



**Submission to
the Victorian Parliamentary Road Safety
Committee Inquiry into Australian Design
Rules**
(February 2009)

The Australasian College of Road Safety was established in 1988 as an association for individuals and organisations working in or interested in supporting road safety. The College is multi-disciplinary in its membership, and values experience as well as academic qualifications in its members.

Members come from a wide range of disciplines including engineers, epidemiologists, road trauma specialists, researchers, driver trainers, psychologists, enforcement agencies, policy makers, industry representatives, motoring associations, insurance companies and many others who have a stake in road safety.

For further information, contact:

Ms Linda Cooke
Executive Officer

or

Mr Lauchlan McIntosh AM
President
Australasian College of Road Safety
PO Box 198
Mawson ACT 2607
Ph: (02) 6290 2509
Fax: (02) 6290 0914 or E-mail: eo@acrs.org.au
www.acrs.org.au

Promoting and implementing improved road safety practices

Patron: Her Excellency Ms Quentin Bryce AC
Governor-General of the Commonwealth of Australia

Introduction

This submission is provided by members of the Australasian College of Road Safety. Australia is known internationally for its strong expertise in research, policies, engineering, education and human factors relating to road safety. College members are aware of international developments in road safety and are keen to ensure that Australian maintains an active and leading role in road safety by the adoption of practices and polices which have been proven, no matter where they stem from. The College congratulates the Victorian Parliament for initiating this inquiry and welcomed the results of the Victorian Parliamentary Inquiry which concluded in part;

- Australia is lagging behind Japan Europe and the USA in the fitment of safety systems in its vehicles.
- ADRs do not cover leading technology and in some cases prevent the adoption of technology. Technology moves too fast for the ADRs.

The submission is set out in four parts. The first deals with the design process, the second with vehicle design, the third with worldwide practices and the design process and the fourth with road design rules.

1. Australian Design Process

The Australian Design Rule (ADR) process is aimed at improving vehicle safety which should reflect in reducing crash rates, occupant and other road user harm when crashes do occur.

However, recent attempts to introduce new ADRs have been difficult because of global harmonisation of design rules. For example, when the National Road Safety Strategy Panel led by the State Road Authorities, requested the Department of Transport and Regional Services (DOTARS) to introduce an ADR that required a warning buzzer for occupants who have not fastened their seat belt in all vehicles, it was refused on harmonisation grounds by both DOTARS and the Department of Treasury, i.e. it was claimed such an ADR would violate international treaties. This is despite the fact that at least 20 % of occupants killed and also injured in a car crashes are not wearing their seat belt. The College supports the recent Victorian Parliamentary Inquiry which said; “ADRs should be about performance not about minimum standards.”

The ACRS notes when ADRs for seat belts in 1970 and for crashworthiness criteria for frontal offset impact, side impact, bus rollover, bus seat fixture strength, bus seat belts and child restraints that exceeded international criteria at that time of their introduction, concerns for globally harmonising treaties were put to one side. Australia has justifiably been seen in the past as world leaders in introducing some new safety features but this can be diminished if we wait for the international agreement on all aspects of harmonisation.

The College recognises the benefits of the current activities in the world harmonisation process in vehicle standards, and recognises that in time the ADRs may be replaced entirely by the United Nations Economic Commission for Europe (UNECE) regulations.

The College is aware that current ADRs are often seen as setting minimum levels of performance and many manufacturers build only to the standard, while many consumers are happy to trust government regulations to provide the highest levels of safety in all vehicles.

In addition many manufacturers supply higher levels of safety features in other markets as standard equipment and despecify similar vehicles into the market in Australia.

Australian Design Rules have become in some cases an excuse for mediocrity.

2. Vehicle Design Rules

ACRS views this enquiry as an opportunity to put forward a number of specific initiatives that should be promoted as well as consideration of the ADR process itself and whether changes can occur to it that will better serve safety outcomes. The College notes the recent Victorian Parliamentary findings that;

- The Australasian New Car Assessment Program (ANCAP) has had a greater effect in raising vehicle safety standards than ADRs.
- ANCAP is best placed to include emerging technologies in its testing protocols and vehicle safety ratings

However, while ANCAP can and does encourage major levels of safety performance in new vehicles there are many areas where improvements may be initiated under the regulatory environment.

Three specific initiatives are set out below.

1. If all vehicles on our roads were upgraded overnight to be equivalent to the safest vehicles manufactured, it is estimated around 30 to 40% of lives would be saved. The introduction of Electronic Stability Control (ESC) into vehicle fleets in Europe and the USA has seen dramatic safety gains similar to when seat belts were introduced. A Monash University Accident Research Centre preliminary evaluation of electronic stability control effectiveness under Australian conditions published in 2007¹, showed that ESC reduced single-vehicle crashes by around 30%. The premier of Victoria took the lead in requiring all new cars manufactured in 2011 and beyond registered in Victoria will need to have ESC fitted. An ADR requiring ESC in every new vehicle sold would ensure that the safety benefits of ESC will apply nationally.

2. Design of the car tail pipe outlet could also be addressed. The current design easily allows a hose (garden, pool, vacuum cleaner or grey water) to be attached and lead Motor Vehicle Exhaust Gas (MVEG) into the cabin. This is a common means of suicide. It only takes a minute or so to build up a lethal concentration of MVEG in the cabin. MVEG suicides are about one fifth of all motor vehicle-associated deaths (600 per year in Australia) and also about one fifth of all suicides. There are also a large number of brain-damaged survivors.

¹J Sully & S Newstead, Monash University Accident Research Centre Report #271 2007 viewed 3 February 2009 at <http://www.monash.edu.au/muarc/reports/muarc271.html>

ADR changes for a device to be fitted to all cars' exhaust pipes to disallow the attachment (insertion in or over) to the tail pipe of a common hose could greatly reduce the potential for MVEG suicides but not affect engine performance. Such a measure could have prevented about 90 percent of suicides by those means, nearly as many as seat belts prevent. (Paper by Dr Ric Bouvier attached).

3. Thirdly, it may be timely to introduce an ADR requiring the inclusion of an alcohol limiters on all vehicles made in Australia. While there have been encouraging reductions in the level of alcohol-related road trauma over the past three decades, this trend is now beginning to plateau. Australian society seems to be having difficulty changing behaviour in relation to drink driving, so another way of achieving change is to modify the vehicle standards. This addition to vehicles is already available on the majority of makes and models overseas, so it may be timely to insist on this accessory being a compulsory part of every vehicle made in Australia.

Finally, ACRS understands that other groups may focus on the merits of vehicle-to-vehicle [V2V] and vehicle-to-(roadside) infrastructure [V2I] dedicated short range communications for improving road safety. Any measures which would be valuable in reducing the crash rate supported by proven evidence would be endorsed by the College.

3. Worldwide Practices and the Design Process

As noted above, the College recognises the benefits of the current activities in the world harmonisation process in vehicle standards, and recognises that in time the ADRs may be replaced entirely by the United Nations Economic Commission for Europe (UNECE) regulations.

However, in the intervening period, however long or short that may be, it is important that practice in Australia allow for the integration of safe vehicle technologies as they are developed and trialled. At present growth in new technologies and features can outpace current capacity to develop and apply new safety performance regulations, given the processes and constraints under which the ADR process operates. While the Federal Government has recently announced incentives to develop greener cars, the safety aspects are often given lesser priority.

Consideration could therefore be given to actions such as the following which may better align the design process with the development of vehicle safety technologies (current and future):

- Reviewing the current suite of ADRs with a view to seeking a higher level of the minimum acceptable safety performance that a set of revised design rules should define
- Shortening as much as possible the time gap between the adoption of a global technical regulation under the umbrella of the UNECE and its specification for Australian vehicles and
- bearing in mind cost, both to industry and consumer, investigate the best possible way of gaining acceptance of the incorporation of safety features in the manufacture of Australian vehicles.

4. Road Design Rules

ACRS submits that it is difficult to distinguish between matters of design per se and matters related to design.

From a road safety perspective, the notion of "mobility with safety" has increasingly gained acceptance. While this matter does not relate directly to the road design rules themselves it does highlight the notion that Australia should look to improve the safety of our road network as we maintain or improve existing roads and build new roads. A major road construction project need only assign an amount of about 1% of its total cost to provide safety barriers both on central medians and along each side of the road. The World Bank has suggested that this figure should be about 10%. For example installation of wire-rope barriers has been shown both nationally and internationally to reduce fatalities by around 90%. These simple measures can help to dramatically reduce the very serious run-off-road crashes that each year claim so many Australian lives. There is opportunity to ensure, when funds are provided for major construction projects, that a funding component is allocated to implementing a "best practice" outcome that will serve the safety needs of our community well over the life of the project - in other words, improved safety is locked into the network because of the extra steps taken in the design and construction phase. It also means that remedial Blackspot treatments are less likely to be required in the future. The College policy on road safety audits are relevant in this regard. These state that road safety audits should be applied in the planning and design stage and recognises:

- the requirement for safety to be a key performance outcome in designing road and traffic systems;
- the need to create forgiving environments that reduce the capacity for and consequences of human error
- avoiding the costs of remedial treatment
- designing and building for safety, accepting perhaps some up-front costs rather than transferring them to future users
- the need to look beyond design standards.

A second type of treatment that is especially relevant within a Blackspot funding context is "roundabout" installations that have been shown to reduce casualty crashes by up to 80%. These measures serve to slow down traffic at the approach to intersections and help ensure that any crash that may occur is less serious than would have been the case at a right-angled cross intersection. At appropriate locations, traffic flow on both legs of the round-about can be favourably affected.

In a similar way the widespread application of proven low-cost measures would achieve significant improvements in road safety results. These are:

- Roadside hazard removal
- Hazard protection
- Shoulder sealing
- Edgelineing and audible edgelineing
- Road delineation
- Roadside pole replacement
- Road user separation

Again these are not so much matters of design but more of implementation of proven measures.

As an example ACRS supports the initiative of Victoria's Arrive Alive Safer Roads Program which involved the Transport Accident Commission (TAC) in Victoria providing \$240m to fund a safer roadsides project specifically to improve infrastructure upgrades. This program was funded by the TAC as an investment in a community benefit as well as to reduce the costs of third party insurance claims.

The measures which were implemented were those which had a proven record of reducing fatal and serious injury crashes and were implemented at high risk locations across the state. They included road side safety barriers, shoulder sealing, removal of roadside hazards, audio-tactile edge line marking and improving road curves, road marking and signage, intersection improvements and better lane marking.

This program was expected to reduce the number of deaths and serious injuries by between 300 and 480 people per year.

Another matter related to design is the provision of advice by AusRAP at the design stage of new roads avoiding the need to retrofit safety features in Blackspot programs.

Besides ADRs, there are also a number of Australian (AS) standards/codes and Austroads road, barrier and traffic control device design guidelines that are directly related to road safety. Examples of Australian Standards are AS 3845 Road Safety Barriers Systems, AS5100 Australian Bridge Design Code, AS4876 Motor Vehicle Frontal Protection Systems, AS 1754 Child Restraint Systems for Use in Motor Vehicles. It is essential those responsible for the development and approval of both rules and standards and codes work in close collaboration, but do not use the Rules or Standards as an impediment to implementation of advanced technologies to ensure the safest outcome for road users based on national or international expertise.