

I said that our responsibility is to identify and integrate physical, psychological and technical aspects of road use into driving in a manner that achieves safe, effective and responsible use of our roads. A shift in preconceived notions and sometimes archaic methodologies used by some road use educators is needed to bring road use and road safety into the forefront of all vehicle controllers minds, thus enabling a more harmonious union between all road users.

At Roadcraft we do not accept failure. Success is indicated by the level of intellectual and sensory learning of each and every individual who comes to Roadcraft and the extent to which it affects an attitudinal change that is paralleled by changes in their behaviours. These high expectations are often found daunting by new Road Safety Practitioners at Roadcraft. Only those instructors who are able to accept these high expectations, and can produce these outcomes, remain long-term educators at Roadcraft.

Vision Techniques have evolved over time that assist in developing dynamic vehicle understanding and use. Haptic, Visual and other Sensory information are integrated, developed and explained to our clients. This information is related to the development of real on-road defensive techniques. A number of theoretical and practical exercises have been instituted to assist our clients in becoming peripherally and primarily conscious of their vision capabilities.

The objective of these exercises is to foster in the student an understanding of the limitation of their vehicle and the effects of forces on them and their vehicle when driving. While this knowledge is being taught, vision and haptic skills are concurrently developed and practised. At all times our educators are required to make full use of the many opportunities such as emergency braking and steering incorporated into these activities, to effectively address the developing attitudes and aspirations of our participants. These experiences are designed to create a lasting effect in the minds of our drivers.

Evaluation of 'Roadcraft'

What I would like to achieve now is to have our work at Roadcraft researched and evaluated. A search of old papers from ACRS Journals revealed a draft policy entitled "Draft Policy Statement on Programme Evaluation" dated 23/8/90. There are two basic principles outlined in this policy statement. These are –

- The Principle of cost effectiveness
- The Principle of programme evaluation. The paper states that "It is the policy of the ACRS to support the principle of cost effectiveness and program evaluation in the assessment of all road safety proposals. This brings our request for research and evaluation or assessment of our Roadcraft programs firmly into the purview of ACRS Policy.

Improving Reversing Safety of Commercial Vehicles

By Dr Will Murray,
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Background



Insurance claims data from many companies around the world and research undertaken at the University of Huddersfield in the UK suggests that between a quarter to a third of all

reported freight transport collision accidents arise from vehicles reversing, in some cases many more. Despite this, the vast majority of such accidents go unnoticed at the government and company levels. As a result there is only limited comparative data and, until recently, very few specific reversing-based reduction interventions such as vehicle-mounted safety cameras have been implemented by vehicle operators, driver trainers or policy makers.

Over 20 years ago, in 1982, the Health and Safety Executive (HSE) 'Transport Kills' document highlighted reversing as a manoeuvre responsible for a large proportion of fatal accidents in the UK. More recently, the HSE estimated that nearly 25% of all deaths involving vehicles at work occur while vehicles are reversing. The 25% figure comes from scrutiny of HSE inspectors' accident investigation reports, and includes approximately 10-20 deaths per annum. Vehicle direction is not always recorded, and HSE does not investigate all accidents reported to it – so the figures are possibly an underestimate.

A typical case, which recently went through the courts in the UK, involved a fatal reversing accident at the back door of a retail store. Approximately 38% of the company's vehicle accidents occur when their vehicles are reversing. The average cost of each accident is less than £500, mainly minor damage. Many such accidents never even get into most companies' insurance records, being dealt with as routine vehicle maintenance costs, let alone official UK statistics. For this reason companies and the authorities are often ignorant of the

reversing risk until it is too late and someone has been killed or seriously injured. A range of recent research, management development and educational projects have shown that many vehicle operators keep very poor safety performance statistics and often only take safety seriously after a major accident.

In the case of the retailer discussed above, several reduction interventions, particularly improved site procedures and training, were implemented after the event! This case, and many others like it, show the importance of a proactive approach to reversing safety – and applying a range of appropriate management (eg analysis and review), site (eg risk assessment), driver (eg assessment and training) and vehicle-based (eg reversing cameras and alarms) interventions.

Proactive approach

The starting point for taking a proactive approach is to understand the extent of the reversing risk in your organisation. In a research project undertaken with over 50 companies, over 20% of the accidents involving artics, rigid, vans and fleets involved reversing. However, there was some variance in the data – with some van and rigid fleets being over 40%.

The research also analysed the locations where reversing accidents tend to take place for a typical retail multi-drop operation. 52% occurred at collection and delivery points, 4% at the company's own depot or recycling unit (RSU), 29% on site and 15% on route.

Based on the above discussion and data it appears that reversing safety should be addressed by a range of groups, including: vehicle operators, policy makers, researchers, health and safety specialists and driver trainers. Reversing safety improvements can be made in four main areas: management analysis, site procedures and operations, vehicles and people.

Performance review and improvement

We have recently developed a ‘where are we now gap analysis’ or audit as the starting point to address the reversing safety issue. This provides a thorough understanding of the problem and allows decisions to be made on the most appropriate actions to take. The audit is reproduced in full below. The higher your score, the more safe systems of work you have in place for vehicle reversing. The lower your score, the more exposed you are to major reversing safety accidents, high costs and legal issues. It should be applied to the design of all new sites and operations and at existing sites on an annual basis.

The audit falls into four areas: operational analysis and statistics, site procedures and operations, vehicles and people. For each item you have in place – participants are asked to tick Yes. The percentage figures show how many of the first 50 participants had implemented each of the countermeasures, suggesting that some scope remains for the participants to improve their reversing safety performance.

Operational analysis and statistics	% Yes
1. Do you know your total number of vehicle accidents and % of accidents involving reversing by vehicle type?	83
2. Do you know the total number of reversing accidents at collection and delivery points, your own company sites and on the road?	70
3. Have you undertaken detailed data analysis on previous reversing accidents to identify causes?	48
4. Do you know the average cost of your reversing accidents?	46
5. Do you track the trend of reversing accidents by the categories shown in 1–4 above?	33
6. Have you identified all reversing operations?	72
7. Have you reduced the need for reversing wherever possible?	80
8. Have you minimised reversing distances?	43
9. Have you done reversing black spot analysis and risk assessments?	50
Site procedures and operations	
10. Have you undertaken site visits to improve delivery/collection points?	41
11. Have you made the delivery/collection points aware of the identified improvements?	28
12. Do you regularly consult employees (eg drivers) in the process of developing the layout of new sites?	50
13. Do you have a mechanism to allow drivers to make suggestions for improvements to existing sites?	80
14. Have you implemented procedures and safe systems of work?	87
15. Do you have a reversing checklist and procedures for new sites?	33
16. Do your sites clearly identify your reversing/people areas?	37
17. Have you assessed the quality of your lighting, visibility and mirrors?	78

Site procedures and operations continued	% Yes
18. Do you regularly improve yard and road layouts?	61
19. Do you regularly review the safety of yard 'furniture' (eg posts and pillars)?	76
20. Do you have one-way traffic systems at your sites?	50
21. Have you installed traffic light systems?	9
22. Have you implemented time bans to separate people and vehicles?	4
Vehicles	
23. Have you fitted/specified vehicle proximity devices?	89
24. Have you fitted/specified improved vehicle mirrors?	24
25. Have you fitted/specified auto reversing brakes/bumpers?	41
26. Have you fitted/specified flashing reversing lights?	28
27. Have you fitted/specified reversing beepers/alarms?	9
28. Have you fitted/specified reversing cameras?	46
29. Have you fitted/specified any other reversing aids?	26
People	
30. Have you identified all people likely to be affected?	65
31. Do all your staff involved with vehicles reversing receive a copy of the HSE's 'Reversing Vehicles' publication (11/95 ind (G) i48l c350 (free by calling 01787 – 881165)?	24
32. Are all drivers and banksmen properly assessed, trained and regularly reassessed? (eg seminars, video, data analysis feedback, poster campaigns, CD-ROM)	41
33. Do you exclude people from reversing areas?	72
34. Is a simple, agreed and clearly visible system of signalling and communication in place?	57
35. Do you regularly audit the management/supervision of reversing areas?	43
36. Do you issue fluorescent clothing to all relevant staff?	87
37. Do your drivers always check their mirrors are clean and correctly aligned and make sure that the reversing area is free of pedestrians?	98
38. Have you developed safe procedures/work instructions for all relevant staff?	87
39. Have you developed safe reversing procedures/work instructions for drivers?	48
40. Do you provide simple, but detailed, collection/delivery point details for drivers?	15
41. Do you provide guidelines/work instructions which visiting drivers must sign for and agree to adhere to when they arrive at your site?	35
42. Do you employ dedicated people as yard shunters/banksmen?	30
43. Do your banksmen receive and sign for a set of written procedures to which they must adhere?	76
44. Are your banksmen empowered to undertake regular risk assessments and feed the results back to their managers and supervisors?	74
Total (Of 44)	

More details about the audit, and an electronic copy, are available free from the author.

Policies of the Australasian College of Road Safety

By Ken Smith, ACRS Fellow

This is the second of a series of articles reviewing a further selection of the road safety policies previously approved at Annual General Meetings of the College. The aim of these articles is to give members the opportunity to read comments about the need for possible changes to the policies. Members are invited to send in comments to the Journal Editor (see address details inside the front cover).

Australian Road Laws

ACRS Policy Position

ACRS supports the introduction of the national road rules and road signs, on the grounds that a broad uniformity on the main issues reduces confusion and errors by drivers in unfamiliar surroundings. Measures to introduce uniform rules that have the effect of compromising safety in particular jurisdictions should not be supported.

Objective

The objective and guiding principle should be improved safety outcomes.

Discussion

The national road rules developed by the National Road Transport Commission have largely been implemented through State legislation. The main exceptions are the general urban speed limit*, on which jurisdictions are moving progressively and on which practice should be made uniform, rules on school zones, and novice driver licensing requirements, including licensing age. It has been agreed by Transport Ministers that novice driver licensing requirements are not part of the uniform package.

A national package of road rules assists ease of travel across jurisdictions, removes anomalies and confusion and has road safety benefits by removing one potential cause for crashes and 'unintended' violations.

It is not appropriate to pursue uniformity for its own sake: uniformity should be approached with the safety consequences in mind.

Comment

This is an example of a policy statement in serious need of updating. Also it differs from many others in that it was written to deal with an issue that with time has lost its importance. It was written at the time the national road rules were under debate, and the reasons for the reservations then expressed about 'uniformity for its own sake' are no longer relevant. Interestingly, some matters are still not uniform across Australia.

It is possible that this policy statement is no longer necessary at all, but this gives rise to an important principle. While there is now a uniform set of road rules across Australia, within those there remain differences in practice. Examples include some demerit point offences (outside a common 'core' set adopted by all jurisdictions), novice driver graduated licensing practices, school zone speed restrictions, compulsory carriage of driver's licence, enforcement practices and some others.

Are there issues of lack of uniformity that are still a problem? One of the prime reasons for seeking uniformity is to avoid the situation of drivers out of their home state being 'ambushed' by rules that do not apply in their own. There is also the principle that road users are expected to inform themselves of the rules that apply in jurisdictions in which they are operating (ignorance of the law is no excuse). Is it of concern to members that some matters are still not the same across Australia? Or are we content to accept some differences that reflect the socio-political history of different jurisdictions and simply say 'vive la difference!'

We'd like to hear your views. Write or email to the ACRS Office.

Speed Management

ACRS Policy Position

ACRS supports zoning roads for speeds that are appropriate to road and road environment conditions. This entails the use of signs, engineering, education and enforcement. Correct speed zoning is rational and sends the 'right' messages to road users about the speeds at which they should travel in relation to road geometry and condition and the associated natural, built and human environment. Correct speed zoning encourages compliance with legal limits.

Speed zoning should be enforced using best practice: fairly, with clearly visible Police presence and media advertising.

Objective

To encourage drivers to travel at a speed appropriate to road and road environment conditions, to enhance safety, maintain road system service level and avoid detriment to persons in the immediate environment.

Discussion

Speed management refers to engineering, education and enforcement treatments to encourage road users to travel at a speed appropriate to road and road environment conditions. It can apply to urban and rural roads. The principal use of speed management is to discourage people from exceeding legal limits (since that is seen as the greatest speeding 'problem') but an objective may also be to discourage people from travelling so slowly as to impede other traffic.

Speed management consists of:

1. speed zoning roads and portions of roads according to horizontal and vertical alignment, natural and built environment and traffic conditions, to the most appropriate speed for those conditions, and signposting them accordingly;
2. where necessary providing traffic engineering measures to support the speed limit desired;
3. educating the public about the speed zoning principle and practice; and
4. enforcing the speed limits.

The use of speed zoning for managing vehicle speeds in urban areas is obvious. In rural areas speed zoning is used to manage speeds principally to suit terrain and road geometry. Thus instead of a general 100 km/h rural speed limit, limits would vary according to conditions. Minor or secondary roads in hilly country with narrow pavements and shoulders might be zoned as low as 70 or 80 km/h, in contrast to roads in open country in less populated areas that might be zoned at 100 or 110 km/h.

Speed zoning roads and sections of roads in this manner encourages drivers to believe that speed limits have a rational basis and are related directly to road and road environment conditions. Because of this, with appropriate education and enforcement, voluntary compliance with posted speed limits may be enhanced.

Comment

Speed zoning has been less discussed of late, but the principles still hold good. While there are some examples of speed zoning as described in this statement, there are many instances where work still needs to be done. The most notable and most frequent example is a blanket 100 km/h applied to rural single carriageway roads, in open, favourable terrain as in hilly, windy roads with poor surface, narrow or nonexistent paved shoulders and poor sight distances. Increasingly, speed limits especially in rural areas should be set with reference to the degree to which road reserves and medians are forgiving of the errant driver, notwithstanding the quality, width and curvature of the road pavement.

Another problem is where speed zoning is applied according to these criteria, there are relatively frequent changes in speed limit to reflect the changes road geometry. This has led to complaints by the motoring public of too-frequent changes in speed limit. This appears to occur because road authorities have failed to take the simple measure of adequately publicising the reason for the speed limit changes and why. Road authorities do themselves no good for this failure.

The criteria applied to zone roads and streets themselves create anomalies in places. Residences and businesses fronting direct onto a feeder road (as distinct from a local street) dictate a speed limit of 60 km/h, but where, for example, a street has

two travelling lanes and a parking lane on either side of a wide central median, the subconscious message to road users is more likely to suggest 80 km/h as for an arterial than the posted and appropriate 60 km/h. Good signposting and perhaps also better promulgation to road users of the rationale for speed zoning is necessary to ensure drivers are not 'trapped' by some aspects of the road environment without realising the significance of other components.

Another kind of anomaly frequently occurs because road authorities usually do not speed zone lengths of road less than one kilometre. This can lead to anomalies if changes in land use occur in less than that distance.

There remains 'unfinished business' in this policy area.

50 km/h General Urban Speed Limit

ACRS Policy Position

ACRS supports a general urban speed limit of 50 km/h. ACRS supports this measure both because of safety benefits and because it represents best practice of the majority of developed motorised nations. However, Australian jurisdictions that have adopted or permitted the application of a 50 km/h urban speed limit have not done so in a uniform manner. ACRS supports 50 km/h as the *default general urban speed limit*.

In practice the limit of 50 km/h would only apply in residential streets. 'Special' areas such as school zones and the like could be zoned to lower speeds; feeder and arterial roads and freeways with main functions other than residence or retail/commercial and not involving significant pedestrian movement may be zoned to higher limits, much as is the case at present in many urban areas. But such zoning must be done according to a uniform and rational set of principles or warrants and be applicable across Australia

Australian Transport Council voted in November 1996 to retain the present general urban speed limit of 60 km/h in the national road rules, at least for the time being.

The Australian College of Road Safety is disappointed in this decision given the safety benefits to be expected from the lower urban speed limit and already realised in Victoria, Queensland and WA, and a wide measure of public support. ACRS commends efforts of jurisdictions to move toward 50 km/h, but urges that uniform practice and application be adopted.



Objective

To improve the safety of urban areas in Australia, especially for pedestrians and unprotected road users.

Discussion

Speed limits are the one road safety measure that reduces both the frequency of road crashes and the severity of road trauma. By far the majority of developed motorised nations have a general urban speed limit of 50 km/h (or 30 mph). There is a body of research evidence that shows that a reduction of 10 km/h in vehicle speeds can make a significant difference to the incidence and severity of pedestrian injuries. An Australian experimental study [Kloeden et al, 1997] demonstrated that a car braking from 50 km/h stopped short of an obstacle that it struck at a speed of approximately 25 km/h when braking from a speed of 60 km/h.

It is an integral part of the policy that a general urban speed limit of 50 km/h goes in hand with a system of speed zoning of urban roads according to function (see separate policy statement on Speed Management). Feeder and arterial roads would be zoned at speeds that reflect their function, and probably at much the same limits as at present.

The 50 km/h limit will be the general limit for all urban areas, with streets and roads zoned above and below 50 km/h as appropriate. If 50 km/h is the 'default' limit for urban areas, roads with a different limit will be signposted. This is the College's preferred position.

A general urban speed limit of 50 km/h has many benefits and few disadvantages. The main benefit is the safety improvement that is the main reason for encouraging lower urban speeds. Lower emissions and fuel consumption may also result.

One obvious and possible disadvantage is lengthening of travel times. An Austroads study [ref] has demonstrated that the increase in travel time would be negligible, since the lower speed limit would not apply to that part of urban travel that is on arterial roads and freeways.

In addition there are implementation costs (signs and markings, publicity and education) and the need for enforcement to increase compliance with the changed speed limits.

Reference

Kloeden CN, McLean AJ Moore VM and Ponte G (1997) *Travelling speed and the risk of crash involvement*, CR172, FORS Canberra

Comment

This policy statement was developed when the 50 km/h speed limit issue was still under debate and not yet accepted everywhere. This has now occurred, with the Australian Transport Council now having agreed to adopt 50 km/h as the default general urban speed limit. All jurisdictions have now adopted it.

The policy statement should now be amended to reflect the current position. It still serves a purpose to members and readers, however because it explains the rationale for speed zoning in urban areas, which we believe is still not well understood in the community.

Now that 50 km/h is established we might well consider whether there is merit in following practice overseas, particularly in Europe, in a further step. Frequently local streets in residential precincts where there is shared use have limits of 40 or even 30 km/h. This reflects the use of such streets as a general community resource rather than solely for motor traffic. Modern urban design practice in Australia increasingly leans towards curved, low speed residential streets and cul-de-sacs fed by feeders to arterials rather than the older grid patterns. ACRS members may wish to consider whether the College should now consider promoting the idea of lower speed limits in residential precincts.

Advertisement

Safe and Mobile: Introductory Studies in Traffic Safety

Now in its third reprint, this manual was written for students in tertiary courses in Traffic Safety at Australian Universities and in Police Academies. The text is recommended also for specialists working in Traffic Safety who wish to become more familiar with broader issues in this multidisciplinary profession.

The contents and authors are as follows:

The Past: Hit and Miss (Jennifer Clark, University of New England)
The Driver: The Psychology of Road Safety (R F Soames Job, University of Sydney)
The Vehicle: Automotive Engineering (Chris Coxon, SA Department of Transport)
The Environment: Road Engineering (Peter Moses, Consultant, Western Australia)
The Environment: Transport Economics and Planning (Michael A P Taylor, University of South Australia)
The Environment: Traffic Management (Angus Witherby, University of New England)
The Future: Whither Traffic Safety? (Colin Grigg, Consultant, New South Wales)

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