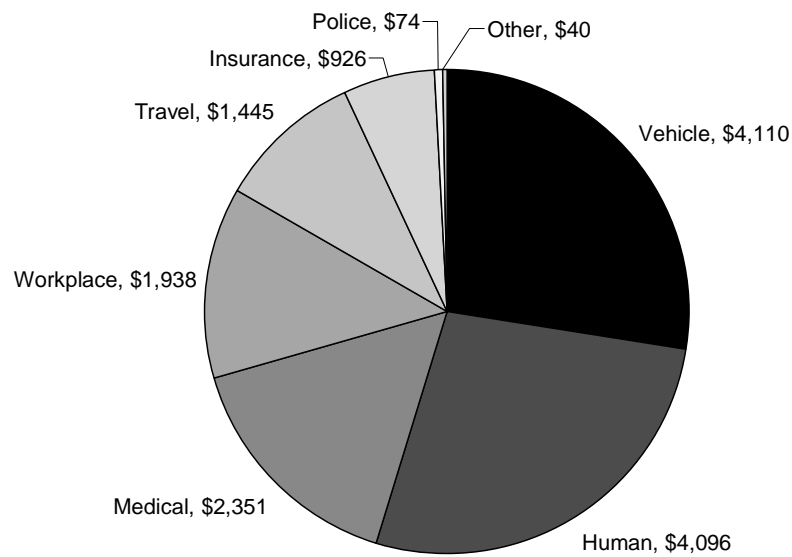
### 2.1 Cost of Road Trauma

While it is important to consider the number of fatalities when analysing road safety outcomes, it should be acknowledged that they tell only part of the story. Injury and property damage are also substantial issues and they contribute to the significant cost of road trauma.

Each year in Australia there are:

- over 600,000 reported road crashes;
- over 200,000 reported injuries; and
- 22,000 serious injuries requiring long-term care and treatment.

The Bureau of Transport and Regional Economics (BTRE) estimates the cost to the community of road crashes in Australia is \$15 billion per annum. Figure 2 below highlights the individual components of the total cost (BTRE, 2000).



**Figure 2: Annual road crash costs (\$ million) (BTRE, 2000)**

Although often viewed as a narrow transport issue, in reality road trauma is a preventable health issue with enormous impact across the Australian community. Hospitals, ambulance and police services, other emergency services, workplaces, leisure activities, home life and national productivity are all seriously impacted by road trauma.

**AAA believes road trauma should be seen as a serious preventable health issue impacting across the whole-of-government, and treated as such.**



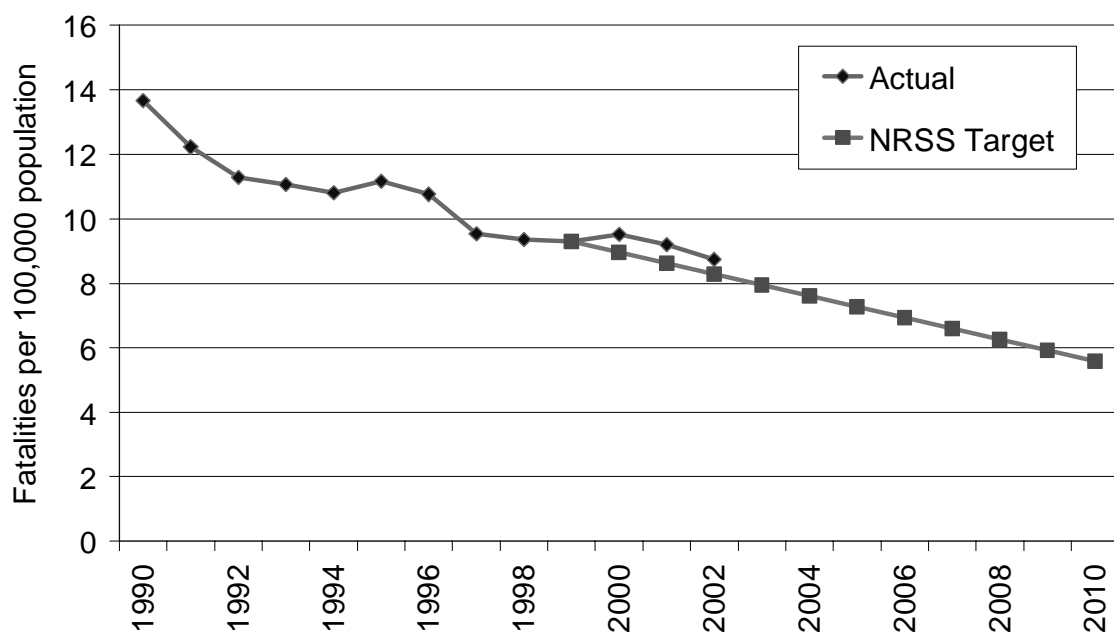
### 3. Review of Strategic Objectives in the National Road Safety Strategy (NRSS)

The NRSS has an objective of reducing the fatality rate per 100,000 population from 9.3 in 1999 to no more than 5.6 in 2010 – a 40 percent reduction.

AAA believes that this target is achievable and should be retained. Targets should also be developed for reductions in crashes and injuries as a matter of urgency. As fatality figures are used in the current National Road Safety Strategy, this submission will focus on them and the 40 percent target.

Achieving this target will require a strong commitment from both Commonwealth and State Governments, and in particular, a commitment to contribute the resources that are necessary.

AAA recently conducted a review of the progress on the NRSS to date, which showed that Australia is 'behind target' (see Figure 3 below). Our review shows that recent fatality statistics are disappointing and that implementation of the National Road Safety Action Plan 2001-02 objectives could have been more rigorously pursued.



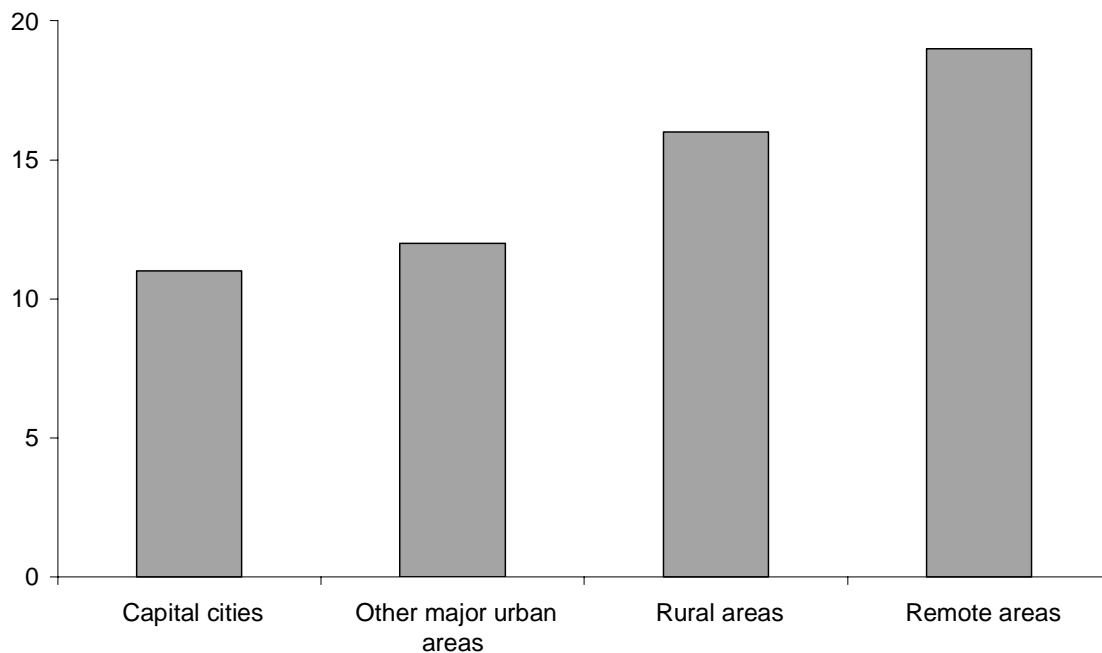
**Figure 3: National Road Safety Strategy: Australian comparison of performance (1990-2002) against target (2000-2010).**

#### 3.1 Australia's Road Toll Performance

In 2002 there were 1,725 fatalities as a result of crashes on Australia's roads. This represented a fatality rate of 8.75 per 100,000 population. While it is pleasing to note that this is the lowest rate recorded in the past decade and continues the downward trend, it is still above that which might be expected if

the target is to be achieved. If we assume that the 40% reduction target is to be met by a simple linear rate of reduction over the eleven years to 2010, then we would expect that by 2002 the national fatality rate would be 8.29, not 8.75. Admittedly, there will always be variations around the trend, but the fact that the national fatality rate is now 'behind target' suggests that even greater gains (and efforts) will have to be made in the ensuing years.

It is important, we feel, to note that analysing road safety in terms of fatality rates on a national level potentially disguises other serious issues. For example, the contrast in risk between rural and metropolitan areas needs to be highlighted. According to the National Road Safety Strategy, the risk of dying on roads increases with the distance from capital cities (see Figure 4).



**Figure 4: Average annual road fatality rate (per 100,000 population) (NRSS, 2001)**

It is also important to note the trend in crashes resulting in injuries, as well as fatalities. As an example, Figure 5 below compares the rate of fatalities with the rate of injuries in New South Wales (NSW), from 1950 to 2001. The graph shows a substantial improvement in the injury rate from the mid 1970s to early 1990s. However, the recent plateau in the fatality rate (which has been observed on a national basis) seems to have coincided with an increase in the injury rate. This highlights the point that focussing solely on fatality rates might prove to be misleading, and ultimately detrimental for road safety planning.

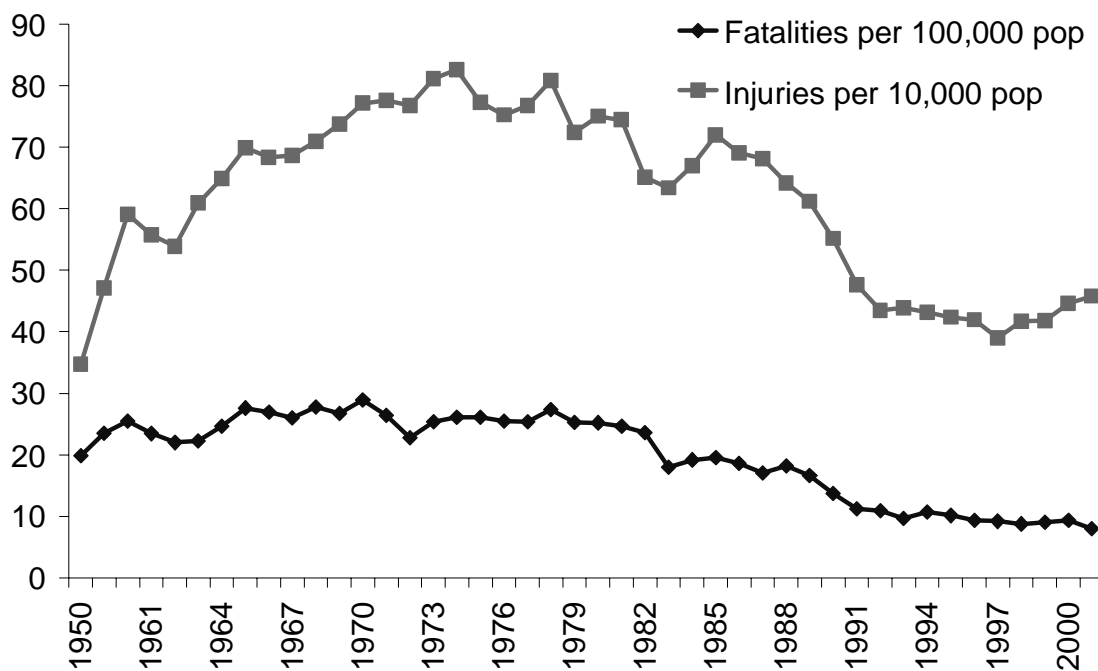


Figure 5: Annual road fatality and injury rates (per population) in NSW (RTA, 2002)

### 3.2 Individual State Road Toll Performances

Fatality rates are presented for all Australian jurisdictions between 1990 and 2002 in Figure 6. The target line of a 40% reduction from 1999 has been included to illustrate progress against the NRSS. (AAA recommends that these absolute figures be taken for comparison purposes, rather than, as noted previously, for road safety planning.)

If we apply the national target to each of the States, then we can see that five out of the eight states are 'behind target'. Only Western Australia, Tasmania and the ACT are 'on target'. These results are disappointing, particularly considering that 'easy gains' might be expected to be achieved in the early years of the Strategy.

Fatality rates in New South Wales (NSW) and the Northern Territory (NT) are of particular concern. These States are not only 'behind target', but their fatality rates increased between 2001 and 2002, with NSW moving from 8.36 to 8.58 and NT from 25.58 to 27.49. It should be noted that the fact that NT has a substantially higher rate than NSW (and all other States) is partly a reflection of the fact that NT has a much lower population. However, there is no doubt that other factors, such as those relating to Indigenous people,<sup>1</sup> need to be addressed as a matter of urgency in the NT. WA also saw an increase in its fatality rate, from 8.71 to 9.33, though is still ahead of its target of 10.39.

<sup>1</sup> In 2002, Indigenous people accounted for 51% of all road fatalities in the Northern Territory. Northern Territory Government, Department of Infrastructure, Planning and Environment, 2002, *Road Fatalities in the Northern Territory for the Period 1 January to 31 December 2002 Status Report*.

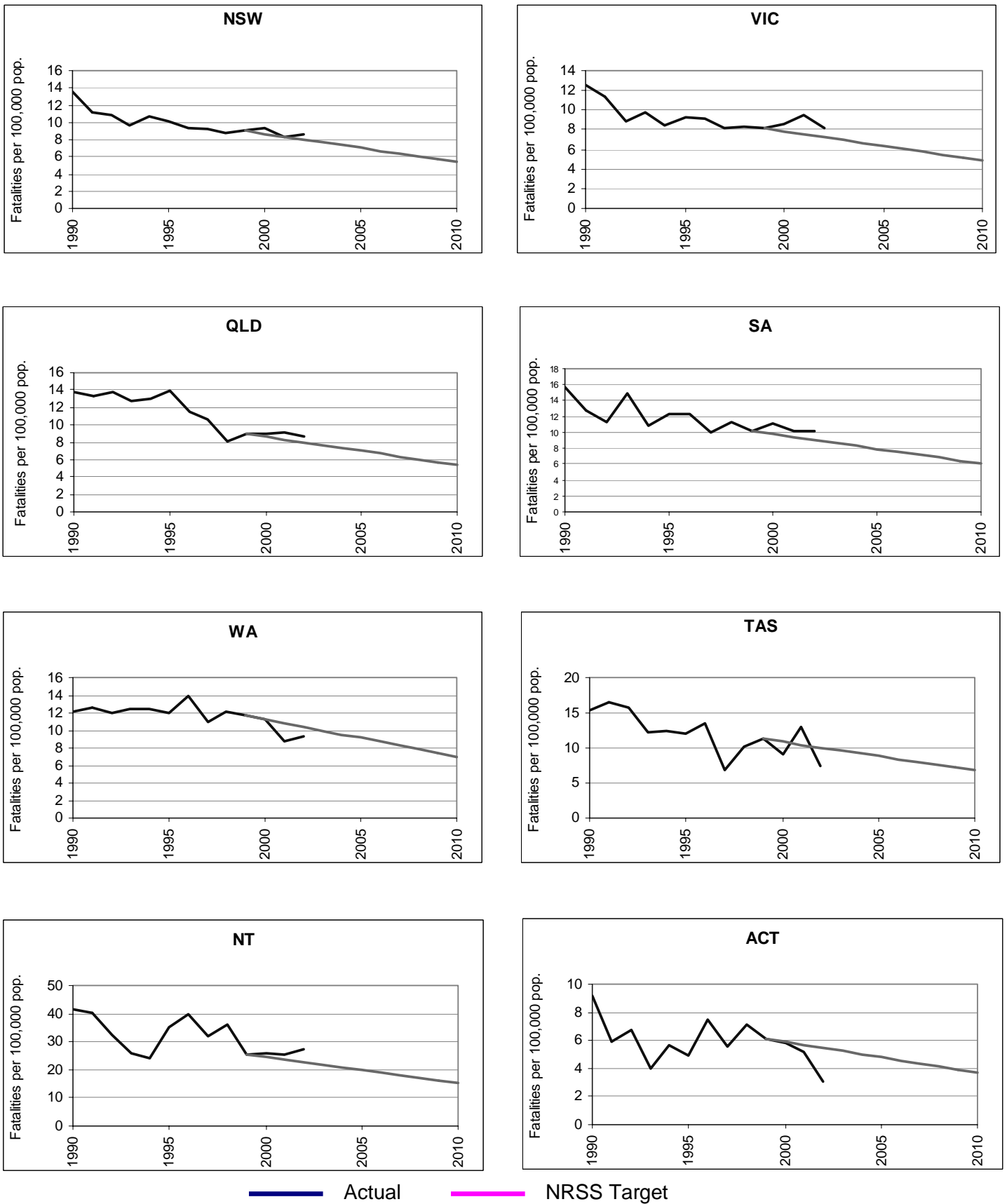


Figure 6: State road tolls compared with NRSS target

### **3.3 Fatality Rates January-August 2003**

It is also worth noting the number of fatalities for the period January-August (latest available data) this year for the various States.

For the 8 months this year compared with the corresponding eight months in 2002, many States which have recorded significantly lower road tolls. These States are Victoria (down 13%), Tasmania (down 10%), NSW (down 7%) and Western Australia (down 6%).

The States which have recorded significantly higher fatalities are South Australia (up 15%) and the Northern Territory (up 19%).

Queensland (up 1%) and the ACT (unchanged) have recorded a similar number of fatalities in the eight months of 2003 compared with the corresponding period in 2002.

### **3.4 Road Safety Initiatives Implemented in 2001 and 2002**

To assist Governments and other road safety organisations in achieving the National Strategy target, a series of National Road Safety Action Plans (NRSAPs) were released to establish short term strategic objectives. The first National Road Safety Action Plan, NRSAP 2001-02, established four key strategic objectives, as well as an estimate of how these objectives could contribute towards achieving the target of a 40% reduction in fatalities per 100,000 population (a reduction of approximately 700 fatalities per annum). The estimates included:

1. Safer Roads	19%	(332 lives)
2. Improved vehicle occupant protection	10%	(175 lives)
3. Improved road user behaviour	9%	(158 lives)
4. New technology to reduce human error	2%	(35 lives)

**Target Reduction 40% (700 lives)**

To supplement these, four additional strategic objectives were also included in the plan:

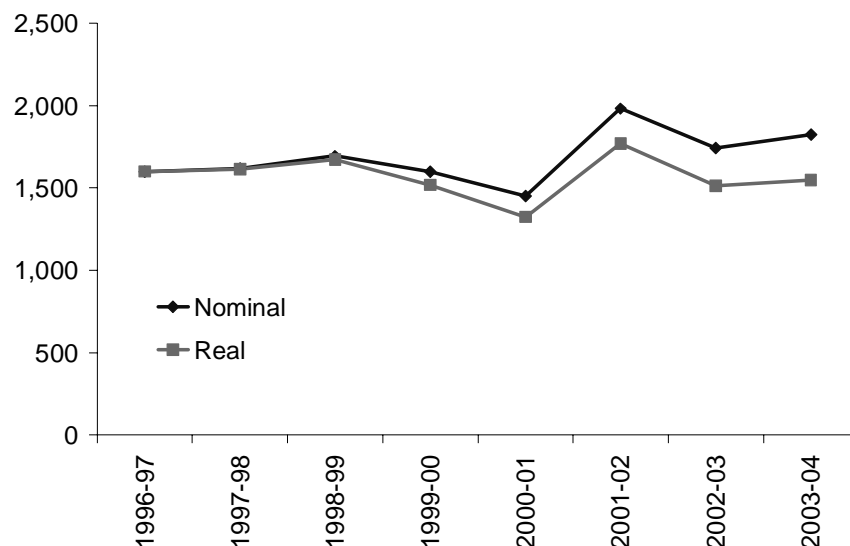
5. Improve equity among road users
6. Improve trauma, medical and retrieval services
7. Improve road safety programs through research of safety outcomes
8. Encourage alternatives to motor vehicle use

So far, each State has launched, or is planning to launch, its own Road Safety Strategy. Generally, the focus of the State plans link well with the NRSS, although notably, there tends to be no explicit mention of the NRSS or the NRSAPs in these plans.

AAA has been monitoring the performance of the NRSS and has reviewed the extent of uptake of the strategic objectives outlined in NRSAP 2001-02 by State and Commonwealth Governments. AAA recently completed an overview of the initiatives we believe have been taken by Commonwealth and State Governments *since* the NRSS was launched. Details of this comparison are shown in Appendix B.

Despite the estimate that *Safer roads* could contribute to 19%, or almost half of the 40% target reduction in the fatality rate, only relatively minor initiatives in this area have been made (although South Australia does seem to be an exception). It is worth noting that the NRSAP 2001-02 assumes that future Government funding for *safer roads* would be maintained in real terms. AAA is concerned that Commonwealth and State Governments have not been increasing investments so as to match the 2001-02 investments in real terms, and therefore, are now effectively spending less on roads.

For example, when expressing total annual Commonwealth Government outlays in 1996-97 dollars using the road construction and maintenance price index, it can be seen that outlays have failed to keep pace with inflation (see Figure 7). Total Commonwealth spending in 2002-03 was lower in real terms than it was in 1996-97, despite the introduction of the Roads to Recovery Program and additional spending on RONIs.



**Figure 7: Commonwealth road expenditure 1996-97 to 2003-04 (actual and real terms)<sup>1</sup>**  
(\$ million)

<sup>1</sup> Actual expenditure deflated using BTRE road construction and maintenance price index for the period 1996-97 to 2001-02 (last available calculation). For 2002-03, CPI of 2.7% has been used, and for 2003-04, the Budget estimated CPI of 2.25% has been used.

*Improved vehicle occupant protection and new technology to reduce human error*, estimated to account for 10% and 2% of the 40% respectively, have seen only one new program introduced and one State, Tasmania, has joined other States in supporting ANCAP. On a positive note though, a significant number of new programs have been introduced in the area of *improved road user behaviour*, estimated to contribute to 9% of the 40%.

It is interesting to note the uniformity with which some programs have been introduced across the States. Programs such as 50km/h speed limits on urban roads, more speed and red light cameras, more audio tactile pavement markers, tougher penalties and increased enforcement, graduated licensing schemes and alcohol interlocks have all been introduced by a number of states.

This comparison is by no means comprehensive in terms of road safety programs being undertaken in Australia. There are many programs, at the Commonwealth, State and Local Government levels that were underway, such as Black Spot Programs, and these have continued since the launching of the NRSS. Nevertheless, it does appear that the implementation of new programs aimed at reducing road trauma has been inconsistent and therefore less effective than predicted.

Unless substantial efforts are made to fulfil the objectives of the new NRSAP 2003-04, and in particular improve the safety of roads, then the prospect of reducing Australia's fatality rate by 40% by 2010 is going to become increasingly difficult to achieve.

### **3.5 Efficacy of National Strategy and Action Plans**

One fundamental problem with the National Strategy is that it represents an overview of suggested measures to achieve the nominated target, however, the action plans, specifically, do not list any accountabilities, timelines or anticipated outcomes. They represent a list of suggestions that may or may not be implemented.

The latest action plan, NRSAP 2003-04, released in December 2002, has clearly acknowledged that greater efforts need to be made by all parties yet does not include any details of the accountabilities of State or Commonwealth Governments to implement these activities. Subsequently, the action plans do not represent a nation-wide commitment to reducing road trauma in Australia and will be unlikely to do this unless the process changes.

While national leadership from the Commonwealth Government is essential to gather momentum in the battle to reduce road trauma, State and Territory Governments carry much of the direct responsibility for addressing many practical road safety issues which have been identified in the NRSS. The Commonwealth Government should lead by example and clearly show their commitment to road safety by stating which actions they will implement and by when. The Commonwealth Government should also work to encourage each State and Territory is achieving the target and publicly acknowledges via the action plans, what actions they commit to implementing in their jurisdiction.



## **4. Additional Measures Needed to Achieve the National Road Safety Target**

The National Strategy identifies a number of key measures that should contribute to achieving a 40% reduction in fatalities by 2010. These measures involve improving the safety of Australian roads, improving vehicle occupant protection, improving road user behaviour, and using of new technology to reduce human error.

In the following sections, we address how each of these measures could be enhanced to help improve road safety in Australia.

### **4.1 Safer Roads**

#### *4.1.1 Investing in Safer Roads*

AAA believes that the highest priority road safety area in Australia should be investing in safer and more forgiving roads. The safety features and standard of road infrastructure are closely linked to crash rates (Ogden 1996, McLean 1996, Kloeden et al 1999) and it is clear that well founded improvements to infrastructure have a direct correlation to crash reduction.

Motorists should be able to travel on Australia's road system in safety, knowing that the features of the road itself, such as sharp bends, will not cause them to lose control. Roads must be of a standard such that the likelihood of a crash is minimised, and for those crashes that do occur, the road and the associated road environment, is more forgiving, that new vehicles are as crashworthy as possible, making crashes survivable.

The potential savings to the Australian economy in reduced crash costs would more than pay for that investment. For example studies such as '*Benefits of Public Investment in the Nation's Road Infrastructure*' (Allen Consulting Group, 2003) demonstrate that in addition to substantial community savings related to safety, other economic benefits also flow from investment, such as reductions in travel times, congestion and associated environmental problems.

AAA's priorities for investment and safety on the National Highway System are outlined in the AAA special report "The National Highway System: Investment Priorities and Safety". This report provides an overview of aspects of the National Highway System, including legislation, funding levels, road characteristics and safety. A copy of this report is enclosed with this submission.

Road engineering can have a dramatic effect on road safety. For example, a modern freeway can be more than 10 times safer per vehicle kilometre travelled than an undivided two-lane road. While we may choose not to afford to provide the safest possible divided roads everywhere irrespective of traffic levels, we can certainly improve the level of safety of new and existing two lane roads through better engineering.

#### *4.1.2 Design Standards*

The level of safety of a road generally improves with design standard (Ogden, 1996. Delaney et al 2003). High design standard roads usually have wider lanes, sealed shoulders, a high standard of geometric design including appropriate horizontal and vertical curves, and a high standard of delineation including edge line marking and raised reflective pavement markers. Overtaking opportunities are provided at frequent intervals to allow drivers to pass slower vehicles. Further detail on how specific road infrastructure upgrades can improve safety are contained in Appendix C.

Road infrastructure is long lasting and generally cannot be easily or cheaply modified in response to an emerging safety problem. It is therefore important that roads and roadsides are designed to the highest appropriate design standards and their safety assessed by independent road safety auditing, especially during the design phases. AAA believes that a Road Safety Audit should be conducted in at least one design stage of all projects.

#### *4.1.3 Blackspot Programs*

The Commonwealth and many States have invested resources in treating individual site-specific features which have become 'blackspots' - that is locations where crashes are concentrated. These programs are highly successful, producing remarkable benefit cost ratios. For example, the Commonwealth program returned a benefit cost ratio of 14:1 during the period 1996-2002 (BTRE, 2001), and crash reductions across the nation of 25 percent are common. However, current funding levels are relatively low, at around \$40 million per annum, which is not enough to treat the long list of identified locations.

While blackspot programs will continue to be vitally important, AAA believes that a fundamental shift in thinking is required if the next necessary quantum leap in safety is to be made. Some infrastructure improvements can lower crash risk, injury risk or both, but in an incremental manner (Delaney et al 2003). This means that while they potentially remove a proportion of crashes at that location, they leave a residual crash problem on neighbouring road sections that have not experienced crashes and have been left untreated.

#### *4.1.4 Building Safety into Our Roads*

AAA believes there is a need for the Commonwealth to adopt a 'top down' approach to road safety, in addition to the current blackspot oriented 'bottom up' approach.

This can be achieved through a system wide comprehensive upgrade of the National Highway System to incorporate safety features that are proven to be effective in preventing crashes and reducing the severity of crashes which do occur.

Considering the national economic and social benefits involved, a compelling argument exists for considerably greater investment in safer road infrastructure. Instead, Commonwealth road funding over the past decade has diminished in real terms. State road budgets are also under pressure. The backlog has grown so great that many consider it beyond the resources of government. However, if we could achieve the NRSS target of a 40 percent reduction in fatalities per annum by 2010, around 700 fewer Australians would die on the roads each year. And if the 40 percent reduction in fatalities equates to a parallel reduction in other crash costs (injuries, long-term care etc), the potential savings to the nation are in the order of \$6 billion each year, every year.

#### *4.1.5 Promoting the Need for Safer Roads*

In order to highlight the problems of Australia's road network and to identify how, and where, improvements need to be made, AAA has commenced discussion with AustRoads and individual State Road Authorities on an Australian Road Assessment Program (AusRAP). This program would ideally be undertaken in collaboration with government, following the EuroRAP model in Europe which is a collaborative effort between a number of motoring clubs, road authorities and others. AusRAP aims to do for roads what the Australian New Car Assessment Program (ANCAP) does for cars, that is, assess the inherent safety of roads.

In addition to comprehensive programs like AusRAP, there is also an opportunity in a more promotional sense to highlight the importance of safer roads during World Health Day next year. In 2004 the World Health Organisation will focus on road safety as a major preventative health issue and will use World Health Day in April to focus global attention on this issue. This type of global activity presents an opportunity for individual organisations concerned about road safety to also raise it as a major issue during 2004.

## 4.2 Improved Vehicle Occupant Protection

### 4.2.1 Safer Vehicles

Engineering progress on vehicle safety has been remarkable over the past decade. Much, but not all of this, is an indication of the success of the various New Car Assessment Programs (Australia, Europe, the USA and Japan) in driving improvements in vehicle safety. Where once one and two-star cars were the norm, we now see consistent four and five star results in crash testing.

Improvements in vehicle safety should continue as we move further into a global market requiring consistent benchmarks worldwide, and as the NCAP programs continue to drive these benchmarks towards world best practice.

However, there is clear evidence to show that new cars sold in Australia often do not have the same safety features fitted as in equivalent models overseas. Table 1 below provides examples of the sort of vehicle “de-specification” occurring.

Vehicle	Location	Front Airbags		Side Airbags	
		Driver	Passenger	Torso	Curtain
Honda Accord "Euro"	Australia	Yes	Yes	Yes	No
	UK	Yes	Yes	Yes	Yes
Ford Focus	Australia	Yes	No	No	No
	UK	Yes	Yes	No	No
Holden / Vauxhall Vectra	Australia	Yes	Yes	Yes	No
	UK	Yes	Yes	Yes	Yes
Mazda 6	Australia	Yes	Yes	No	No
	UK	Yes	Yes	Yes	Yes
Toyota Corolla	Australia	Yes	No	No	No
	UK	Yes	Yes	Yes	No
Volkswagen Golf	Australia	Yes	Yes	No	No
	UK	Yes	Yes	Yes	No
Holden / Vauxhall Comm / Omega	Australia	Yes	Yes	No	No
	UK	Yes	Yes	Yes	No

**Table 1: Comparison of safety features in vehicles sold in Australia and the UK**

Sources: Manufacturer's websites, 2003.

The extent of vehicle “de-specification” in Australia is not limited to the cars or safety features shown in this cursory examination. The problem is widespread, and given the proven benefits of features such as airbags, this situation is far from satisfactory. Furthermore, if this case exists for the easily observed safety features, it raises the question of the extent of the problem with less easily

observed features such as structural design, which also have a significant effect on vehicle crash worthiness.

Governments can play a significant role in improving occupant protection, without necessarily needing to regulate. Each year, Government fleet purchases account for around 11% of new vehicle sales (AAI, 2003). Because of privatisation and contracting out of Government functions, actual Government demand for new vehicles is probably somewhat higher than this.

The Government should reduce the extent of “de-specification” and improve the safety of cars generally, by exercising its significant buying power to require higher safety standards in fleet purchases. A good example of fleet purchasing policy is that used by the Monash University Accident Research Centre (MUARC), an extract of which is shown in Appendix E.

ANCAP is a partnership of all the State motoring Clubs, all State road authorities, the New Zealand Government and the New Zealand Automobile Association. One recent improvement to the Australian program has been the introduction of pedestrian compatibility testing. Recently, TAC (Victoria) and the UK based FIA Foundation joined as partners. While the Commonwealth Government has contributed to some individual programs, AAA would like to see the Commonwealth Government commit to becoming a financial partner of ANCAP, contributing at least \$500,000 annually. The National Road Safety Strategy call for an increased support of NCAP testing and publication of results. There is no reason for inaction.

#### *4.2.2 Child Restraint Systems*

The Australian Standard for child restraints is currently under review. Recent developments in Europe, the United States and Canada have seen the development of a new child restraint attachment system designed to reduce the volume of fitting faults and provide improved safety for children in the event of a crash. This system has been considered for Australia, but further research is required to determine its application to the Australian context, particularly in relation to vehicle compatibility issues. The Department of Transport and Regional Services has developed a proposed research program to investigate the issue, but has little funding available to undertake the necessary research.

AAA believes that a research program needs to be undertaken to ensure that Australian child restraint systems remain one of the safest systems in the world. The Commonwealth Government should commit to this research program and provide the necessary funding to ensure that Australia remains at the forefront of child restraint developments.

### **4.3 Improved Road User Behaviour**

Behavioural change has the potential to produce the most immediate impact on road safety, particularly via use of enforcement techniques, as was seen between 1970 and 1997 with the introduction of measures such as random breath-testing, compulsory seatbelt usage, and compulsory use of cycling and motor cycle helmets.

While the AAA is supportive of the broad initiatives outlined in the NRSAP, there are some areas that have the potential to reduce road trauma that are not covered in detail. These relate to:

- drink driving recidivism;
- speed in advertising;
- older road users;
- motorcycle safety; and
- young drivers – education, training and licensing.

#### **4.3.1 Drink Driving**

AAA clubs have argued strongly for the introduction of alcohol ignition interlocks for many years. This is because we believe that if used correctly, alcohol interlocks will be an effective tool in preventing recidivist drink drivers from injuring or endangering the lives of themselves and others.

Now that some states have interlock legislation in place, AAA believes that it is imperative that the current arrangements be evaluated to determine whether it would be more effective to have an interlock as part of a reduced suspension period, rather than as an additional sanction after licences suspension, as much international research indicates (Beirness and Robertson, 2002).

We know that many suspended drivers will continue to drive unlicensed. This is one of the things that an effective interlock program should help overcome, though the current lack of consistent laws requiring driver's to carrying their licenses is problematic.

Some years ago, AustRoads released a report that provided Australian guidelines for the use of alcohol interlocks. This needs to be updated in light of current research and would be a useful tool for all states, either those with interlock programs and those intending to implement programs.

AAA also believes that alcohol is not just a road safety problem, but is primarily a public health issue. As such, we believe that to address alcohol abuse in the community, two key actions are needed:

- active prevention programs; and

- effective treatment and rehabilitation programs – given that most repeat drink driving offenders are alcohol dependant.

Prevention programs need to be encouraged at a community level to address some of the precursors to young people becoming alcohol dependant. In relation to effective treatment and rehabilitation programs, people who are convicted of a drink driving offence and who are shown to be alcohol dependant and should be channeled to the most effective rehabilitation programs possible.

A national research program to determine what is the most effective type of rehabilitation program and how alcohol dependant drivers can be channeled to these programs when they are found to be drink driving would be a relevant role that ATSB or AustRoads could play in helping the States improve in this area.

#### *4.3.2 Speed in Advertising*

Many road safety researchers and practitioners are concerned about some of the ways in which advertisers are showing unsafe road user behaviours to sell products, especially vehicles and driving products. Importantly, it is not only road safety professionals that are concerned. In a 2002 survey of 500 motorists, RACV found that also two thirds (62%) had noticed advertising that they thought condoned or encouraged speeding or dangerous driving. Of those who had noticed this advertising, three quarters wanted to see regulations introduced (Ogden, Anderson and Facey, 2002).

The concerns centre on contradictory messages about speed, driver concentration and safe driving in general. The voluntary Advertising Code of Conduct developed by the FCAI has the potential to address these concerns, however poor and inconsistent application of the Code by the Advertising Standards Bureau has meant it has been far from effective in addressing the concerns of road safety experts and many members of the community.

There are suggestions by some that a mandated code, similar to that applying to alcohol advertising may be necessary. While mandating a code may seem extreme, the present code is not effective and many advertisements currently promote a speed and unsafe driving culture.

AAA recommends that this Inquiry review this issue and provide a more effective solution than the current arrangements with the voluntary code of conduct.

#### *4.3.3 Older Road Users*

The issue of safety and mobility for older Australians is becoming increasingly important given the projected increases in the number of older drivers in the future. The proportion of persons aged 65 years and older in the Australian

community is predicted to increase from 11.1% in 2001 to 24.2% in 2051 (ABS, 1999). While the number of persons aged 65-84 years is predicted to approximately double, the percentage of persons aged 85 years and above is predicted to increase four-fold (ABS, 1999). The generation of drivers aged 85 years or more will become a more substantial sector of the population in the future as the population continues to age and people live longer.

Predicted changes in population demographics and mobility patterns suggest that older drivers will have a greater participation in driving and consequently in road crash casualties in the future (Charlton et al, 2002). In fact, predictions based on US data suggest that fatal crashes could be as much as *three* times greater than at present for the older age group over the next three decades without active intervention. Similar increases in older driver fatalities are predicted for Australia due to the sheer increase in the population of older people (Fildes, Fitzharris, Charlton and Pronk, 2001).

Addressing the issue of older road user safety will become increasingly important in coming years and needs to include initiatives to:

- ensure the health of older drivers via the education of health professionals and older people about fitness to drive;
- ensure that licensing systems are effective in identifying impaired drivers;
- encouraging older people to purchase safer vehicles, as due to their increased level of frailty, are the group most likely to benefit from vehicle safety features; and
- create traffic environments that accommodate the needs of older drivers and pedestrians.

Ensuring that all Australians have good mobility is also a priority. Some drivers will be impaired to the extent that they need to stop driving and others will choose to stop for their own reasons. Regardless of why an individual does not drive, adequate safe mobility is vital. The impact of inadequate mobility can be profound and can affect an individual's health and well-being, their family, as well as having significant social and economic consequences for their community.

If the planning and implementation of measures to improve mobility for people who are unable to drive themselves does not commence now, in future years, the numbers of older people who are isolated and more prone to illness will increase, subsequently placing an increased burden on community and health resources.

A national older road user safety and mobility strategy is needed to ensure effective measures are implemented to prevent increases in road trauma due to the ageing population.



#### 4.3.4 *Motorcycle Safety*

Motorcyclists are significantly over-represented in fatality crashes. In 2002, there were 63 motorcyclist deaths per 100,000 motorcycles compared to 12 motorist deaths per 100,000 vehicles (AAA, 2003). Given the increasing number of motorcyclists involved in crashes there should be some specific countermeasures identified and included in future National Road Safety Action Plans. Initiatives should focus on driver awareness and motorcyclist awareness and should also address poor infrastructure as a contributing factor in motorcycle crashes.

#### 4.3.5 *Young Drivers – Education and Training*

Novice drivers continue to represent a significant road safety problem, and the first years of driving are the most high-risk time. Road safety research into young driver safety indicates that the most effective ways of improving young driver safety involves:

- ensuring they receive extensive on-road, supervised driving experience in a range of conditions – a minimum of 120 hours experience is recommended – before driving solo; and
- ensuring that licensing systems are as effective as possible in encouraging young drivers to receive adequate experience before licensure. The potential of introducing a more Graduated Licensing System is currently being considered in most states, which may assist in reducing road trauma among newly licensed drivers.

While popular, driver training for learner and probationary (novice) drivers offers only very limited value in reducing young driver crash risk (Christie, 2001). Evidence in road safety evaluations shows that conventional driver training has little to offer in road safety terms, other than teaching new drivers basic car control skills.

AAA is aware that a comprehensive Pilot Program called the Young Driver Development Program is currently being undertaken by NRMA Insurance and the NSW RTA. This program is based on an innovative program implemented in Finland that has showed positive results for some drivers. The Finnish program is not like conventional driver training and aims to influence the motivations that determine how young drivers develop.

AAA is supportive of the scientific and evaluative approach being undertaken in the NRMA Insurance and NSW RTA Young Driver Development Program and will monitor the outcomes of this pilot. Any national approaches to driver training must fully consider all of the scientific crash evaluations and should in the first instance, monitor the outcomes of this pilot program.

Further background information about young driver training is included in Appendix D.

#### ***4.4. New Technology to Reduce Human Error***

The use of technology to reduce the role of human error in road crashes is increasing, and is already being introduced at the prestige end of the vehicle market. A range of intelligent vehicle applications like adaptive speed control, distance warning systems, collision warning systems, black box recording systems, seatbelt warning and alcohol sniffer devices, as well as other safety technologies are currently available and these technologies may spread to new vehicles over the next decade.

At the same time as technologies that have the potential to reduce road trauma are being developed, so too are other technologies that provide in-vehicle entertainment and information for drivers. While a range of technological advancements will be available in the future, the impact that these may have on the driver in terms of distraction is emerging as an area of concern among road safety practitioners. Australian guidelines and design rules will be needed to ensure that in-vehicle devices in all new cars have a positive effect on road safety.

While in-vehicle technologies are being developed, integrating safety technology into the road environment is proving to be more problematic.

While there have been trials of many safety systems such as intelligent speed signs and warnings, their wider application depends on government intervention. That intervention will cost money, and too often governments see such expenditure as a 'cost' rather than what it actually is, an 'investment', with substantial and measurable returns.

AAA recommends that the Commonwealth Government sponsor a national demonstration project of such technologies as have already been undertaken in the USA, the Netherlands, Japan and France. The advantage of such a project is that regulators, investors, manufacturers and consumers can see developments at first hand and design safer systems.

#### ***4.5 Improved Trauma Services***

Reducing road trauma in Australia involves focusing not only on how to prevent crashes, and reduce their severity, but also on effective post-crash management. Adequate infrastructure is required to enable improved road trauma management, especially in rural areas, in order to reduce the number of people killed on Australian roads.

Further attention needs to be paid to trauma management and health facilities, especially given that crash severity is worse in rural areas than in urban areas (Henderson, 1995). Greater crash severity means more rural people die instantaneously at the crash site. Research also indicates that rural people involved in crashes are 30% more likely to die while waiting for emergency treatment than urban people (Henderson, 1995).

The report "Rural Road Safety: Focus on the Future" (Henderson, 1995) concluded that:

- extension of mobile phone networks and availability is required so that mobile phones can be used to alert emergency services to crashes and provide details of the crash location;
- Global Positioning Systems (GPS) can provide the exact location a vehicle. This can be used to alert emergency services of a crash, so that help can be deployed to the exact crash site immediately. Many of these systems rely on mobile phone networks, which highlights the importance of extending the networks in rural and remote areas;
- first aid and resuscitation training should be encouraged, especially among rural drivers; and
- better trauma systems, extended training for general practitioners in the early management of severe trauma, training for paramedical staff, better communication systems and use of new technologies like teleradiology should be implemented.

AAA agrees with these conclusions and believes that both State and Commonwealth Governments should make improved trauma management a priority, especially in rural Australia.

#### **4.6 Better Data Management**

In order to understand the causes of road trauma and to assist in the development and evaluation of road safety initiatives, accurate, comprehensive, consistent and timely crash data needs to be collected across Australia and made readily available.

Currently, there is considerable inconsistency between the States and Commonwealth on the reporting of road crash statistics. For example, common definitions on the severity of injuries are not used between states. Additionally, data is often supplied to road safety practitioners, such as engineers in Local Government, in complex 'raw' form. In the case of Local Government, this means that a Council's ability to identify hazardous locations depends partly on their ability to first sort through complex raw data – the better resourced Councils are able to do this more efficiently. This is problematic because it contributes to

a lack of a level playing field for Councils to compete on for State and Commonwealth funds (such as through the blackspot programs).

AAA sees enormous value in having a national crash data base that contains data from across Australia that is collected and categorised on a nationally agreed set of definitions and data protocols. Discussions involving representatives of all states and territories departments of health, Police, roads and transport and equivalent federal departments would be needed to achieve this. Even at a state level there is poor co-ordination of data systems and frequently there is an inability to match the Department of Health hospitalization data with RTA data. This is unfortunate as we know vehicle crashes account for a high percentage of trauma cases in hospital and general admissions - and a high number of spinal and brain injury admissions as well as demand on rehabilitation services.

Crash data from around Australia should also be made readily available to all Australians. (A website like CrashStats that is used in Victoria is a good example.)

## 5. Factors Impeding Progress on NRSS

Across all levels of Government, the main factors that AAA regard to be impeding the progress and implementation of the National Road Safety Strategy are:

- the failure to view and treat road trauma as a serious preventable health issue;
- the unwillingness of the Commonwealth Government, State Governments and also many Local Governments to commit funds and other resources to improve the safety of Australian roads; and
- the lack of commitment by the Commonwealth and State Governments to demonstrate their commitment to the NRSS by publicly stating their intentions and accountability for implementing the actions listed in the National Road Safety Action Plans

In addition to making a public commitment to achieving the National Road Safety target, both Commonwealth and State Governments need to demonstrate their commitment to road safety by showing a willingness to change relevant national and state standards and regulations that will help improve road safety.

Considering transport and road safety impacts on the many different areas of Government, a “whole of government” approach would also assist in overcoming some factors impeding progress on the NRSS. Given the involvement of departments such as Treasury (in collecting revenue, allocating funds and overseeing national growth), Health (in managing an ever increasing demand on the various health systems, including preventable health), Family and Community Services (in managing disability payments and services), Industry (cost of workplace disruption through injury and in managing support systems for vehicle manufacturers) and Transport (in managing a framework of safe, national transport systems), AAA recommends the Committee propose a Ministerial Co-ordinating Council to oversee the implementation of the National Strategy.

If these impeding factors were addressed, the AAA is confident that the national target for the reduction in road trauma of 40% could be achieved.

## 6. Summary of Recommendations

A summary of AAA recommendations to this Inquiry are outlined below.

- AAA believes that the National Road Safety Strategy target of a 40% reduction by 2010 is achievable and should remain.
- The National Road Safety Action Plans need to include details of accountabilities for implementing the stated initiatives. The Commonwealth Government needs to state which initiatives it will implement and should also encourage this commitment from the States and Territories.
- AAA believes road trauma should be seen and treated as a preventable health issue nationally.
- AAA believes that proven initiatives that relate to creating safer roads need to be implemented by the Commonwealth and State Governments as the key road safety priority area.
- AAA urges a shift in emphasis in road trauma measurements from “fatalities” to “crashes, injuries and serious injuries” as these more accurately reflect the long term economic and social impact of road crashes.
- Blackspot programs have been highly effective and AAA urges the Commonwealth Government to continue investing in such programs, at higher levels, given the proven return to the community of many times the cost.
- AAA believes that ‘bottom up’ oriented Blackspot programs should be supplemented by ‘top down’ road infrastructure improvement programs to improve the inherent safety of the National Highway System to include design features such as sealed shoulders, high standards of safety related line-marking and signing and best possible standards of roadside safety.
- To enhance the safety of new and existing roads undergoing improvements, road safety audits should be made compulsory for all projects.
- The Austroads report on best practice alcohol interlock programs should be revised to include up to date research and should be expanded to include details of best practice alcohol rehabilitation programs and processes.

- This Inquiry should review the issue of inappropriate portrayals of speed in advertising and provide a more effective solution than the current arrangements with the voluntary code of conduct.
- A national road user safety and mobility strategy is needed to ensure effective measures are implemented to prevent any potential increase in road trauma associated with the ageing population.
- Any national approaches to driver training must fully consider all of the scientific crash evaluations and should in the first instance monitor the outcomes of the NSW Young Driver Development pilot program.
- Australian guidelines and design rules need to be developed to ensure that in-vehicle devices in all new cars will have a positive impact on driver performance.
- AAA believes that both State and Commonwealth Governments should make improved trauma management a priority, especially in rural Australia.
- The Commonwealth Government should provide leadership through the development and implementation of a fleet purchasing policy that requires 'state of the art' vehicle safety features in all new cars purchased. This could be based on existing policies such as the Monash University Accident Research Centre (MUARC) model.
- The Commonwealth Government should promote vehicle crashworthiness by joining the State Governments, the New Zealand Government and all Australian motoring Clubs in becoming a partner of ANCAP, with an annual contribution of at least \$500,000.
- The Commonwealth Government must recognize that road safety is a shared responsibility between the road authority, the vehicle manufacturer and the driver. The Commonwealth can take a lead in encouraging this shared responsibility.
- The Commonwealth should consider the establishment of a Ministerial Co-ordinating Council or Interdepartmental Committee (including Treasury, Health, Family Services, Industry and Transport) to ensure the maximum benefits from the National Road Safety Strategy are realised.

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## Appendix A: Fatalities per 100,000 population (1990-2002)

**Table 1** *Fatalities per 100,000 population.*

	NSW	VIC	QLD	SA	WA	TAS	NT	ACT	AUST
<b>1990</b>	13.66	12.52	13.76	15.78	12.15	15.36	41.53	9.21	13.66
<b>1991</b>	11.24	11.38	13.34	12.72	12.65	16.50	40.49	5.88	12.23
<b>1992</b>	10.89	8.90	13.72	11.32	12.07	15.76	32.26	6.79	11.29
<b>1993</b>	9.69	9.74	12.71	14.90	12.47	12.31	25.99	4.01	11.06
<b>1994</b>	10.68	8.42	13.08	10.82	12.40	12.49	23.97	5.65	10.81
<b>1995</b>	10.14	9.28	13.91	12.28	12.07	12.05	35.08	4.93	11.17
<b>1996</b>	9.36	9.14	11.53	12.28	13.99	13.49	39.59	7.46	10.76
<b>1997</b>	9.18	8.19	10.63	10.00	10.96	6.76	32.10	5.52	9.54
<b>1998</b>	8.77	8.37	8.07	11.30	12.18	10.17	36.32	7.13	9.36
<b>1999</b>	9.00	8.13	8.94	10.11	11.66	11.27	25.40	6.13	9.30
<b>2000</b>	9.39	8.54	8.92	11.08	11.31	9.14	26.09	5.79	9.52
<b>2001</b>	8.36	9.46	9.12	10.21	8.71	12.97	25.58	5.15	9.20
<b>2002</b>	8.58	8.15	8.66	10.12	9.33	7.39	27.49	3.09	8.75

Australian Bureau of Statistics 3201.0, Australian Transport Safety Bureau *Fatal Crash Database*

## Appendix B: Review of Road Safety initiatives implemented in Australia 2001-2002.

This information has been gathered through discussions with the motoring clubs and searches of the roads authorities' websites.

### Strategic Objective 1: Safer roads

ACT	NSW	NT	QLD	TAS	SA	WA	COMM	VIC
				More audio-tactile edge lines				
					New Blackspot Program	Increased Blackspot program	Renewed Blackspot program	Increased Blackspot program
				Improved rest areas		Improved rest areas		
					Road side hazard improvements			
					Shoulder sealing on arterial roads			
					Road Safety Community Fund from speeding offences			

### Strategic Objective 2: Improved vehicle occupant protection

WA	ACT	NSW	VIC	SA	TAS	QLD	NT	COMM
					Joined ANCAP to promote awareness of vehicle crash worthiness	Seat belts in buses operating in steep areas		

### Strategic Objective 3: Improved road user behaviour

WA	ACT	NSW	VIC	SA	TAS	QLD	NT	COMM
Trials and implementation of 50 km/h speed limits on urban roads								
More speed and red light cameras								

Double demerits during holidays						Anti 'hoon' legislation	Education and awareness programs for indigenous people and people from overseas	New advertising code for motor vehicles
		Increased penalties and enforcement for various driving offences				Education and enforcement on various issues	Lower speed limits on highways	
Graduated Licensing Schemes (GLS)							Improved driver training	
		Alcohol interlock legislation			Alcohol interlock trials			
Road safety in school curriculum		40km/h on all roads at all schools					Road safety in school curriculum	
		Heavy vehicle speed and fatigue package	Crash statistics more accessible			Crash statistics more accessible	Fatigue management code for drivers of heavy vehicles	Heavy vehicle driver fatigue program released for comment
		High profile advertising						
			Fleet safety program					

#### Strategic Objective 4: New technology to reduce human error

WA	ACT	NSW	VIC	SA	TAS	QLD	NT	COMM
		Intelligent traffic management scheme for motorways <sup>1</sup>						

<sup>1</sup>The RTA has implemented an advanced traffic management scheme on Sydney's motorways which operates from central management centres and includes advanced lighting and ventilation systems in tunnels, roadway sensors and closed circuit video cameras.

**Strategic Objective 6: Improve road safety programs through research of safety outcomes**

WA	ACT	NSW	VIC	SA	TAS	QLD	NT	COMM
		Used car safety ratings						Various <i>Austroads</i> programs incl. an automatic crash notification system <sup>2</sup>

<sup>2</sup> A universal system that would provide relevant authorities, including emergency services, with automatic real time crash information.

## Appendix C: Engineering Safer Roads

As with other safety programs, engineering measures to address road safety problems may be directed at either reducing the frequency of crashes or their severity. There is a significant body evidence on how infrastructure improvements can assist to make these reductions. Ogden (1996) provides a composite review of detailed international experience of demonstrated crash reductions from different treatment types. Given that a very large proportion of the NHS is classified as rural, the treatments discussed apply particularly (but not exclusively) to rural roads. They are summarized in below.

*Potential reduction in crash types by treatment (modified from Ogden 1996)*

Crash Type Treatment	Potential reductions (per cent) in various crash types							
	Off road, on straight	Off road, on curve	Out of control on curve	Rear end	Head on	Hit permanent obstruction	Overtaking	Lane change
Install safety barriers along length of road	30-40	30-40				30-40		
Remove specific roadside hazards	60-80	60-80				60-80		
Resurface road	10-20	20-30	20-30	20-40				
Seal shoulder	Up to 60	Up to 60	Up to 60		Up to 60			
Advisory speed sign		20-40	30-40	10-20				
Linemarking and guideposts	10-20	10-30	10-20	10-20	30-40	10-20	30-40	10-20
Widen or replace bridge or culvert	30-50	30-50	30-50		30-50	30-50	30-50	
Widen shoulder	20-30	20-30	20-30		20-30			
Provide overtaking lane	30-50	20-30			20-30		30-50	
Duplication				30-40	90-100		50-80	

Crash Type		Potential reductions (per cent) in various crash types						
		Off road, on straight	Off road, on curve	Out of control on curve	Rear end	Head on	Hit permanent obstruction	Overtaking
Treatment								
Improve alignment		30-50	30-50		30-50	30-50		

The safe operation of the road system depends on the road user making a series of decisions. These decisions relate to tasks such as navigation (trip planning and route following), control of the vehicle (steering and speed control) and guidance (following the road and maintaining a safe path). These tasks require the driver to receive inputs, process them, make decisions about possible alternative actions, execute the actions and observe their effects. Recognising that not all people have the same cognitive abilities, physical characteristics and driving skills is a vital prelude to producing a road system that is compatible with human limitations.

Drivers get most of the information required to undertake these tasks visually. Delineation and signage is of critical importance to the safe and efficient operation of the road system and is a relatively low cost treatment. This is vital in enabling the driver to guide the vehicle on the roadway and make control and navigation decisions. Adequate delineation and signing allows the driver to keep the vehicle within the traffic lane (short range delineation) and plan the forward immediate driving task (long range delineation). Good delineation becomes more important as the driving population ages.

Duplicated roads, particularly freeways are our safest roads. These roads have most of the potential sources of conflict designed out with high geometric standards, controlled access to the road through grade separation, and a high standard, forgiving roadside clear of hazardous obstacles. Typical crash rates on freeways at least ten times lower than two lane equivalent roads (ARRB 1988).

Restricted overtaking opportunities on two lane roads, combined with the presence of slower vehicles can result in substantial congestion and thence to crashes through overtaking. Armour (1984) for example suggests that overtaking is involved in ten percent of rural casualty crashes in Australia. In these circumstances, overtaking lanes can be very effective in improving traffic operations and safety. Where traffic levels are lower, judicious provision of overtaking lanes comprising around ten per cent of a road's length can provide some of the benefit of full duplication (Hoban 1982, 1988).



The horizontal and vertical curves and straight sections of a road form its geometry. All else being equal, crashes are more likely to occur on horizontal curves than on straights (Glennon 1987), although this does vary somewhat depending on road conditions. Where horizontal curves coincide with crests sight distance is often compromised, leading to a higher rate of crashes. While realignment can be expensive, benefit cost ratios are often quite favourable, particularly where they improve relatively low cost sight distance improvements.

Sealed shoulders reduce the incidence of run-off road crashes by providing a greater recovery and manoeuvring space, and reduce the potential for loss of control in loose shoulder material. Studies of Australian roads have shown that roads with sealed shoulders had a fatal crash rate of 60-70% less than roads with unsealed shoulders (Armour, 1984). When shoulders are sealed as part of a road maintenance program, the safety benefits of the treatment outweigh the costs of the works on roads with traffic flows as low as 350 vehicles per day (Ogden, 1993).

Bridges, structures and culverts can be significant in terms of their involvement in crashes as they often form traffic chokepoints on otherwise high standard roads. Improvements to guard fencing and better delineating approaches can be cost effective short term solutions.

While crash prevention is ideal, vehicles do leave the roadway due to driver inattention, control failure, traffic conditions, objects on the road and environmental factors. Unless the vehicle is brought to a safe stop, a crash will follow. The aim of roadside design should be to create a forgiving roadside – one that will reduce the severity of crashes if the vehicle leaves the road.

In instances where crashes occur, roadside hazards have a strong influence on the severity. The environment immediately adjacent to roads should be a “clear zone”, and ideally kept free of unprotected collision hazards. Treatment options in this area include: removing the hazard, relocating the hazard to a safer location, installing redirection devices to guard the hazard and altering the nature of the hazard to reduce impact severity. This includes providing clear run-off areas, free of obstacles and steep slopes, in which the driver can stop and/or return to the road safely. In areas where this is not practical or cost-effective, then obstacles can be made safer by modifying their design (e.g. making them frangible) or by protecting them with appropriate guard fencing (Delaney et al 2003).

## **Appendix D: Overview of driver training as a road safety measure for young drivers.**

*Reference: Christie, R. (2001). The effectiveness of driver training as a road safety measure: A review of the literature. Report No 01/03, Royal Automobile Club of Victoria: Melbourne.*

### **Overview of driver training as a road safety measure for young drivers**

#### Research findings for pre-licence training programs

Driver training programs for learners and pre-learners usually aim to encourage the development of safe driving techniques, and can involve road law knowledge tuition and some in-car components, either on an off-road track or circuit, or on-road under supervision. The research literature suggests that, beyond imparting basic car control and road law knowledge skills, these courses contribute little to post-licence reductions in casualty crashes or traffic violations.

In addition, some of these programs that have been made compulsory and offered through high schools in overseas countries, have not been found to be effective and may contribute to increased exposure-to-risk for young drivers, by encouraging early solo licensing.

There is also considerable evidence that driver training that attempts to impart advanced skills such as skid control to learner drivers may contribute to increased crash risk, particularly among young males. This pattern of results has been confirmed and replicated across numerous studies conducted in Australia, New Zealand, North America, Europe and Scandinavia over the last 30 years.

Greater levels of supervised, real world experience during the learner period have been shown to reduce post-licence crash involvement by up to about 35%. Comparisons of the post-licence crash experience of learners who were trained exclusively by professional driving instructors and those trained exclusively by parents, relatives or friends, is much the same. However, research shows that encouraging cooperation between driving schools and parents in learner driver training may be beneficial in increasing the quality of instruction and the quantity of learner driver experience.

### **The effectiveness of driver training for recently licensed drivers**

Unfortunately there would appear to be little evidence that training programs undertaken by young and/or recently licensed drivers are effective in reducing crash risk or traffic violations. Such training often leads to an increase in confidence and optimism bias (ie where novices can believe that they are more skillful than they actually are) and sometimes an increase in crash risk for novices, particularly young males.

## **Why conventional training doesn't work**

It may be unreasonable to expect driver training to deliver crash reductions, as improving knowledge and skill does not always lead to a change in behaviour among drivers. Drivers, particularly young drivers, can and do take risks that have little to do with how much skill and/or knowledge they have, but much to do with motivation and psychological factors. There is little evidence to suggest that driver training accelerates the development of hazard perception skills, or other cognitive skills. These skills can be developed via the experience of real world driving.

Some recent driver training programs claim to modify "attitudes". Even if attitudes could be changed it would not necessarily be helpful as there is a poor causal relationship between attitude and actual behaviour. In addition, traditional driver training is unlikely to undo firmly established past learning laid down through weeks, months and years of practice and experience, nor alter motivation or change underlying personal values.

## **Areas of potential**

There is a need to move driver training and education beyond vehicle manoeuvring knowledge and skill, and towards a greater understanding of risks, risk reduction and self-awareness.

While the research clearly demonstrates that conventional driver training approaches for novice drivers are unlikely to produce road safety benefits, some training program in Europe that focus on these "higher order" cognitive skills have been developed.

A driver development program that focuses on higher order skills has been undertaken for new drivers in Finland. This program consists of three parts: a one-to-one in car feedback component; an off-road experiential component to allow insight into personal skills and weaknesses; and a facilitated group discussion. An evaluation of this compulsory program has shown significant crash reductions, particularly for young male drivers. Although there has been some criticism of the Finnish program's evaluation methodology, this program stands out as one worth monitoring and perhaps replicating in Australia as a potential risk reduction initiative for novice drivers.

Another program that targets optimism bias, over-confidence and attitudinal or motivational factors that influence driving behaviour is "insight" training. The Swedish Insight Program has been subject to ongoing experimentation and any evaluation of this program is worth monitoring as it is soundly based from a theoretical perspective.

In reviewing these international programs there is a need to consider how transferable overseas approaches and programs would be to the Australia

context. This underscores the need for the trial or piloting of potentially useful programs in Australia.

## **Appendix E: Extract from Policy for Purchase and Use of Vehicles at MUARC**

### **Mandatory requirements, passive safety**

- Highest possible score in consumer tests like NCAP (or similar) and, if available, high rank in statistical safety rating. If there is a disagreement between results from crash test based rating and real life statistical rating, good real life statistical accident rating is preferred.
- Dual front airbags
- Side airbags, at least in the front seat, including head protection (separate or integrated)
- Three point seat belts at all positions, at least in the front seat with pretensioners.
- Head restraint for all positions, possible to adjust (or fixed) to an appropriate position. (At least for four positions).
- Curb weight 1300-1700 kg, not sports utility vehicle, van or off-road vehicle
- If the car is a station wagon, or hatchback, there should be a cargo barrier installed.

### **Highly desired, passive safety (to be mandatory requirements later)**

- Anti whiplash system, at least in the front seat, proposal in IRCOB-99 could be used (Hell, et.al.)
- Load limiters for seat belts
- Seat belt reminder system
- Well proven good pedestrian protection, according to NCAP or proposed European regulation.

### **Mandatory, active safety**

- ABS
- Speed alert system

### **Highly desired, active safety (to be mandatory requirements later)**

- Intelligent speed alert system
- Alcohol interlock
- Automatic head-lamps