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CARRS-Q is a joint venture initiative of the
Motor Accident Insurance Commission
and Queensland University of Technology



5 September 2011

Submission No. #47
Received
Road Safety Committee

Mr Murray Thompson, MP
Chair, Road Safety Committee
Parliament of Victoria
Spring Street
East Melbourne Vic 3002

Dear Mr Thompson

Re: Call for submissions for the Inquiry into Motorcycle Safety

Thank you for your letter to Professor Barry Watson dated 9 June 2011 inviting Queensland University of Technology to make a submission to the Inquiry.

On behalf of the Centre for Accident Research and Road Safety – Queensland, I am pleased to attach our submission. Given that CARRS-Q research spans many of the Terms of Reference of the Inquiry, the approach we have taken in our submission is to identify the CARRS-Q research projects and publications that are relevant to each of the Terms of Reference. Instead of providing a lengthy submission that details the findings of each of these research projects, we have provided links to electronic versions of these documents to allow the Committee to access the relevant reports. If it wishes, CARRS-Q is happy to meet with the Committee to present or discuss findings.

Thank you for this opportunity to contribute to improving motorcycle safety,

Professor Narelle Haworth

Acting Director and

Theme Leader, Vulnerable Road Users

Centre for Accident Research and Road Safety-Queensland



**SUBMISSION TO THE VICTORIAN PARLIAMENTARY
ROAD SAFETY COMMITTEE
INQUIRY INTO MOTORCYCLE SAFETY**

September 2011



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Introduction

This submission has been prepared in response to the Victorian Parliamentary Road Safety Committee's (RSC) *Inquiry into Motorcycle Safety*. As a leading and internationally recognised research institution in the road safety field, the Centre for Accident Research and Road Safety (CARRS-Q) is committed to contributing to the reduction and prevention of transport-related injury and trauma. CARRS-Q was established in 1996 as a joint initiative of Queensland University of Technology (QUT) and the Motor Accident Insurance Commission (MAIC). The primary role of the Centre is to undertake research and training in the areas of road safety and workplace injury prevention. One of the Centre's core research themes is Vulnerable Road Users, including motorcycle and scooter riders, cyclists and pedestrians.

Motorcycles, scooters and mopeds are referred to collectively in this submission as powered two-wheelers (PTWs). Where the collective term PTW is not appropriate, the terms motorcycle, scooter and moped are used. The distinction between mopeds and scooters is based on the Australian Design Rule (ADR) classification of LA and LC category vehicles, wherein a moped (LA) has a limited engine cylinder capacity of 50cc or less and a top speed of 50 km/h, while a scooter (LC) has an engine cylinder capacity of more than 50cc or a top speed of more than 50 km/h.

In regard to PTW safety and usage, CARRS-Q conducts and assists with extensive research in the areas of licensing and training, policy, mopeds and scooters, off-road riding, risky behaviours, and protective clothing, among others. Specific projects undertaken by the Centre in relation to these areas are listed below (with the relevant jurisdiction in brackets).

- Licensing and training
 - Long-term crash involvement of unlicensed drivers and riders (Qld)
 - Review of motorcycle and scooter licensing and training (Victoria)
 - Estimating crash risk of riders licensed by Q-RIDE and Q-SAFE (Qld)
 - Pre-learner programs, review of competencies, programs for higher-order skills (Qld)
 - Development and evaluation of a motorcycle training intervention (Qld)
- Policy
 - Community Feedback to Motorbike Safety Consultation Paper (Qld)
 - Rider Survivor motorcycle safety awareness and community consultation (Qld)

- Mopeds and scooters
 - Comparison of motorcycle, scooter and moped crashes (Qld)
 - Monitoring moped and scooter usage (Qld)
 - Survey of moped and scooter use (Qld)
 - Safety and transport implications of the increased use of motor scooters (Qld)

- Off-road riding
 - Injuries to off-road motorcycle and ATV riders (national)
 - In-depth comparison of rural on-road and off-road injuries resulting from motorcycles and ATVs (Qld)

- Risky behaviours
 - Investigation of fatigue-related motorcycle crashes (Vic)
 - Psychological and social factors influencing risky rider behaviour (Qld)

- Protective clothing
 - Motorcyclist apparel observation studies – Canberra, Brisbane and Melbourne
 - Review of literature on motorcycle protective clothing and development of a safety “star rating” system (Victoria)
 - Use of protective clothing by novice riders (with George Institute)
 - Performance of protective clothing in crashes (with George Institute)

- Other
 - Identifying programs to reduce road trauma to ACT motorcyclists (ACT)
 - Development of APEC motorcycle and scooter safety compendium (international)
 - The suitability of current crash databases for analysis of motorcycle crashes (Vic)

Discussion in response to Terms of Reference

Given that CARRS-Q research spans many of the Terms of Reference of the Inquiry, the approach that is taken in this submission is to identify the research projects and publications of CARRS-Q that are relevant to each of the Terms of Reference. Instead of providing a lengthy submission that details the findings of each of these research projects, the Committee can access the relevant reports. If the Committee wishes, CARRS-Q is happy to meet with them to present or discuss findings.

(A) Trends over time in crash types including on-road and off-road crashes, rural/urban breakdown, experience levels of riders (where known) and types of motorcycles being ridden

While the number of fatal crashes for most road user groups has declined in Australia over the last 5 years (2005-2010), there has been a slight increase (1.1%) in the number of PTW rider and pillion fatalities. Nationally, the number of older riders in crashes has increased, while young rider crash involvement has declined (BITRE, 2010). This has shifted the focus of research to some extent, with more recent attention given to the 'returning rider' phenomenon, in Australia and also internationally.

An area of current research within CARRS-Q is that concerning the crash involvement of different PTW types, including a comparison of crash rates and crash characteristics for motorcycles, scooters and mopeds in Queensland. No other research to date has compared the crash involvement of scooters with that of their smaller moped counterparts.

While off-road motorcycle crashes are generally not reported in official transport data, current CARRS-Q research suggests an increase in both on-road and off road crashes has occurred in Queensland.

Relevant publications authored or co-authored by CARRS-Q researchers include:

Safety implications of increased moped and scooter use in an Australian city (Blackman & Haworth, 2010) <http://eprints.qut.edu.au/33036/>

Motor scooters and mopeds: Are increasing sales translating into increasing crashes? (Haworth & Nielson, 2008) <http://eprints.qut.edu.au/14033/>

Profiling off-road motorcycle and all-terrain riders in Queensland, Australia (Steinhardt, Sheehan, & Siskind, 2011). <http://eprints.qut.edu.au/41915/>

Rural and Remote Road Safety Study: Final report (Sheehan, et al., 2008) <http://eprints.qut.edu.au/26539/>

Fatal motorcycle crashes in north Queensland: characteristics and potential interventions (Blackman, Steinhardt, & Veitch, 2009) <http://eprints.qut.edu.au/27980/>

Non-fatal motorcycle crashes on public roads in north Queensland (Blackman, Veitch, & Steinhardt, 2008) <http://eprints.qut.edu.au/17792/>

(B) The changing face of motorcycling and in particular, patterns of motorcycle usage over time including the uptake of motorcycles as an alternative form of transport and its impact on road safety

It is important to view trends in PTW crashes in the context of trends in PTW usage. PTW use, as indicated by the number of registered vehicles, has increased substantially over the last decade and at a far greater rate than that of other motorised vehicles (Figure 1). This helps to explain the increasing proportion of road user deaths involving PTWs. As can be seen in Figure 2, the largest overall increases in PTW registrations have occurred in Queensland, New South Wales and Victoria, as might be expected due to the larger populations in those states.

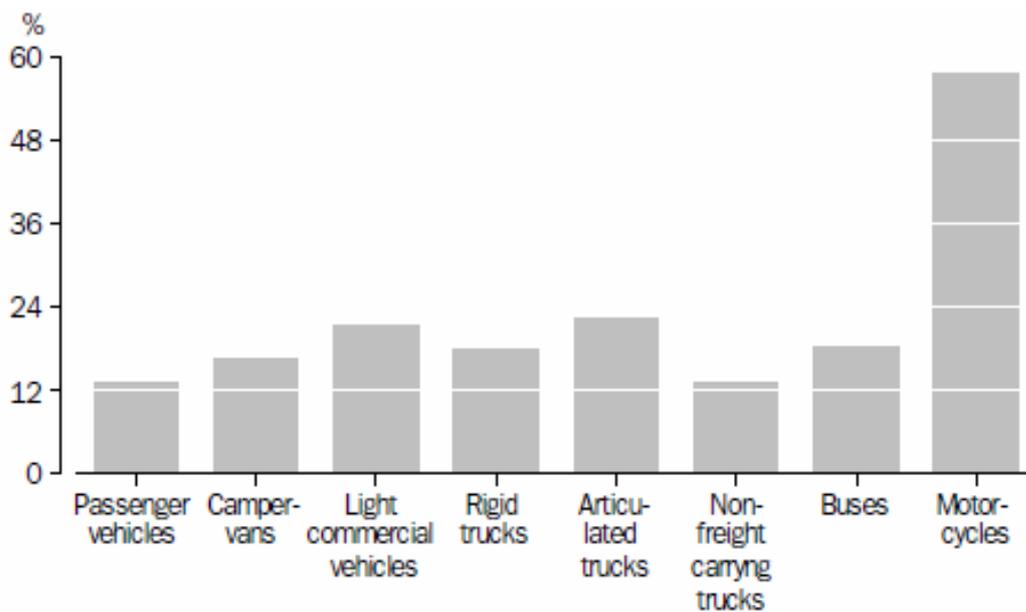


Figure 1: Australian registrations by vehicle type, % change 2004 – 2009 (ABS, 2009)

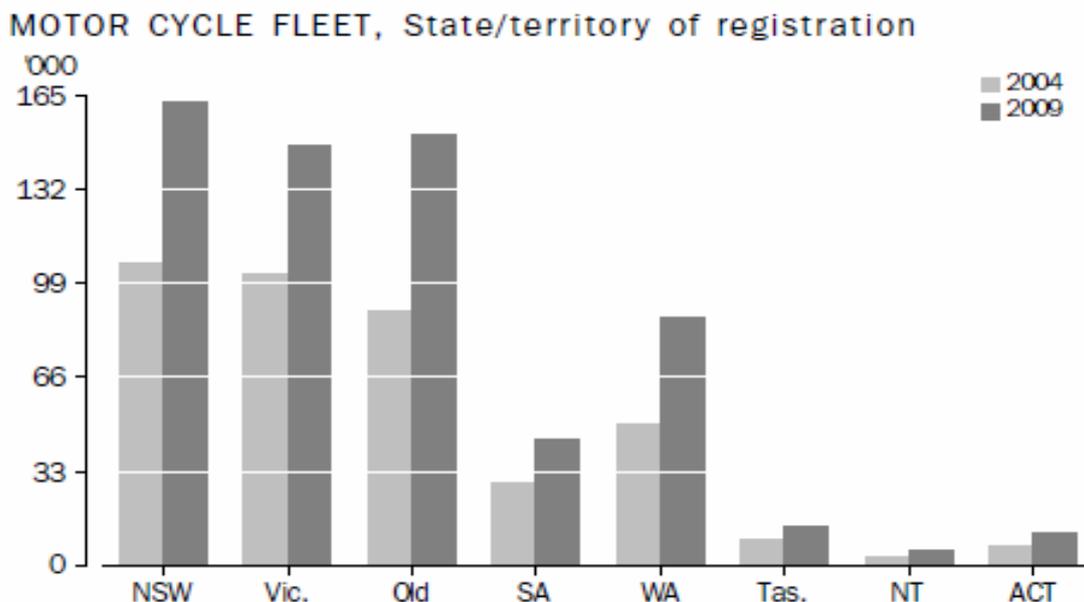


Figure 2: Motorcycle registrations by state 2004 – 2009 (ABS, 2009)

CARRS-Q research indicates that the increase in PTW use can be attributed to an increase in recreational riding as well as an increase in PTW use for commuting and general transport. Importantly, different riding purposes and motivations are associated with different PTW types. Relevant publications authored or co-authored by CARRS-Q researchers include:

Powered two-wheelers in a changing world: Challenges and opportunities (Haworth, 2010) <http://eprints.qut.edu.au/39279/>

Safety implications of increased moped and scooter use in an Australian city (Blackman & Haworth, 2010) <http://eprints.qut.edu.au/33036/>

Motor scooters and mopeds: Are increasing sales translating into increasing crashes? (Haworth & Nielson, 2008) <http://eprints.qut.edu.au/14033/>

Moped and motor scooter licensing and training: current approaches and future challenges (Haworth, Greig & Wishart, 2008). <http://eprints.qut.edu.au/17775/>

Crashes of older riders - Characteristics and implications for countermeasures (Mulvihill & Haworth, 2006) <http://eprints.qut.edu.au/12939/>

Crashes of older Australian riders (Haworth & Mulvihill, 2006b) <http://eprints.qut.edu.au/6292/>

(C) The attitudes of riders to safety and risk taking including drugs, alcohol, travelling at inappropriate speeds, use of protective clothing and fatigue

Alcohol, drugs and inappropriate speeds

Attitudes to risk taking among PTW riders have been explored in depth in CARRS-Q research. Relevant publications authored or co-authored by CARRS-Q researchers include:

Psychological and social factors influencing motorcycle rider intentions and behaviour (Watson, Tunnicliff, White, Schonfeld, & Wishart, 2007) <http://eprints.qut.edu.au/9103/>

The social context of motorcycle riding and the key determinants influencing rider behavior: A qualitative investigation (Tunnicliff, Watson, White, Lewis, & Wishart, 2011) <http://eprints.qut.edu.au/41725/>

Understanding the factors influencing safe and unsafe motorcycle rider intentions (Tunnicliff et al., 2011) <http://eprints.qut.edu.au/41214/>

A comparison of risk taking in moped and motorcycle crashes (Haworth, Greig, & Nielson, 2009) <http://eprints.qut.edu.au/20333/>

Protective clothing use

The use of protective clothing other than helmets by PTW riders is not mandatory in any Australian jurisdiction. Despite evidence that protective clothing can reduce injury severity and also prevent some minor injuries, usage rates are often low according to the limited research available. A wide range of factors appear to influence rates of protective clothing use, including (in no particular order) climate, riding purpose, PTW type, perceived risk and self-image. In addition to low usage rates of protective clothing among some rider groups, the absence of objective standards in Australia by which riders can discern between high and low quality items is also problematic. Relevant publications authored or co-authored by CARRS-Q researchers include:

Novice riders and the predictors of riding without motorcycle protective clothing (L. de Rome et al., 2011) <http://eprints.qut.edu.au/41027/>

Motorcycle protective clothing: Protection from injury or just the weather? (Liz de Rome et al., 2011) <http://www.sciencedirect.com/science/article/pii/S0001457511001163>

Motorcycle rider protective apparel wearing: Observational study results from the Brisbane and Canberra regions (Wishart, Watson, & Rowden, 2009) <http://eprints.qut.edu.au/29299/>

Motorcycle protective clothing: Are stars better than standards? (Haworth, de Rome, Varnsberry, & Rowden, 2007)

<http://eprints.qut.edu.au/archive/00012949/01/12949.pdf>

In the off-road riding environment, there appears to be a difference in the use of protective clothing (including helmets) between those riding for work and those riding for recreation, and between those riding on private property and those riding in public areas. Low rates of helmet use have been observed among those who ride off-road motorcycles and/or ATVs on private property. Protective clothing use varies among recreational off-road riders, but appears highest among those who take off-road riding seriously as a sport or recreational pursuit. Relevant publications include:

Profiling off-road motorcycle and all-terrain riders in Queensland, Australia (Steinhardt, Sheehan, & Siskind, 2011). <http://eprints.qut.edu.au/41915/>

Rural and Remote Road Safety Study: Final report (Sheehan et al., 2008) <http://eprints.qut.edu.au/26539/>

At work or play: A comparison of private property vehicle crashes with those occurring on public roads in north Queensland (Blackman, Cheffins, Veitch, & O'Connor, 2009).

(D) Riders' and drivers' attitudes to each other

The failure of other road users to see PTW riders is a major cause of multi-vehicle crashes involving PTWs. This is well documented in the research literature on PTW crashes and a range of countermeasures have been suggested and implemented which attempt to address the problem of PTW conspicuity (or lack thereof). The CARRS-Q driving simulator is currently being used to examine driver perception of PTWs in a simulated traffic environment. Rider perceptions of other road users as a threat to rider safety are also currently being explored in CARRS-Q research. Relevant publications authored or co-authored by CARRS-Q researchers include:

Safety implications of increased moped and scooter use in an Australian city (Blackman & Haworth, 2010) <http://eprints.qut.edu.au/33036/>

A qualitative exploration of the attitudes and experiences of moped and scooter riders (Blackman & Haworth, 2010) <http://eprints.qut.edu.au/17770/>

(E) Responsibilities for improving the safety of off-road riders

Responsibility for off-road rider safety has generally fallen upon riders (and organisers in the case of controlled events) rather than government agencies. Current

CARRS-Q research suggests that a large proportion of recreational off-road riders are aware of inherently high risk in the activity, and also that their safety is their own responsibility. Of relevance here is previous research showing that motives associated with sensation seeking are an intrinsic part of motorcycling for some riders (Haworth & Mulvihill, 2005). Relevant publications authored or co-authored by CARRS-Q researchers include:

Profiling off-road motorcycle and all-terrain riders in Queensland, Australia (Steinhardt, et al., 2011). <http://eprints.qut.edu.au/41915/>

Integrating policy approaches for vulnerable road users (Haworth, 2006) <http://eprints.qut.edu.au/13024/>

(F) The efficiency and effectiveness of the accredited provider scheme in the delivery and administration of motorcycle licensing

CARRS-Q has conducted extensive research into motorcycle licensing and training, in Victoria, Queensland and more generally. Relevant publications include:

Challenges in improving the safety of learner motorcyclists (Haworth & Rowden, 2010) <http://eprints.qut.edu.au/37849/>

Teaching old dogs new tricks? Training and older motorcyclists (Haworth, Mulvihill, & Rowden, 2006) <http://eprints.qut.edu.au/16882/>

A preliminary examination of the effects of changes in motorcycle licensing in Queensland (Haworth, Rowden & Schramm, 2010) <http://eprints.qut.edu.au/37985/>

Moped and motor scooter licensing and training: current approaches and future challenges (Haworth, Greig & Wishart, 2008). <http://eprints.qut.edu.au/17775/>

(G) Countermeasures used in Victoria, Australia and other comparable overseas jurisdictions to reduce the number and severity of motorcycle accidents with reference to road environment treatments, behavioural change programs and the design and technology of motorcycles and protective gear; and

A wide range of countermeasures addressing PTW rider safety are discussed in depth in the following report by CARRS-Q researchers:

Identifying programs to reduce road trauma to ACT motorcyclists (Greig, Haworth, & Wishart, 2007) <http://eprints.qut.edu.au/27211/>

(H) New initiatives to reduce motorcycle crashes and injuries

Licensing and training requirements for motorcycle, moped and scooter riders vary across Australian jurisdictions. As arguably the most prominent PTW safety countermeasure, rider licensing and training is a key concern in PTW safety research undertaken by CARRS-Q.

CARRS-Q in collaboration with industry partners have developed and trialled an intervention to address attitudinal issues within a motorcycle rider training program. With some positive results in early evaluation of the program, this is seen as a potentially important new countermeasure in the area of rider training and licensing, which has historically focused on developing and testing skills while largely overlooking behavioural issues. Relevant publications authored or co-authored by CARRS-Q researchers include:

Changing motorcycle rider safety attitudes and motives for risk taking: Process evaluation of a rider training intervention (Rowden, Watson, Wishart, & Schonfeld, 2009) <http://eprints.qut.edu.au/28756/>

Other relevant publications authored or co-authored by CARRS-Q researchers include:

A comparison of hazard perception and responding in car drivers and motorcyclists (Haworth & Mulvihill, 2006a) <http://eprints.qut.edu.au/7139/>

(I) The appropriateness of the TAC premium for motorcyclists in relation to covering all riders eligible to claim on the TAC scheme

There is no CARRS-Q research directly addressing this issue.

(J) The effectiveness of the Motorcycle Safety Levy in improving rider safety in Victoria

There is no CARRS-Q research directly addressing this issue.

(K) The ways government can work with non-government stakeholders to achieve motorcycle safety outcomes

CARRS-Q has worked with Morgan and Wacker Motorcycle Training to develop and evaluate an intervention to reduce risk taking by riders. It has also participated in the Rider Survivor initiative which involves discussions with riders at rest areas on popular motorcycle routes. It has also undertaken community consultation as part of the development of motorcycle safety strategies.

Relevant publications authored or co-authored by CARRS-Q researchers include:

Report on community feedback to the Motorbike Safety Consultation Paper. Final report to Queensland Transport (Watson, Wishart, & Rowden, 2008) <http://eprints.qut.edu.au/15344/>

Report on motorcycle safety consultation workshops. Final report to Queensland Transport (Watson & Wishart, 2008) <http://eprints.qut.edu.au/15342/>