



Motorcycle Notes

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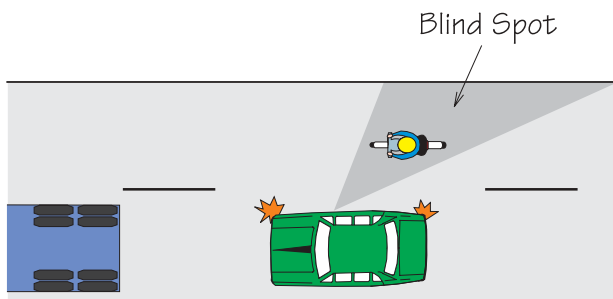
Hazard Detection and Anticipation

This is the tenth in a series of VicRoads MOTORCYCLE NOTES. The purpose of MOTORCYCLE NOTES is to provide regular practical advice on motorcycle-specific aspects of road design, maintenance and safety for VicRoads, Local Government, Government Agency and Consultant engineers and planners. MOTORCYCLE NOTES should be read in conjunction with: 'Guide to Traffic Engineering Practice Part 15 – Motorcycle Safety', (GTEP Part 15) Austroads. Sydney 1999.

The need

Traffic engineering is one way in which motorcycle safety and mobility can be enhanced. The role of the driver or rider is also important. While engineering and planning can reduce the number of hazards, there will always be many that remain. Recognising hazards is a skill that comes with experience and training.

Victorian motorcycle rider training courses do not yet include hazard perception skills. A resource for car drivers, currently available to Victorian learner drivers free of charge, has been developed by the Transport Accident Commission. The CD-ROM product, called Drive Smart, has undergone a simulator based evaluation with successful results and is about to undergo a real-world crash-based evaluation to further support the value of such training.



Is the rider there? Does the driver see the motorcycle rider?

The figure above illustrates that the 'blind spot' is a detection hazard area for any vehicle, especially motorcycles. Riding in this area, other than during overtaking manoeuvres, should be avoided.

Significance of the issue

Hazard perception offers perhaps the greatest unexploited crash reduction potential to motorcycle rider training (McKenna, 1999). The investigations to determine how best to train riders in this skill have not yet been undertaken, but it is equally important to develop training to help traffic engineers and planners to be able to detect potential hazards to motorcycle riders prior to crashes occurring.



Multiple hazards to motorcyclists and cars

The scene above is a site where multiple crashes of both cars and motorcycles have occurred. The hazards presented by this location include restricted sight lines, constrained alignment, camber, embankment, lack of error recovery space and very poor road surface condition at a critical location. Motorcycles do not follow the same paths as cars, and are more sensitive to poor road surfaces. The hazards here are greater seen through a motorcyclist's eyes than a car driver's.

Hazards only to motorcycles?

The two scenes in this Note, drawn from recent studies of some of these routes, are at sites where multiple motorcycle crashes have occurred. Significantly, these sites have seen a number of crashes by other types of vehicle as well.

The greater sensitivity of motorcycles to compromises in road design and maintenance suggests that other vehicles may get into difficulties at sites where motorcycles crash repeatedly.

Assessments of such sites would be a sound practice for overall traffic safety. For example, in the photograph below, the area without a guardrail leads to a sharp drop into trees.

Road Safety Audits assess the operation of a road, focusing on road safety as it affects all users of the road. Road safety issues are identified and, if appropriate, recommendations are made aimed at improving safety.

Identifying and treating such situations can yield very high benefit-cost ratios (Corben, 1997).



Information resources:

Corben, B. F. (1997). *The general effectiveness of countermeasures for crashes into fixed roadside objects*. MUARC Report 111.

McKenna, F. P., Horswill, M. S. (1999). *Hazard perception and its relevance for Driver Licensing*. IATSS Research Vol 23 No. 1.

Smith, R, Mealyea, R. (1999). *Hazard perception for motorcycle riders*. http://www.vicroads.vic.gov.au/traf_man/road_serv/vmac_hazard.htm.

Transport Accident Commission (2000), *Drive Smart CD Rom*. Melbourne.

Detecting hazards

The above location indicates to road users that there are hazards beyond the guard fence, the road curves to the right and sight distance is limited. There are also surface irregularities which cannot be depicted in the photograph (ie. surface bumps through the curve). Training riders to minimise risks associated with these and other hazards is not just a matter of encouraging lower speeds, as the road surface can destabilise machines at quite modest speeds. Riders need to learn how to detect hazards from the road environment and other vehicles, and to adjust their riding accordingly.

Resources

The Australian Rider Trainers Association (Smith, R, Mealyea, R.,1999) International Conference in Melbourne was actively supported by the Victorian Motorcycle Advisory Council and others, and brought together overseas and Australian experts and motorcycle training practitioners. The evidence that hazard perception and training can potentially make a significant difference to rider safety was discussed, and ways of delivering and evaluating trials were worked through.

Work by the TAC evaluating hazard perception training using multimedia has been undertaken and continues using the freely available Drive Smart CD-ROM, designed for novice car drivers. TAC has just commenced the development of a motorcycle specific edition of the product.

Summary

General anticipation of hazards is a key feature of professional Road Safety Audits, and a greater understanding of how hazards arise for motorcyclists is valuable for traffic safety professionals.

Increased attention to hazard detection and response by motorcyclists themselves has been established as a positive and worthwhile goal for motorcycle rider training.

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