

# **Vehicle Standard (Australian Design Rule 10/02 – Steering Column) 2008**

Made under section 7 of the Motor Vehicle Standards Act 1989

## **Explanatory Statement**

Issued by the authority of the Minister for Infrastructure, Transport, Regional  
Development and Local Government

**February 2008**

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## **1. LEGISLATIVE CONTEXT**

*Vehicle Standard (Australian Design Rule 10/02 — Steering Column) 2008* is made under the *Motor Vehicle Standards Act 1989* (the Act). The Act enables the Australian Government to establish nationally uniform standards for road vehicles when they are first supplied to the market in Australia. The Act applies to such vehicles whether they are manufactured in Australia or are imported as new or second hand vehicles.

The making of the vehicle standards necessary for the Act's effective operation is provided for in section 7 which empowers the Minister to "determine vehicle standards for road vehicles or vehicle components".

## **2. CONTENT AND EFFECT OF ADR 10/02 – STEERING COLUMN**

### **2.1. Overview of the ADR**

ADR 10 provides requirements for vehicle steering columns to reduce occupant injury in a crash due the driver impacting on the steering column, or the steering column impacting on the driver.

### **2.2. Effect of the ADR**

This vehicle standard is being made to remove unique Australian requirements and fully adopt international standards that are a common and current approach to a solution to the worldwide problem of road crashes. This is expected to maintain Australia's road safety performance and lead to savings for both business and government in the long term.

### **2.3. Documents Incorporated by Reference**

This section lists documents referenced in the vehicle standard and how they can be obtained. The parentheses after the document title indicate where it is referenced.

- Australian Design Rules are available from the Department of Infrastructure, Transport, Regional Development and Local Government or can be downloaded from [http://www.infrastructure.gov.au/roads/motor/design/adr\\_online.aspx](http://www.infrastructure.gov.au/roads/motor/design/adr_online.aspx).
  - Vehicle Standard (Australian Design Rule – Definitions and Vehicle Categories)
  - ADRs 69/... and 73/...
- UNECE Regulations are available from their website, <http://www.unece.org/trans/main/wp29/wp29regs.html>.
  - Regulation No 12

## **3. CONSULTATION ARRANGEMENTS**

### **3.1. Specific Consultation Arrangements for this Vehicle Standard**

The specific consultation for this standard involved a 90 day public consultation period including the Technical Liaison Group and agreement from Transport Agencies Chief Executives and Australian Transport Council Ministers. The regulation impact statement was approved by the Office of Best Practice Regulation.

### **3.2 Regulation Impact Statement**

See Attached.

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**Australian Government**

**Department of Infrastructure, Transport,  
Regional Development and Local Government**

# **Regulation Impact Statement for Standards for the Steering Column**

**FINAL December 2007**

Prepared by: Vehicle Safety Standards Branch  
Department of Infrastructure,  
Transport, Regional Development and  
Local Government

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## STATEMENT OF THE PROBLEM

### *Introduction*

When a vehicle is involved in a frontal crash, the driver will be propelled forward and may suffer injury from steering column intrusion. Steering column intrusion arises from longitudinal and vertical movements associated with head on crashes. This may lead to crushing or penetrating injuries to the driver's chest. Requirements to minimise driver injuries from impacts with the steering wheel have been in place in Australia since the early 1970s.

### *The Extent of the Problem*

Accident statistics show that frontal collisions account for over 55% of crashes and are a major cause of death and injury on the roads. Among the many outcomes from a frontal collision, steering column intrusion is a significant cause of injury or death. The intrusion of the steering column into the space occupied by the driver and front seat occupants as a result of head-on collision leads to facial, chest and spinal injuries.

Full frontal and offset frontal crashes generally account for 55% of all crashes in urban areas while the proportion is slightly lower in regional and rural areas. Steering assembly intrusions into front seat occupant areas account for 21% of all intrusions while floor, toe pan and instrument panel account for 76% and 57% respectively

**In a crash study consisting of 178 crashes in the state of Victoria (MUARC<sup>1</sup>, 1992), the extent of injuries resulting from steering assembly movement by direction of displacement are provided in Table 1:**

**Table 1: Injury rate from Steering Assembly movement by direction of displacement**

	Full Frontal	Near Side Offset Frontal
Longitudinal	41%	44%
Vertical movement	31%	35%

A concept which is useful in estimating the effect of countermeasures is the fact that any road crash and its injury outcome is the result of a chain of events and if any one link in the chain can be broken, the outcome can be different. Occupant protection countermeasures reduce the extent of injury by reducing the progression from one event to the next. Two effects can arise from a group of countermeasures; one is a multiplicative effect, which applies when countermeasures can act in a sequential manner and the second an additive effect when the countermeasures act in a mutually exclusive manner. Occupant protection measures are inherently multiplicative in nature. If the occupant is restrained, seatbelts will provide some protection in the first instance, before a probable second event involving impact with the steering wheel/column or contact with a deployed airbag if available, followed by a third event possibly involving contact with the sun visor or other parts of the vehicle interior. For

<sup>1</sup> Monash University Accident Research Centre

an unrestrained occupant, the steering wheel/column or deployed airbag if available, would be the first line of defence and would have to compensate for the lack of occupant restraint to provide a comparable level of protection.

The overall cost to the Australian taxpayer resulting from steering column intrusion is difficult to estimate owing to the complementary benefits accruing from countermeasures such as seatbelts and airbags. However some idea of the cost can be gauged by using published research in Australia (MUARC<sup>2</sup> 1992). The MUARC study suggested that total average cost of frontal (both full and offset) impacts in 1991 was \$1600 million, over \$2000 million today. Of this total trauma cost, trauma from the steering assembly (steering column and steering wheel) was 31%. Of this 31%, the cost for restrained occupants was 6% and 25% of the cost was for unrestrained occupants. The MUARC research did not differentiate between the steering column and the steering wheel.

In recent times, air bags have been introduced to reduce trauma for drivers in frontal crashes. Seat belts, introduced more than 30 years ago, also reduce the prospect of injury from the steering column. However, 5% of drivers are unrestrained and, if the vehicle is not equipped with a driver's airbag, injury or death from steering column intrusion may result.

The existing mandatory standard, Australian Design Rule 10/01 – Steering Column, provides a minimum level requirement for steering column intrusion for unrestrained occupants arising from frontal crashes. Although MA, MB and MC categories<sup>3</sup> (passenger vehicles, forward control passenger vehicles and off-road passenger vehicles) of vehicles are required to comply with ADR 10, additional occupant restraint systems such as airbags over and above seatbelts reduce the risk of exposure from steering column intrusion for these vehicle categories. The other vehicle categories which are required to comply include MD1, MD2 (both small buses) and NA (light goods vehicles). These vehicle categories are not likely to have additional restraint systems for front occupants apart from seatbelts. Vehicles complying with ADR 69 – Full frontal Impact Occupant Protection do not have to comply with ADR 10 if fitted with driver side airbag.

### ***Why Government Intervention Is Needed***

The Government provides consumer protection for new vehicle consumers on two fronts, through the *Trade Practices Act 1974* and the *Motor Vehicle Standards Act 1989*. The Australian New Car Assessment Program (ANCAP), operated by a consortium of state and territory governments and insurance companies, serves to enhance consumer protection by complementing the primary effects of legislated arrangements through their public information program. The program is aimed at publicising the relative performance of vehicles in the important area of frontal impact occupant protection, in the hope that consumers will make informed choices, based on safety performance.

The *Trade Practices Act 1974* (TPA) provides consumer protection and quality of supply of product. Section 65C of the Act requires goods to meet prescribed consumer product safety standard. Consumer protection laws are important as a device for increasing equity in market place dealings between consumers and producers of vehicles. Part IV B of the TPA can prescribe self regulated or quasi regulated industry codes into black letter law which applies the remedies contained in the TPA to those who contravene codes, mandatory or voluntary. It

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<sup>2</sup> Monash University Accident Research Centre

<sup>3</sup> Details of vehicle categories are presented in Appendix 1

is important to note that the TPA applies across all sectors of the economy and is not industry specific.

The *Motor Vehicle Standards Act 1989* (MVSA) provides mandatory vehicle safety standards with which suppliers of new vehicles are required to comply. It is important to note that consumers' benefit from the functions of the two Acts, the MVSA providing a preventative effect, the TPA providing both compensatory and preventative effects. The compensatory effect comes through the Act's comprehensive coverage in most areas of consumer protection and the preventative effect through the prescriptions of codes by legislative means.

Besides the two Acts, market mechanisms as demonstrated by consumers' willingness to pay for safer vehicles (with airbags, immobilisers and ABS) and vehicle manufacturers responsiveness to consumers' desires have been gradually moving market forces towards a social optimum. This is assisted by information programs provided by government sponsored and non-government organisations and the provisions of the TPA. All these methods are desirable as they help improve the allocation efficiency of markets for automotive safety.

The conditions under which the market will produce a socially optimal level of product safety require individuals have perfect information. In such situations and assuming rational behaviour, a competitive market will lead to an optimal use of safety devices. This comes about from individuals balancing the benefits in terms of injury avoidance from safety devices against the cost of purchasing and utilising safety devices. Ideally, this behaviour leads to a global outcome in which total injury and injury avoidance costs are minimised for society as a whole.

Determining the benefits and costs of using safety devices like impact reducing steering columns is generally complex, where the relevant risk for any individual is likely to be driven by personal assumptions about the driving environment and personal driving habits. Individuals will likely encounter serious difficulties in making a well-informed decision about the value of safety devices. This uncertainty about the benefits of protection could lead to greater or less than optimal use.

Another source of market failure is the presence of externalities. Vehicle crashes that result in injuries or deaths because of the failure of individuals to use safety devices impose costs on other parties in the community. Again, this can result in the sub optimal usage of safety devices for the community as a whole. This is discussed in greater detail in the externalities section.

The need for government intervention in the market for delivery of safer vehicles to consumers therefore arises as a result of potential market failure from:

- Imperfect Information, and
- Externalities

### *Imperfect Information*

Individual consumers of new and existing vehicles are able to effectively exercise their safety preferences if they are in a position to accurately assess the safety level offered by different



models. The typical consumer does not possess the engineering knowledge or information to make a comparative evaluation of principal safety devices in vehicles.

A related issue is manufacturer myopia where new or existing manufacturers may, in the absence of standards or regulation, react to market pressures to the general detriment of the community. In a market based regulatory environment, it is likely that manufacturers may project an image that their vehicles are safe without incorporating basic protective features. The consumer may be unable to differentiate between vehicles with and without basic safety features.

The reluctance of vehicle manufacturers and the inability of consumer information programs to provide sufficient or adequate information to consumers, coupled with the consumer's inexperience to test and/or inability to access vehicles for such tests may warrant government action. Such action would aim to prevent consumers making poor (unsafe) decisions if vehicles with inadequate levels of protection were available. Such decisions could impose costs on the community from potential side effects or externalities.

#### *Externalities:*

When motor vehicle manufacturers introduce vehicles into the Australian fleet, several negative externalities arise which would be enhanced in a market based non-regulatory environment. These include:

- Road trauma costs, which are borne by the community and not by the manufacturer. In the current regulatory environment, road trauma costs the Australian community \$6.0 billion annually in terms of health care.
- Costs in terms of losses in utility to family and friends. Losses in productivity to other workers in team oriented job tasks and also from the necessity of hiring and training temporary or permanent replacements.
- Other costs include property damage, and inconvenience to the community which have not been measured.
- The medical treatment of injuries and disability which draws scarce medical resources from other uses. A significant part of this cost falls on the public through increased taxes.
- Medical insurance programs which can lead to disincentives to the purchase and utilisation of safety devices because individuals do not have to bear the full costs of restoring their health after accidents occur.

Negative externalities are also likely to emerge when consumers make poor decisions in relation to an optimal level of vehicle safety. In the absence of government based regulation, vehicles with less than the optimal level of safety may become available to consumers. Such a situation would create a demand by risk takers for very low cost vehicles with very few safety features. Although consumers may wish to maximise their private benefits through such a trade off, the social costs of such a transaction are likely to result in a net cost to the community.

The negative externalities arising from manufacturers introducing less than optimally safe vehicles and poor selection of vehicles by consumers are therefore reflected by increasing

expenditures on hospitalisation, a loss of quality of life, property damage, rehabilitation and other costs, most of which are borne by the community, not the individual consumer.

### ***Government Undertakings and Treaty Obligations***

The Australian Government has undertaken to review the ADRs to ensure that they are relevant, cost effective and do not provide a barrier to importation of safe vehicles and components. These objectives are shared by the New Zealand Government, which has been reviewing its vehicle safety standards. The review is being carried out by the Vehicle Safety Standards Branch of the Department of Transport and Regional Services (DOTARS) together with the National Transport Commission (NTC) and New Zealand Land Transport.

The aim of the ADR review is four-fold:

1. to identify whether existing standards are relevant in the light of on-going developments in automotive safety technology, given the fact that some of the standards are in a mature stage,
2. if existing standards are relevant, to identify any refinements required to ensure their progression and positive contribution in the standards life cycle,
3. to ensure standards do not impose excessive requirements on business, that they are cost effective and take account of community, social, economic, environmental, health and safety concerns, and
4. to pursue where appropriate harmonisation with international standards, rather than with regional or national standards.

The review takes account of the provisions of the Trans-Tasman Mutual Recognition Arrangement (TTMRA) Annex 4 – Road Vehicles. While the main object of the TTMRA is that goods sold in Australia could be sold in New Zealand and vice versa, it was acknowledged that there would be difficulties with Trans-Tasman trade in road vehicles, given the different regulatory regimes of the two countries. Road vehicles were therefore granted a special exemption from the immediate application of the TTMRA until the regulatory systems could be aligned. In Annex 4 of TTMRA, the Parties undertook to embark on a cooperation programme aimed, where appropriate, at harmonising Australian and New Zealand standards with United Nations - Economic Commission for Europe (UNECE) Regulations or those national or regional standards that are agreed by the Parties. The Parties also agreed to seek to develop consistent conformance assessment and certification requirements in both countries. The UNECE is regarded as the international standards setting body, meeting the provisions of the World Trade Organisation (WTO) Agreement on Technical Barriers to Trade, as standards development in the UNECE is open to participation by the international community.

New Zealand and Australia's accession to the 1958 Agreement is consistent with commitments by Asia Pacific Economic Cooperation (APEC) region economies to facilitate trade in automotive product by harmonisation of road vehicle regulations through the multilateral UNECE arrangements. Accordingly, the regional perspective of the TTMRA has been overtaken by APEC-wide developments. There is little to be gained at this juncture in pursuing a programme of bilateral coordination, and bilateral convergence will be a function of the pace at which Australia moves to harmonise its ADRs with UNECE regulations.

## OBJECTIVES

### *General and Specific Objectives*

The general and specific objectives of Australian Government action are to establish the most appropriate measure(s) for delivering safer vehicles to the Australian community. These include:

#### *General Objectives;*

- reduce road trauma arising from any potential failure of the market to provide safer vehicles,
- ensure that community, social, economic, environmental, health and safety standards are not compromised, and
- determine what form of action may be required, either government intervention or the use of market based measures.

#### *Specific Objectives;*

- eliminate any duplication and overlap arising from ongoing development of frontal protection countermeasures such as steering column intrusion, and
- ensure that any new measure provided for frontal impact protection in the form of restrictions on steering column intrusion arising from a crash do not provide a barrier to importation of safer vehicles.

This particular RIS examines the present Australian Government regulation which applies to steering columns fitted in motor vehicles as well as all other measures including market based alternatives. In essence the RIS assesses the relative costs and benefits of the present regulation, proposed regulations and non-regulatory alternatives.

### *Present Government Regulation*

ADR 10 applies to all MA, MB, MC, MD1, MD2 and NA category vehicles. It also applies to three-wheeled passenger vehicles of category LEP and LEG.

ADR 10 exempts vehicles that:

- comply with ADR 69 Full Frontal Impact Occupant Protection, and are fitted with a driver side airbag; or
- comply with ADR 73 Offset Frontal Occupant Protection, and are fitted with a driver side airbag and a front outboard passenger side airbag.

ADR 10 has two separate components. One component requires that when the steering column is impacted with a “body block” at 6.7 m/s (24 km/h). The force exerted on the “body block” shall not exceed 11.1 kN for any period greater than 3 milliseconds. This test can be done on a mock up of the dash assembly and generally only requires the steering assembly and support structure. It does involve several tests to cover the various possible positions of the spokes of the steering wheel and the worst case position for adjustable steering columns. This latter worst case is usually with the column fully extended and with the most rake on the steering wheel so that the “body block” applies the most eccentric loading. This position is most likely to cause higher crush loads.

The second component requires that the centre of the steering column does not move horizontally rearward more than 127 mm at any time when the vehicle is crashed into a barrier at 48 km/h. This dynamic impact test requires a complete vehicle which is destroyed in the test. In this test, adjustable steering columns are placed in the centre of the adjustment.

ADR 10 deems the technical requirements of United Nations Economic Commission for Europe (UNECE) Regulation No. 12, *Protection against the Steering Mechanism* to be an acceptable alternative. The United States Federal Motor Vehicle Safety Standard (FMVSS) 203, *Impact Protection for the Driver from the Steering Control System* is an acceptable alternative to the “body block” test of ADR 10 and FMVSS 204, *Steering Control Rearward Displacement – Passenger Cars* is an acceptable alternative to the dynamic impact test. Consequently, UNECE R12 and the combination of FMVSS 203 and 204 can be considered equivalent standards.

While the ADRs apply to new vehicles, which must comply before being supplied to the market, once put into use the vehicles must comply with the in-service regulations administered by the states and territories. The general principle applied by the states and territories is that vehicles produced in compliance with ADRs applicable at the time of manufacture must continue to comply with those ADRs. In 1999, the NTC published the Australian Vehicle Standards Rules (AVSRs) with the aim of providing a set of national uniform in-service vehicle rules which all jurisdictions agreed to implement.

The AVSRs have preserved the general principle of continuing compliance with the ADRs but also make particular provisions in areas not covered by the ADRs. There are also particular provisions relating to some areas that are covered by ADRs, in recognition that as vehicles age, continued compliance with the ADRs is not practicable. Another area where departure from the general principle is allowed is to accommodate established practices such as window tinting and alternative tyre selection. In case of passenger vehicles and NA and LEP categories of vehicles, the AVSRs demand continued compliance with ADR 10. However, if ADR 10 were to be repealed, the states and territories may consider applying a replacement in-service standard.

## OPTIONS

The measures available to promote safer vehicles to consumers can be classified as those that use regulatory options and those that use non-regulatory options such as the use of market based measures.

### *Regulatory Options*

The four regulatory options being considered are:

- |          |   |
|----------|---|
| Option 1 | Retain the present ADR including the use of UNECE alternative standards and remove FMVSS 203 and 204, |
| Option 2 | Adopt the international standard UNECE R12, but retain the exemption for airbag equipped vehicles,    |
| Option 3 | Adopt US and Japanese standards as additional alternative standards in options 1 and 2.               |

In general terms, while the option of allowing the standards applying in the US and Japan may seem like viable alternatives, closer examination proves otherwise. The allowance of alternative standards is only of real benefit where compliance with those standards can be easily verified by the issue of authoritative certificates of compliance or the standards are materially different and vehicles produced to other standards would need to be modified to comply with the ADRs. In the case of steering column intrusion, neither of these conditions applies.

The issues relevant to accepting US and Japanese national standards are:

- As the US government does not get involved in pre-market approval of vehicles, there is no approval certification available for vehicles claiming compliance with the US steering column intrusion standard.
- Japan is a contracting party to the UNECE 1958 Agreement (as is Australia) and adopted UNECE R12 in 2004. Any UNECE R12 approvals issued by Japan can be accepted in Australia without the need to also consider a Japanese domestic standard. Presently, the Japanese domestic standard applies to vehicles destined for domestic and export markets. The Japanese government does not issue certificates of approval for vehicles built for export markets and it would be up to the Australian vehicle safety regulator to confirm compliance with a standard.
- Maintenance of alternative standards is another issue that seriously erodes the regulator's efficiency to manage the administrative functions. This is a result of the need to continuously examine ADR amendment proposals to maintain the currency of the ADRs in relation to the alternative standards.
- The process for amending an ADR to allow compliance with an amended alternative standard typically involves assessment of the technical differences and preparation of a proposal for consideration by the advisory group<sup>4</sup> responsible for ADR development. Following this stage and depending on the nature of the change, the proposal may need to be submitted to the Chief Executives of the State/Territory Departments of

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<sup>4</sup> known as the Technical Liaison Group and comprises of suppliers associations (Federal Chamber of Automotive Industries and others), state and territory governments, National Transport Commission and consumer associations (Australian Automobile Association and others)

Transport for their consideration. If they agree with the proposal, the amendment needs to be approved by the Australian Transport Council (ATC) and finally the amendment needs to be determined by the Parliamentary Secretary to the Minister for Transport and Regional Services under section 7 of the MVSA.

The above process could take up to 3 months if all goes well. However, priorities of the day may not allow immediate processing of requests so the actual time taken could be up to 6 months. In the mean time, manufacturers would not be able to progress compliance of components and vehicles certified to the amended alternative standard. The total cost of this activity is difficult to determine as it involves people from many different organisations.

Despite the above difficulties, the US national standard is in the unique position of being identical to the international UNECE standard. For this reason FMVSS 203 and 204 could be retained as alternative technical requirements.

One remaining issue is the present exemption for airbag equipped vehicles. Because of the similarities between the technical requirements and test procedures in ADR 10 and UNECE R12, there seems no reason to remove the exemption.

Therefore, the regulatory options are:

- Option 1 Retain ADR 10 as is (including the UNECE and FMVSS alternative standards),
- Option 2 Adopt UNECE R12, but retain the exemption for airbag equipped vehicles;
- Option 4: Delete the ADR in which case states and territories may introduce uniform standards or non-uniform standards.

Option 4 can be considered both regulatory and non regulatory. The deletion of the ADR is a non regulatory option, but may lead to state and territory regulators imposing their own regulations to compensate. This RIS does not examine the potential for state and territory regulators to enact legislation in place of the ADRs, what form it would take and what consequences it may have.

### ***Non-Regulatory Options***

Non-regulatory options form an important part of the compensatory arrangements for consumer protection in addition to the preventative function provided the ADR. Non regulatory options can be classified into three categories: market forces in conjunction with the *Trade Practices Act 1974*, public education campaigns, and the use of voluntary code of practice.

- Option 4 Delete ADR and rely on market forces
- Option 5 Public education
- Option 6 Voluntary code of practice

### **Option 4 Market Forces and the *Trade Practices Act 1974***

Manufacturers delivering unsafe vehicles into markets in the absence of mandatory standards would suffer a loss of sales and reputation if the market has well developed market information systems to advise consumers if a particular make or model of vehicle was unsafe.

Such information systems may be operated by competing manufacturers, motoring associations and insurance companies who would have an incentive to draw this information to the attention of consumers.

ADR 10 represents a part of the occupant protection system for a motor vehicle that is acceptable to the market and meets consumer expectations. The absence of ADR 10 could result in loss of assurance for consumers that steering columns fitted in vehicles and supplied to the market provide an appropriate and adequate level of vehicle safety. The absence of a standard will be more pronounced for consumers of vehicles who rely primarily on ADR 10 for frontal occupant protection and to a lesser extent on consumers who have access to airbags and other restraint systems. A small but significant number of vehicle owners rebuild/refurbish steering systems in vehicles and the absence of a mandatory standard could lead to vehicles being refurbished or rebuilt to inappropriate requirements, thus exposing the community to an unsafe road environment. The spill over costs of non-intervention by the government in the market could potentially be an increase in road trauma, property damage and community anxiety from a less safe road environment.

The likely response of the market to occupant protection in the absence of a steering column regulation also needs to be considered. Several observations arise; some of which are summarised below:

- The demand for independent assessments of steering column displacement in particular and vehicle safety performance in general is not high. This is likely as a result of the strong presence of vehicle safety regulations, which have enjoyed a high level of acceptance by consumers, manufacturers and community organisations.
- Consumers are particularly confident of current arrangements in delivering vehicles with safe steering columns to the market. In the absence of current arrangements, two possibilities emerge. If consumers value safe steering columns, there will be an incentive for manufacturers to make available safe steering columns. Such consumer behaviour is evident in the large and medium car segment. Consumers in the small car segment tend to be unwilling to pay for safety features and to remain competitive manufacturers offer features for which consumers have a willingness to pay. Recent advertisements featuring safety features in small cars launched by European car manufacturers in Australia indicate that small car consumers are gradually accepting the importance of safety features and it will take some time before medium and large car consumer acceptance levels for safety are reached in the small car segment.
- New institutions may emerge to supply automotive consumer safety information while existing institutions may increase their activities in relation to information delivery. Institutions disseminating information relating to safety of steering columns may demand compensation for their services. If their services are available freely the issue of information asymmetry arises as some of these institutions could be sponsored or owned by vehicle manufacturers or other special interest groups.

There are two compensatory mechanisms available for the consumer under the TPA.

1. Section 65F – Compulsory product recall and Part V A – Liability of manufacturers and importers for defective goods of the Trade Practices Act has a compensatory effect for consumer protection as opposed to the ADR or mandatory or voluntary code prescribed under the TPA which has a preventative effect as it prevents a supplier from placing unsafe vehicles on the market. Given the high-risk nature of car travel and the community

costs when fatalities or injuries occur, it may not be appropriate to rely solely on a compensatory measure but rather to have a preventative measure such as an ADR or code prescribed under the TPA.

2. Part V A provides a well-defined right for consumers to sue for damages, which places pressure on vehicle manufacturers to avoid large compensation payouts by making their vehicles safer,

Full reliance on the consumer protection provisions of the TPA and non government information programs without the use of legally binding preventative provisions of the MVSA or TPA are likely to result in the following effects:

- As steering column effectiveness in terms of meeting minimum levels of intrusion into the front occupant compartment is not conducive to casual inspection, consumers are not in a position to assess the level of protection afforded by steering columns and are likely to make decisions that may disregard negative externalities imposing costs on third parties. The only way to assess system performance is by a full-scale test of a representative system installed on the vehicle to be marketed.
- Lack of a definitive regulation could still result in costs to manufacturers as responsible sections of the industry would still incur the overall cost of design, development, styling and testing whether or not there was a regulation. In the absence of regulation in such a technically complex area market pressures may cause a shift in focus away from safety,
- In the absence of regulation, states may introduce their own standards, potentially leading to lack of uniformity and undue jurisdictional requirements for consumer standards. This could result in additional testing and assurance procedures and hence additional costs to industry which is usually passed on to the consumer.

While allocation of safer vehicles could be achieved by market forces acting together with market information systems, and the compensatory provisions of the TPA, of paramount importance is the need to prevent unsafe vehicles from entering the market and this can not be achieved under this option. .

Although option 4 is not considered feasible, it will be considered further in the cost benefit analysis for comparative purposes.

## **Option 5 Public Education Campaigns**

Public education campaigns can be effective where the information being provided is simple to comprehend and unambiguous. If public information campaigns based purely on the ADR requirements were freely available, most consumers would be unable to comprehend the technical content and make decisions about the safety aspects of a specific vehicle's steering column. A campaign targeted to the typical consumer would be just as ineffective as without the technical content the campaign would be nothing but flashy advertising and an inefficient use of public money.

In these situations, where the majority of consumers are unable to make informed decisions regarding particular technical aspects of a product, such decisions are left to the manufacturer (if consumers trust the manufacturer) or to a government nominated regulatory authority (if the product is regulated). In the case of the automotive industry, the majority of safety related decisions reside with a regulatory authority. It is for the above reasons that public education campaigns on car safety have not enjoyed much success among vehicle buyers.



One simplification that would assist the consumer is the use of rating system. This allows complex technical information to be assessed by experts and then be presented in a way that the typical consumer will understand. The difficulty with a rating system is that the more important features such as crash protection would dominate and it is doubtful that consumers would be able to focus on individual components (for example, when compared with frontal crash protection, the quality of rear vision mirrors will seem less critical). Alternatively, each safety system would have to be rated separately and consumers would have to establish their own priorities as to which safety systems are more or less important in the final decision. It has already been stated above that most consumers are not in a position to make such decisions. It is unreasonable to expect consumers to assess the merits of each component and make an informed decision. A rating system, the Australian New Car Assessment Program (ANCAP), is currently being successfully used in conjunction with the existing ADR system.

Although ANCAP carries out tests similar to those presented in some of the ADRs, there are several major differences. Up until 1999 a full frontal collision (driving the front of the vehicle into a stationary object) was also carried out at an impact speed of 56 km/h, 8 km/h higher than that required by ADR 69. The expectation was that the higher speed would magnify the differences between cars and provide consumers with a better picture of the relative performance of these vehicles (Explanation of ANCAP Test Procedures 2005).

ANCAP and the ADRs currently work in a complimentary fashion. While the ADR provided baseline performance requirements such that consumers are assured that all vehicles perform to a legislated level, ANCAP provides supplementary information to help consumers make informed choices in purchasing vehicles, if they care to consider the relative safety performance in making that choice.

The ADR provides consumers with the assurance that all vehicles will perform to a minimum acceptable level. In the absence of the ADR and in reliance on ANCAP alone, no such assurance would be available, as there would be no legal compulsion to perform well in the ANCAP tests. Manufacturers may well pursue a good ANCAP result but this cannot be guaranteed.

Furthermore, there is no guarantee that such programs will continue in their current form. Full frontal impact tests were originally carried out at a higher speed than the ADR required and ceased in 1999 in favour of offset frontal impact tests. This is a prime example that although the ANCAP can provide valuable information, it is prone to change from time to time and does not offer the stability and continuity of government regulation. Testing is further limited by the cost of carrying out tests. Each test involves the purchase of a vehicles which could be anywhere from \$15 000 for a small car, up to above \$60 000 for a four wheel drive. This financial constraint means that it is unlikely that all available vehicles would be tested, making ANCAP of limited use to consumers.

Organisations such as ANCAP are more suited to inform on overall vehicle safety rather than the safety provided by particular systems. It would be difficult to package the information in a manner that the average consumer would understand as in order to present safety data on individual features the current safety index would not be usable. On the other hand, consumers would not appreciate being inundated with detailed test results that are time consuming and difficult to comprehend.

## Option 6 Voluntary Code of Practice

Another alternative to direct government intervention for delivering safety outcomes is via a code of practice. These can be either mandatory or voluntary as provided for under the Trade Practices Act.

Part IV B – Industry Codes, of the Trade Practices Act allows the development of mandatory and voluntary industry codes. Under section 51AE of the TPA, regulations may prescribe an industry code or specified provisions of the code and the industry code may be declared mandatory or voluntary. Prescriptions will apply the remedies to those who contravene such codes. These remedies include: injunctions, damages, orders for corrective advertising and refusing enforcement of contractual terms.

Of course a mandatory code of practice is hardly a non-regulatory option because participation and compliance are mandatory and the TPA provides for prescriptions and remedies including injunctions, damages and orders for corrective advertising for those who contravene such codes. Mandatory codes can be enforced under the TPA against all businesses in the automotive sector regardless of whether they are signatories to the code.

A feature of such prescribed codes is that they retain a high degree of industry involvement while providing the enforceability and coverage that can be ensured only through legislative means. However, breaches can only be revealed by failures in the field or by third party reporting and any savings through avoiding government intervention need to be balanced against the consequences of failures.

The use of codes prescribed under the TPA is an effective means of regulation in areas where government agencies do not have the expertise or resources to monitor compliance. In case of regulating the design and construction of motor vehicles, the responsible government agency (Department of Transport and Regional Services) has the expertise and resources to administer a cost effective compliance regime and a mandatory code of practice is unnecessary.

The arrangements for administering the compliance regime have recently been reviewed and endorsed as part of the review<sup>5</sup> of the *Motor Vehicle Standards Act 1989*. Among the options examined was that in place in the US which involves the regulator purchasing vehicles in the open market and conducting its own testing program. The task force noted that:

- This activity involves high costs. In the US for example a budget of approximately USD 25 million is provided, and
- In the event that vehicles are found not to comply with mandatory standards, action is taken by the regulatory authorities either in courts or through mandatory recall. Resolution in the courts can be a lengthy process during which potentially unsafe vehicles can remain in the market.

With voluntary codes of practice, given that there is no compulsion to participate or comply with the nominated standards, there needs to be some incentive to encourage operators to take part. A voluntary code would only apply to those agents who are willing to be bound by it. Industry associations could assume a supervisory role and persuade its members that

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<sup>5</sup> Review of *Motor Vehicle Standards Act 1989*, Department of Transport and Regional Services, August 1999. The review analysed the use of self regulation and self-certification as alternatives to the current system and concluded that the costs of the new proposals outweighed the benefits.

participation and compliance is preferable to the more onerous alternative of direct government intervention, both in relation to setting mandatory standards and enforcing them.

Also, the associations would be in a position to negotiate special status for their members in recognition of their voluntary compliance with the code. This could include access to schemes to maximise productivity gains such as in the case of driving hours regulation, where bus operators complying with the code for sleeper berths can operate on longer routes and share the driving between two drivers. The same arguments that rule against adopting mandatory codes for regulating vehicle safety apply in the case of voluntary codes of practice. Despite the inappropriateness of codes of practice as a form for enforcement of standards, the possibilities of using a code of practice are explored further in the discussions below.

The motor vehicle industry delivers new vehicles and used vehicles to automotive consumers. New vehicles are delivered from domestic production as well as from foreign production carried out in overseas plants. Imported used vehicles are mainly sourced from Japan. There are two industry associations, which represent a large collection of manufacturers in the new vehicle industry; these include the Federation of Automotive Product Manufacturers (FAPM) and the Federal Chamber of Automotive Industries (FCAI). Membership coverage by FAPM would approximate 40% while that of the FCAI would be around 99%<sup>6</sup>, which also includes importers.

For a voluntary code of practice to succeed, the relationship between business, government and consumer representatives should be collaborative so that all parties have ownership of, and commitment to, the arrangements (Grey Letter Law, 1997)<sup>7</sup>. In considering a code of practice, it is useful to note the following conditions, which exist in the automotive industry. These include:

- Universal application of standards is relatively difficult as numerous sectors exist and which in turn are represented by their own industry associations,
- It is not clear whether the industry associations can apply effective sanctions,
- Effective operation of a voluntary code of practice would require an enforcement system identical or similar to the one currently operated by the government regulator. This requires the members of the associations to provide evidence to their associations as currently required for obtaining an approval. It is quite difficult to envisage an environment where profit maximising companies would share information with their industry associations to enable the system to deliver certainty to consumers and governments.

An example of a code of practice applying in the automotive industry is the FCAI's code of practice for Electromagnetic Compatibility (EMC). This code of practice applies exclusively to FCAI members and while compliance with the nominated standards is mandatory, as prescribed by the Australian Communications Authority (ACA) for electromagnetic emissions from electronic devices under the Radio Communications Act, the Authority relies on the FCAI to ensure that its members comply. In this case it is understandable that the ACA has opted for a code, given the vast scope of its sphere of responsibility, as it covers all electronic equipment producers and the costs of direct Government supervision over all sectors would have been prohibitive.

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<sup>6</sup> Membership base of the FCAI includes vehicle manufacturers and the FAPM. It does not include sectors such as tyre manufacturing, vehicle distribution, transport logistics and after market supplies.

<sup>7</sup> Grey Letter Law, Report to the Commonwealth Interdepartmental Committee on Quasi Regulation, 1997

Although it is called a Voluntary Code of Practice, there is no option but to comply with the nominated mandatory standards and while the ACA is willing to rely on the FCAI to enforce compliance by its members, the full weight of the law would come down on those who fail to comply. Therefore it would appear that this code fits in with the concept of a mandatory code of practice.

Since the issue of providing safer vehicles is high risk-high impact in nature, there does not appear to be any scope for adopting a voluntary code of practice. As discussed previously in relation to a mandatory code of practice, the standards setting component is no different to what is being examined in this RIS, while the enforcement component is beyond the scope of this RIS, having been previously determined under the review of the *Motor Vehicle Standards Act 1989*. The presence of mandatory standards is one of the main reasons why codes of practice do not operate and there would be great incentive for their development in the absence of standards.

Option 6 is not considered feasible and will not be examined further.

## IMPACT ANALYSIS

### *Introduction*

Some 790,000 new vehicles to which ADR 2 applies are sold in Australia each year. These vehicles are produced by 46 different manufacturers and cover about 260 different models. In essence there are four domestic manufacturers which are subsidiaries of their American and Japanese parent organisations. These manufacturers/importers carry around 10 to 12 product lines which on average accommodate 4 models and therefore account for over 50% of the new vehicle market which includes 180 models (including off road vehicles). Four large importers<sup>8</sup> account for over 25% of the market (40 models) while the remaining 39 manufacturers<sup>7</sup> account for 40 models.

### *Identification of Affected Parties*

The parties affected by the regulatory options are:

- Domestic vehicle manufacturers who are also importers,
- Vehicle importers (includes foreign manufacturers and their representatives),
- vehicle owners,
- vehicle users, and
- governments.

The affected parties are represented by several interest groups and these include:

- the Federal Chamber of Automotive Industries, which is an all encompassing group representing the interests of the manufacturing sector. This includes vehicle manufacturers, vehicle importers and component manufacturers/importers;
- the Australian Automobile Association (AAA) which is considered representative of vehicle owners and vehicle users (passenger cars and derivatives) through the various automobile clubs around Australia (RAC, RACV, NRMA etc),
- Commercial vehicle owners/operators who are represented by the Australian Trucking Association (ATA);
- Australian Automobile Aftermarket Association (AAAA), Australian Road Transport Suppliers Association (ARTSA) and other interest groups, which represent economic agents operating largely in the after market industry,
- special interest groups that exist to represent specialist component and whole vehicle manufactures, and uses of various vehicle types.

### *Effect on Existing Regulations*

ADR 10 forms part of an occupant safety package, which contains eight ADRs. These vehicle standards need to be viewed in terms of a diversification of risk they bring about. Although it is difficult to demonstrate, the net result would be to produce a lower risk than would be possible if the regulations had an individual additive effect. The occupant protection safety ADRs operate in conjunction with other vehicle standards such as traction, structures and vision to reduce the overall risk of injury and fatality to vehicle occupants.

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<sup>8</sup> do not have domestic manufacturing facilities

In considering the interaction between the occupant protection ADRs, including steering column intrusions (ADR 10), seatbelts (ADR 4), full frontal impact occupant protection (ADR 69) and offset frontal impact occupant protection (ADR 73), the following observations arise:

- ADR 10 assumes the occupant is not restrained, however restrained occupants would benefit as seatbelts must incorporate some “give” under load. This could bring the occupant within the impact zone of a steering system that is moving backwards relative to the occupant in a frontal impact;
- ADR 10 is a low speed test where airbags may not deploy;
- ADR 69 assumes the occupant is restrained;
- ADR 73 assumes the occupant is restrained,

The benefits of ADR 10 are primarily to unrestrained occupants. While there are some benefits for restrained occupants, the impact analysis only assumes benefits for unrestrained occupants.

### ***Categories of Expected Impacts***

#### **General impacts**

ADR 10 was first introduced in 1971 for passenger cars and derivatives. In the early 1990s its application was extended to include the other classes of vehicle to which it now applies. The alternative UNECE R12 regulation became available for use in 1969 and the two FMVSS standards 203 and 204 came into force in the US in 1968.

Option 1 Retain Current ADR would retain the present position, which involves:

- present compliance costs for vehicle manufacturers;
- present road trauma benefits for vehicle occupants.

Option 2 would increase compliance costs for those vehicle manufacturers who presently certify to the alternative FMVSS standards but road trauma outcomes are unlikely to change as the standards are identical.

The UNECE Regulations have no equivalent to ADR 69 Full Frontal Impact Occupant Protection but there is a rule similar to ADR 73 Offset Frontal Occupant Protection. The airbag exemption was introduced in Australia due to concerns that flexibility in achieving an optimal airbag design may be compromised by ADR 10. However, there is no research that indicates trauma outcomes are any different. UNECE R12 has no exemption for vehicles fitted with airbags and if adopted in Australia the current exemptions could be retained to avoid increasing the costs for no net gain in benefits.

The UNECE standard does not apply to omnibuses while ADR 10 currently applies to MD1 and MD2 category vehicles (light buses of up to 3.5 tons and 12 seats). Any new ADR adopting the UNECE requirements could only apply to MA, MB, MC and NA category vehicles (matching the UNECE applicability). To ensure continued safety for all vehicles, MD1 and MD2 could be required to continue complying with the ADR in its current form.

Option 4 would eliminate compliance costs for vehicle manufacturers but would most likely increase road trauma. This would depend upon any change to current practices in steering column design.

Prior to the introduction of ADR 10, typical steering columns were long, straight, unjointed shafts, extending in some cases from near the front of the vehicle to near the driver's chest. In a frontal collision the column would often be driven back into the driver. The steering wheel was not very substantial and gave no protection for the driver, even in low speed crashes. Following the introduction of the steering column standards worldwide, steering columns became shorter and incorporated offset joints and collapsible elements. These were less prone to impale the driver. The extent of change in a world wide vehicle market is unlikely to be large but given the added expense of the more sophisticated steering columns, is possible in the highly competitive lower priced end of the market.

## **Quantification of impacts**

### *Compliance numbers*

Theoretically, ADR 10 applies to about 790,000 new vehicles sold each year made by 46 different manufacturers and covering some 260 models. However, vehicles are exempt from ADR 10 if they meet ADR 69 and are fitted with a driver's side airbag.

Of the 260 models, less than one third provide a driver's airbag as standard although it is an option on many of the remaining models. In terms of new passenger vehicle sales, vehicles fitted with driver's side airbags account for around 50% of the new sales volume. A large number of small cars are still sold without airbags, probably about 60% of small new car sales volume. In terms of the overall new passenger vehicle market this would account for 30% with the remaining 20% distributed among off road and forward control passenger vehicles.

Most manufacturers use the same basic steering assembly for all variants within a model, although some manufacturers offer adjustable steering columns with higher priced variants and fixed or reduced adjustment systems on base models. In addition, the same steering assembly and vehicle front structure is often carried over for successive models.

Given these conditions, it is estimated that 50 models per year are required to certify to ADR 10.

Under option 1, vehicle models will not incur additional test costs as a result of ADR 10 because testing to either UNECE or FMVSS standards is already required for the European and US markets. Of these imported vehicles, it is estimated that only about 5 models of European sourced goods vehicles must be tested, as they are not required to comply with UNECE R12 (because of a lower application limit of 1500 kg gross mass). It is assumed that goods vehicles have a new model each 5 years, giving an average of 1 test per year for Option 1.

Under Option 2, the European goods vehicles would be exempt in line with UNECE R12 application limits. Australian produced vehicles that are not exported are all anticipated to have driver's side airbags in the future. Current output of passenger cars from the plants of the four manufacturers are all fitted with a driver's side airbag. The estimated 4 models per year which are presently certified to FMVSS and not UNECE regulations would be covered by the airbag exemption. The remaining group of L (three wheeled vehicles) category models

are produced only rarely and have not been included in this analysis. Under Option 2, therefore, no test costs would be incurred.

If option 4 is used, no testing or certification would be required. However, in the absence of ADR 10 it is likely that states and territories may introduce uniform or non-uniform standards. The cost of complying with a uniform standard is likely to be similar to that arising from the current ADR. In case of non-uniform standard, the compliance costs are likely to be several times that of a uniform standard as each jurisdiction may impose their own compliance requirements. Because this situation involves action by states and territories, no further attempt is made in this statement to discuss the impacts of such a move.

This analysis will use the following estimates:

Option 1 1 test per year

Option 2 no tests

Option 4 no tests

### *Compliance costs*

The “body block” component of ADR 10 testing costs about \$3 000 to perform plus the cost of components. The dynamic or barrier crash component costs between \$5 000 and \$15 000 (assume \$10 000 average) to perform plus the cost of the vehicle. Most imported vehicles tested to ADR 10 are already in volume production so the cost per vehicle is much lower than specially built pre-production models. It is estimated that the cost of the vehicle and the components for the “body block” test will be in the order of \$25 000. Total test costs are therefore \$38 000 per model for Option 1.

With an average of \$1 000 for collection and submission of evidence for 50 certifications per year, the total cost of Option 1 is therefore about \$90 000 (\$38 000 + \$50 000 approximately \$90 000) per year.

Costs for Option 2 is the \$50 000 for certification as there is no testing carried out.

For Option 4, compliance costs are not incurred as a result of the ADR certification process.

### *Benefits*

The only known research on the benefits of the standards is Kahane (1981), which assesses the effectiveness and shortcomings of collapsible or energy absorbing steering columns. Kahane found that these systems reduced the risk of driver fatality in frontal crashes by 12% and the risk of fatality or serious injury because of contact with the steering column by 38%. At that time, 46% of driver fatalities were principally caused by contact with the steering assembly and therefore the benefit of introducing a standard for steering column intrusion was high.

Research in Australia (MUARC 1992) suggested that the total average cost of frontal impacts in 1991 was \$1 600 million, nearly \$2 000 million today. Of this total trauma cost, trauma from the steering assembly (steering column and steering wheel) was 31%. Of this 31%, the cost from restrained occupants was 6% and 25% from unrestrained occupants. Given that the seatbelt wearing rate in Australia is around 95%, the 5% who are unrestrained contribute 25%



of the cost. The MUARC research did not differentiate between the steering column and the steering wheel.

In 1991, ADR 10 was well established in passenger cars but was only being introduced into other categories.

Given the lack of definitive research data, it is difficult to establish a level of benefit from ADR 10. It is difficult to translate the US 1981 Research (Kahane 1981) with its large proportion of unrestrained occupants to Australia in 2000 with only 5% unrestrained occupants.

A complication also arises because of the influence of ADR 69 Full Frontal Occupant Protection. Since the MUARC research, ADR 69 has been introduced and driver’s side airbags are becoming more common. No research is available on the relative benefits of ADR 69 without airbags.

The lowest level of benefits would accrue if it is assumed that ADR 10 has no benefit for restrained passengers over and above the ADR 69 benefits. If only unrestrained occupants are considered, the work of Kahane (1981) becomes more relevant. MUARC estimated the total cost of contact with the steering assembly for unrestrained occupants at about \$100 million annually, of which about \$15 million was for chest injuries (the most likely injury attributed to steering column intrusion or driver contact). Even allowing for a 50% value from ADR 69 for unrestrained occupants, the Kahane 38% reduction in fatal and serious injuries becomes a 20% (50% (non ADR 69) x 38% (reduction)) benefit, or \$2 million (\$15 m x 20% x 2/3) per year for chest injuries alone (allowing for one third of vehicles with air bags).

It is likely that there would be some benefit for restrained occupants from ADR 10 in high-speed crashes although the mode of injury may be different.

Therefore, it is likely that the benefits of ADR 10 in road trauma reduction are at least \$2 million per annum.

It is unlikely that the road trauma from Option 2 would be different to that of Option 1.

The remaining question that arises is the extent to which designs would change as a result of deleting ADR 10. Most cars already meet UNECE R12 or FMVSS 203/204 because they are marketed in Europe or the US. In most instances, the cost of changing current designs would exceed the savings and it could be argued that no road trauma increases would occur. However, in the low priced competitive end of the market, the benefits to manufacturers from change could outweigh the costs, potentially leading to an increase in road trauma. From a road trauma perspective, the cost of compliance could be offset by a reduction in only one fatality each 10 years. With the very high proportion of frontal crashes, it is more likely that in the absence of the ADR, net benefits would reduce by about 25%.

A summary of relative benefits and costs is shown in Table 1 and the impact on affected groups is shown in Table 2.

**Table 1: Summary of Relative Benefits and Costs**  
(per annum)

Option 1	Option 2	Option 4
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	<b>retain ADR 10</b>	<b>adopt UNECE R12</b>	<b>delete ADR 10</b>
<b>Benefits</b>			
• road trauma reductions	at least \$2 million	at least \$2 million slight reduction <sup>9</sup>	at least \$1.5 million
<b>Costs</b>			
• manufacturer compliance (testing and certification)	about \$90 000	about \$50 000	nil
• Government administration		slightly less than option 1 <sup>10</sup>	nil
<b>Net benefits</b>	at least \$1.9 million	at least \$1.95 million	at least \$1.5 million

**Table 2: Impacts on Affected Groups**

<b>Affected group</b>	<b>Option 1 retain ADR 10</b>	<b>Option 2 adopt UNECE R12</b>	<b>Option 4 delete ADR 10</b>
vehicle manufacturers including importers	• present compliance costs are unchanged	• slight reduction in compliance costs	• no compliance costs
vehicle owners	• present compliance costs are passed on to consumers	• compliance costs passed on to consumers	• no compliance costs to pass on <sup>11</sup>
vehicle occupants	• reduced road trauma against Option 4	• reduced road trauma against Option 4	• probably greater road trauma than at present
governments	• present compliance supervision costs are incurred	• present compliance supervision costs are incurred	• compliance supervision costs are not incurred

### *Discussion of impacts*

The quantitative and qualitative assessment of benefits and costs above indicates that options 1 and 2 are similar while option 4 has a lower overall benefit. The difference between the direct benefits and costs of options 1 and 2 are minimal so secondary benefits need to be considered.

Option 1 has the advantage of retaining the current requirements – not requiring any change on the part of business or government. Option 2 requires some change but furthers the process of harmonization with international vehicle standards.

<sup>9</sup> As not all vehicle categories currently tested to ADR 10 would be tested under UNECE R12 (this is why the compliance costs are less).

<sup>10</sup> Option 2 would not apply to MD1 and MD2 category vehicles, resulting in a slight reduction in the number of ADR 10 evidence forms requiring assessment by the regulator.

<sup>11</sup> The lack of compliance costs does not guarantee that saving would be passed on to consumers.

## **Consultation**

Development of the ADRs is the joint responsibility of the Vehicle Safety Standards Branch of the Department of Transport and Regional Services and the National Transport Commission and is carried out in consultation with representatives of Australian Government, State and Territory Governments, manufacturing and operating industries, road user groups and experts in the field of road safety.

In carrying out the ADR review, a number of single issue working groups (SIWG) were established to consider proposals and provided technical advice. The group that considered ADR 10 agreed that Australia should harmonise with UNECE R12 in keeping with the overall goal of standards harmonization. The occupant protection SWIG was tasked with reviewing the requirements of steering columns and other occupant protection countermeasures. A list of organisations that participated in the working group is presented in Appendix 2.

### ***Public Comment***

The proposal was circulated for 90 days public comment from November 2000 to February 2001. Notification was also sent to the World Trade Organisation under Australia's Technical Barriers to Trade obligations.

Three responses were received. The response from the Federal Chamber of Automotive Industry (FCAI) represents the bulk of vehicle manufacturers, the Australian Automotive Association (AAA) represents the interests of road users through automotive clubs and the Motor Trades Association of Australia (MTAA) represents retail, service and repair sectors of the automotive industry. All of the respondents agreed with adopting UNECE R12 (Option 2). A summary of public comment responses can be found in Appendix 3.

### ***Transport Agencies Chief Executive (TACE)***

After the completion of public comment, the package was sent to transport agencies in all state and territory governments as well as New Zealand (under TTMRA arrangements). Responses were received from all jurisdictions, agreeing to harmonize with the UNECE regulation. Western Australia expressed a concern regarding the applicability of ADR 10/01 to MD1 and MD2 category vehicles (some omnibuses) and that UNECE R12 would exempt these vehicles. This has been addressed by requiring MD1 and MD2 category vehicles to continue complying with ADR 10/01 (MA, MB, MC and NA would be able to use a new ADR 10/02).

### ***Australian Transport Council***

At the June 2005 Australian Transport Council (ATC) meeting, transport Ministers endorsed a recommendation that broadly supported, non-contentious, UNECE harmonised proposals could proceed directly to determination following public consultation. The public comment process is used to determine whether this proposal qualifies as a non-contentious item and whether further consultation would be necessary. As there was full support at both the public comment and TACE stage, ADR 10/02 will not be presented to ATC.

## CONCLUSION AND RECOMMENDATION

### *Conclusion*

Difficulties have been experienced in assessing the impacts of ADR 10. The introduction of ADR 69 Full Frontal Impact Occupant Protection will have significantly reduced its benefits. However, ADR 69 assumes restrained occupants and there appear to be road trauma savings from ADR 10 for unrestrained occupants. In addition, ADR 10 does not impose significant compliance costs on the majority of manufacturers as the inclusion of alternative standards reduces testing costs to a minimum.

However, it could be argued that, because of these international standards, the deletion of ADR 10 would produce little in the way of change to presently complying steering columns. However, it would only require the avoidance of one fatality every 10 years to offset the cost of the ADR.

It appears that both Options 1 and 2 have net benefits in the region of at least \$1.9 million per annum. Option 3, delete ADR 10, has the lowest net benefits. Option 2, adopt UNECE R12 has the indirect benefit that it will potentially reduce cost to Australian manufacturers wishing to supply to both a domestic and international market.

Identifying the preferred option for setting standards to deliver safer vehicles to the community is beset with difficulties particularly when dealing with a situation, which is high impact and high risk in nature. The option selected must not only serve to maximise the total benefit to the community but must fully recognise the difficulties encountered by producers in supplying safer vehicles to the market while meeting the principles of regulatory analysis set out by the Council of Australian Governments and the Office of Best Practice Regulation.

This Regulation Impact Statement has considered both the regulatory and non-regulatory options available to reduce steering column intrusion arising from frontal crashes. The non-regulatory options appear to meet some of the secondary objectives but fall short of the primary, particularly in averting market failure and progressing the market towards a social optimum. For identifying the best option, the social value of the option also needs to be considered. The regulatory option - option 2 harmonising with UNECE R12 is the most effective as it helps reduce road trauma by correcting for market failure and potentially increasing the number of vehicle offerings in the market and reduces the burden on local manufacturers wanting to export their product. Harmonisation of standards allows overseas manufacturers to access the market with lower compliance costs and promotes competition by increasing the number of players in the market. It also gives local manufacturers a greater chance to export as they can certify to UNECE standards used throughout the world, reducing the testing and compliance costs when expanding into overseas markets.

Therefore, the recommendation is to adopt Option 2, align ADR 10 with the technical provisions of UNECE R12, retain the present exemption for vehicles complying with ADRs 69 and 73 and fitted with airbags and ensure that MD1 and MD2 category vehicles (light omnibuses up to 3.5 tonnes) remain covered by ADR 10/01.

## IMPLEMENTATION AND REVIEW

ADR 10/02 will be given force in law in Australia by making determining it as a vehicle standard under the *Motor Vehicle Standards Act 1989*. It will be implemented under the type approval arrangements for new vehicles administered by the Vehicle Safety Standards branch of the Department of Transport and Regional Services.

Additionally there are arrangements for on-going development of the ADRs. This is the joint responsibility of the Vehicle Safety Standards branch of DOTARS and the NTC and is carried out in consultation with representatives of Australian Government, State and Territory Governments, manufacturing and operating industries, road user groups and experts in the field of road safety.

A manufacturer will be required to ensure that vehicles supplied to the market comply with the requirements of any package of regulations. Penalties for non-compliance with the *Motor Vehicle Standards Act 1989* are 120 penalty points for each offence.

For revised ADRs, which do not represent an increase in stringency, there is no need for lead-time. For those ADRs that are updates of existing ADRs, they will have the same applicability as the originating ADR currently has. There will be a seamless transition from the existing ADRs to the revised package.

Where the stringency of a standard is increased or there is a change in applicable categories (as in this case), suitable lead-time will be negotiated with industry. For ADR 10/02 industry had indicated at least two years lead time would be required. An applicability date of 1 January 2009 has been proposed for all new vehicles. Industry will be consulted before the ADR is finalised to ensure that the draft applicability date is still appropriate.

## Appendix 1 - VEHICLE CATEGORIES

A two-character vehicle category code is shown for each vehicle category. This code is used to designate the relevant vehicles in the national standards, as represented by the ADRs, and in related documentation.

### PASSENGER VEHICLES (OTHER THAN OMNIBUSES)

#### PASSENGER CAR (MA)

A passenger vehicle, not being an off-road passenger vehicle or a forward-control passenger vehicle, having up to 9 seating positions, including that of the driver.

#### FORWARD-CONTROL PASSENGER VEHICLE (MB)

A passenger vehicle, not being an off-road passenger vehicle, having up to 9 seating positions, including that of the driver, and in which the centre of the steering wheel is in the forward quarter of the vehicle's '*Total Length*.'

#### OFF-ROAD PASSENGER VEHICLE (MC)

A passenger vehicle having up to 9 seating positions, including that of the driver and being designed with special features for off-road operation. A vehicle with special features for off-road operation is a vehicle that:

- (a) Unless otherwise '*Approved*' has 4 wheel drive; and
- (b) has at least 4 of the following 5 characteristics calculated when the vehicle is at its '*Unladen Mass*' on a level surface, with the front wheels parallel to the vehicle's longitudinal centreline, and the tyres inflated to the '*Manufacturer's*' recommended pressure:
  - (i) '*Approach Angle*' of not less than 28 degrees;
  - (ii) '*Breakover Angle*' of not less than 14 degrees;
  - (iii) '*Departure Angle*' of not less than 20 degrees;
  - (iv) '*Running Clearance*' of not less than 200 mm;
  - (v) '*Front Axle Clearance*', '*Rear Axle Clearance*' or '*Suspension Clearance*' of not less than 175 mm each.

### OMNIBUSES

A passenger vehicle having more than 9 seating positions, including that of the driver.

An omnibus comprising 2 or more non-separable but articulated units shall be considered as a single vehicle.

#### LIGHT OMNIBUS (MD)

An omnibus with a '*Gross Vehicle Mass*' not exceeding 5.0 tonnes.

#### HEAVY OMNIBUS (ME)

An omnibus with a '*Gross Vehicle Mass*' exceeding 5.0 tonnes

### GOODS VEHICLES

A motor vehicle constructed primarily for the carriage of goods and having at least 4 wheels; or 3 wheels and a '*Gross Vehicle Mass*' exceeding 1.0 tonne.

A vehicle constructed for both the carriage of persons and the carriage of goods shall be considered to be primarily for the carriage of goods if the number of seating positions times 68 kg is less than 50 percent of the difference between the '*Gross Vehicle Mass*' and the '*Unladen Mass*'.

The equipment and installations carried on certain special-purpose vehicles not designed for the carriage of passengers (crane vehicles, workshop vehicles, publicity vehicles, etc.) are regarded as being equivalent to goods for the purposes of this definition.

A goods vehicle comprising 2 or more non-separable but articulated units shall be considered as a single vehicle.

#### **LIGHT GOODS VEHICLE (NA)**

A goods vehicle with a '*Gross Vehicle Mass*' not exceeding 3.5 tonnes.

#### **Subcategories**

##### **Light Omnibus (MD)**

###### Sub-category

MD1 - up to 3.5 tonnes '*GVM*', up to 12 '*Seats*'

MD2 - up to 3.5 tonnes '*GVM*', over 12 '*Seats*'

MD3 - over 3.5 tonnes, up to 4.5 tonnes '*GVM*'

MD4 - over 4.5 tonnes, up to 5 tonnes '*GVM*'

MD5 - up to 2.7 tonnes '*GVM*'

MD6 - over 2.7 tonnes '*GVM*'

##### **Light Goods Vehicle (NA)**

###### Sub-category

NA1 - up to 2.7 tonnes '*GVM*'

NA2 - over 2.7 tonnes '*GVM*'

## Appendix 2 - Occupant Protection Single Issue Working Group

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### Organisation

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#### *Manufacturer Representatives*

Australian Road Transport Suppliers Association  
Commercial Vehicle Industry Association  
Federal Chamber of Automotive Industries  
Federation of Automotive Product Manufacturers

#### *Consumer Representatives*

Australian Automobile Association  
Australian Trucking Association

#### *Government Representatives*

Australian Government Department of Transport and Regional  
Services  
Department of Transport , South Australia  
Queensland Transport  
Roads and Traffic Authority, New South Wales

#### *Inter Governmental Agency*

National Road Transport Commission

#### *Independent*

Dr Michael, Henderson, Road Safety Expert



### Appendix 3 - Public Comment Responses

Name	Agree with RIS	Comments	Response to comments
Australian Automobile Association	Y		
Federal Chamber of Automotive Industry	Y		
Department of Infrastructure, Energy and Resources (TAS)	Y		
Department for Planning and Infrastructure (WA)		The recommendation of adopting UNECE R12 as ADR 10/02 would result in vehicles of more than 1500kg (which are exempt from ADR 69 and 73) being exempt from the current collapsible steering column requirements.	This would only apply for NA category vehicles. Currently such vehicles with full UNECE approval already have this exemption. It is also expected that many NA category vehicles will have driver side airbags and will be exempt from ADR 10 (under ADR 69 or 73)
Department of Transport and Works (NT)	Y		
Department of Urban Services (ACT)	Y		
Land Transport Safety Authority (NZ)	Y		
Motor Trades Association of Australia	Y		
Queensland Transport	Y		
Road and Traffic Authority (NSW)	Y		
Transport SA	Y		
VicRoad	Y		

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## Appendix 4 - data sources and assumptions

Primary sources of data and information were:

*The Black and White Guide, 1999 Edition*, published by Glass's Guide.

*IIHS (Insurance Institute for Highway safety) (1993), Status Report No. 28 (October 9)*

FORS, : Road Fatalities, Australia, *1996 Statistical Summary*. ISBN 1323-3688  
Federal Office of Road Safety, Canberra.

Kahane, D J (1988). *An Evaluation of Occupant Protection in Frontal Interior Impact for Unrestrained Front Seat Occupants of Cars and Light Trucks*. NHTSA Technical Report, DOT HS-807 203. National Highway Traffic Safety Administration, Washington, DC.

MUARC (1992). *Feasibility of Occupant Protection Measures*. Report. CR 100,  
Federal Office of Road Safety, Canberra.

Information supplied by industry sources.