

Part 3 – Late Supplement to Submission ‘Name Withheld’ no. 64

Firstly, I would like to take a brief note of MUARC’s submission to this inquiry. This repeats all the mistakes that I have pointed out earlier, with a narrow, indeed, hackneyed focus on speed to all other variables and continued advocacy of lower speed limits and ever stricter anti-speeding measures, even though Victoria’s rules are about the most draconian in the developed world with a three-month ban for going 25 km/h over the speed limit. No Western European country has a comparably strict penalty (and the monetary penalties are much lower in general), nor an equivalent of the ‘two strikes’ hoon laws that are vastly disproportionate in their penalties. Nor is there the extensive use of point-to-point cameras on rural roads as advocated. Yet all have better safety records. This focus on speed has to stop and it is time to call out the intellectual dishonesty that supports it, despite the lack of real-world effect.

Secondly, I would like to take note of a new motorcycle safety study that was released since I first made my submission.

A new study has recently been released entitled *The Dynamics Of Motorcycle Crashes A Global Survey of 1578 Motorcyclists* by Elaine Hardy, Dimitri Margaritis, James V Ouellet and Martin Winkelbauer.

This study is unusual in being an in-depth investigation of each accident, including of events from a rider’s or witnesses’ (in the case of fatal accidents) perspective.

Unlike standard crash investigations it more thoroughly captures the causes and chain of events. In fact, the authors, all veteran researchers who understand motorcycling, take the regular investigatory blueprint to task, stating quite clearly that it is backwards and misses extremely important safety factors.

This is very much in line with my previous comments, where I pointed out that the normal procedure is far more likely to see ‘speed’ as a cause. Indeed, how many run off the road accidents are caused by the rider attempting to avoid a hazard (such as an animal) and losing control without colliding with said hazard? And is then attributed to ‘speed’.

One of the conclusions of the study is startling and goes strongly against the Australian road safety research activists, such as those from MUARC, CARRS-Q, TARS and Adelaide University, all who have produced nothing but failed policy for the past ten years.

Above a low speed (about 40 km/h) there is *almost no relationship between crash speed and crash severity*.

Instead there are two far more important factors. The trajectory of the crashed rider, and what they run into.

As I pointed out previously, simple underrun protection on w-beam barriers will provide a far greater safety improvement than a 20 km/h speed limit reduction. This study proves the point clearly: how you crash and what you run into is far more important than how fast you crashed.

The councils and the government must stop with the band-aid solution of speed limit reductions and must remove as many roadside hazards from popular motorcycling roads as possible. A four-metre clear zone is the normally considered effective standard. This may sacrifice a few trees, but are they really more important than lives? Council-maintained roads are particularly poor on this front. Every hazardous tree, post and barrier must be removed. It will make a huge difference.

Thirdly, I must address the use of willingness-to-pay values in road safety policy. When used in monetary terms they cannot accurately reflect the actual cost to society, unlike a pure cost-benefit analysis. They are merely reflection of their subjects' income. They are almost always downside-focussed and never consider the value that slightly more risk may bring to users' lives. This was raised by the Ulysses Club in the submission to the Senate Standing Committee of Rural and Regional Affairs and Transport in their inquiry into aspects of road safety in Australia at the start of the year. The non-financial costs, including wellbeing are not well accounted for. Motorcycles are a unique form of transport in being, in modern Australia, mainly recreational. Motorcyclists have a much higher willingness to pay in terms of physical risk, as the personal benefits of recreational riding are so great. This cannot be accounted for in conventional 'willingness to pay' studies. There should be developed a proper measure to include the recreational value of a road. Popular motorcycle roads should indeed be considered recreational areas. There is little point in making a road 'safe' if no one wants to ride it.

I would like to expand on the effectiveness of barrier underrun protection for motorcyclists. It is well known that kinetic energy varies with the square of 'speed', an argument often used for the reduction of speed limits. However, it would be accurate to say velocity, a vector quantity. And underrun protection produces a far greater reduction in kinetic energy than reducing speed limits due to altering the vector of the impact. Taking a 200 kg mass for a typical sports motorcycle and an 80 kg rider ($E_k = 0.5 * 280 * v^2$) a square on impact with a tree or barrier post produces a kinetic energy at 100 km/h (27.78 ms^{-1}) of 108 kJ. If the speed is reduced to 80 km/h, this reduces (22.22 ms^{-1}) this reduces to 69 kJ.

This is a significant reduction but it pales into comparison to the effect of a flat surface presented at an angle to the crashed rider. The standard angle for testing underrun protection is 30° from parallel (no contact) and is highly representative on 'lowside' sliding crashes that sports motorcycles, which sustain high lean angles, are vulnerable to. A 100 km/h impact at 30° produces a velocity of around 50 km/h into the barrier (13.89 ms^{-1}), and a kinetic energy of 27 kJ. The remainder is dissipated through sliding friction along the road. Indeed, under the Vision Zero philosophy that a safe accident is acceptable underrun protection is more than twice as effective as speed limit reduction, something which is borne out statistically. Furthermore, something such as underrun protection makes other protective technology more effective. Motorcycle armour is gradually improving, and the new technology of airbag vests shows promise, but both have low effectiveness in high speed impacts, where impact is close to perpendicular, and where impacts are concentrated as they might be by a post. By presenting a broad flat surface at a shallow angle to an out of control rider measures such as underrun protection allows armour and airbags to be much more effective by staying within their capabilities. Anything but the most drastic speed limit reductions cannot do this. Future motorcycle safety improvements will be technology and infrastructure rather than 'speed' driven. It is vital that this is not spuriously attributed to speed reductions as has occurred with past safety programs. Motorcyclists tend to crash at certain corners, often for the same reasons. Local and state governments should find and protect such locations rather than going for a band-aid solution.

I would like to register a few further objections to wire rope barriers.

The first links to the recent report by the Victorian Auditor General's office. It shows that VicRoads has consistently overestimated the benefit of cable barriers, as well as

overestimated the benefit of its road safety programs already. And this this with a very friendly MUARC treatment of the data. They also underestimated the costs.

It should be noted that the claim from the Swedish road authorities that they prevent a large (40-odd percent from the media releases I have seen) of motorcycle fatalities has not been backed up by them presenting any solid data. Considering the relatively low percentage of head on fatalities to run-off-road this is an extremely doubtful claim.

It should be noted that the Netherlands has successfully dismantled all of their wire rope barriers on two-lane rural roads without unduly affecting road safety. Currently Australia, and especially Victoria, is moving towards mass installations on two-lane rural roads. These are often on curved sections and installed very close to the road, creating great danger for motorcyclists. Europe is moving away from this and towards isolated installations with large clearances. The four-metre clearance should be instituted whenever possible, even if it involves sacrificing vegetation.

Lastly, a new standard (MASH) has recently been instituted for cable barriers. These are taller, have more closely spaced posts and less clearance between the cables and the ground. There is less possibility of a motorcyclist going under or over the barrier and a greater chance of a deadly impact with a post or being extruded through the barrier between cables, also deadly. It has not been tested on motorcycles.

It is morally irresponsible to install this new standard of barrier to gain a marginal increase in safety for vehicles whose occupants are already much better protected while likely significantly increasing the already large danger that they pose. As cable barriers become more and more common, are installed closer to roads than trees and other hazards, and are designed in more dangerous manners the risk and resultant deaths and injuries will increase exponentially.

Lastly, I would like to again address the nature in which road safety policy is implemented. This has become increasingly technocratic and dictatorial, driven by activist 'experts' who often do not even value personal transport, let alone have the ability to understand the experience of motorcycling, and engineers who often do not understand motorcyclists' needs. Speed limit reduction and speed enforcement are focussed on to the exclusion of all else on country roads. This is abetted by the police, who have a clear conflict of interest in speed limit reductions.

The results speak for themselves, there has barely been an improvement in road safety in ten years of 'Vision Zero', unlike in the decades prior. It is time for a community lead change with each user group being in charge of their own safety.