

Dear Committee Secretary

I am Brendan Marsh, Principal of maZentre, Australian representative in the World Road Association for Road Safety, Chairman of the Australian Chapter of the Road Engineering Association of Asia and Australasia and manager of the Road Safety Professionals on LinkedIn (international membership approaching 3000 people).

I write in my capacity as an internationally regarded road safety expert and following is my submission to the inquiry into Aspects of Road Safety.

a. the social and economic cost of road-related injury and death;

The most critical cost issue associated with road safety is associated with serious injury and fatal crashes, because these often take productive members of our society away from being productive as follows:

- The death or serious injury of a person who is in the prime of their life or approaching the prime of their life results in all of that productive potential being gone.
- The sunk costs in the person's development need consideration (e.g. upbringing, schooling, health, etc)
- The productive capacity of others is affected:
 - Professional medical and care resources
 - Privately provided (often free of charge to the government) which is time that was not spent in more productive ways
 - The impact upon others – e.g. where the bread winner of a family is seriously injured or killed, significant costs are incurred by the other members of the family, often particularly to the detriment of children
- Our prevailing "blame the road user" culture further expands the costs as we tend to imprison road users deemed to be at fault in the case of a fatal or serious crash.
- The "blame the road user" culture is in urgent need of overturning, in accordance with the Government's own road safety policy – the Safe System Approach. This requires safety to be provided in spite of human fallibility as we all know that even the best trained and most well intentioned person will still make mistakes.

b. the importance of design standards on imported vehicles, as Australian vehicle manufacturing winds down;

Like the road engineering, vehicle design can much more reliably improve safety. The focus of established programs like vehicle star rating and the standards have been in crash performance of the vehicle. A 5 star vehicle only doubles the crash survivability compared to a 1 star. It is time to mandate what is currently 5 star as the minimum vehicle safety requirement, particularly given all vehicles will soon be from overseas and 5 star is achievable across all classes.

c. the impact of new technologies and advancements in understanding of vehicle design and road safety;

Emerging in-vehicle, vehicle to vehicle and vehicle to infrastructure technologies have much potential to eliminate serious injury and fatal crashes over the coming three decades. The real preventative technologies have in general terms a while to run and are likely to require many of the road infrastructure changes that best practice road safety calls for to provide for fail-safe systems and managing the aging vehicle fleet which does not have the technology. Therefore, we need an implementation plan which:

- most rapidly encourages the adoption of fatal and serious crash preventing in-vehicle, vehicle to vehicle and vehicle to infrastructure technology. A new safety star rating system could be achieved based upon minimum crash performance plus a vehicle's ability to prevent the fatal and serious injury crash types (head on, run off road, roll over, side impact, rear end and unprotected road user).
- Mandates the deployment of cooperative ITS transceivers whose purposes are to:
 - Extend the vehicle – vehicle communication range (e.g. around the corner of a dangerous intersection)
 - Equip the vehicle with real time road network operations information, particularly safety information (e.g. current maximum safe speed, lane closures, road closures, signal timings, road works, congestion, weather, etc)
 - Generate real time traffic information to enable road authorities to better manage the real time operation of the road
- Requires all road projects to bring potential crash energies to within the human tolerances for serious injury and death – contrary to rumour, it has been shown that this can reduce project costs and improve other outcomes
- Requires a full review of the road rules to bring them into line with Safe System – currently the road rules do not align with the road safety aspiration and aligning them will help the in-vehicle technology to much more rapidly advance and become reliable enough for deployment.

d. the different considerations affecting road safety in urban, regional and rural areas;

URBAN

As we continue with major road infrastructure projects (freeways and expressways), we take steps towards the ideal road network from a safety perspective: very safe high speed roads which are without unprotected road users (and if they are, the variable speed limit is immediately reduced) and low speed roads which have the potential to cause safe road user behaviour as per the self explaining roads concept (e.g. with safe intersection designs like roundabouts). The need for the rather dangerous medium speed roads, which still expose unprotected road users is reducing and this will move us towards more sustainable road safety gains.

REGIONAL

The regional Interurban Freeway length is also growing, enabling more lesser standard roads to be brought down to safer speeds without compromising economic productivity. The '1+1' and '2+1' road style provides a viable intermediate option for providing safety and improved regional road efficiency. A change on the road rules, to require oncoming vehicles to slow before passing will

allow high speeds to be maintained on lower trafficked regional roads and help generate a compelling business case for the safer and more efficient interurban freeway networks to be deployed.

RURAL

For rural roads, it is critical that we have a change in the road rules and road user expectation. Currently, road users expect to travel at the speed limit in general terms across the complete road length and they expect vehicles to keep left.

We should mark a single central traffic lane with audible edgeline and require oncoming vehicles to pass below 70km/h. This would also mean lowering speed for crests. This would have a negligible effect on productivity as traffic is low, will remove the need for widening, will provide recoverable surfaced pavement for passing and decrease shoulder wear and road maintenance costs.

It would enable rural roads to be designed with greater cross fall (e.g. 5%) which will fight the number 1 enemy of roads, water, and having the vehicle tyres generally more centrally located will place them on stronger pavement.

The edgelines also can enhance invehicle lane keeping technology performance.

Accordingly, there is a very low cost method for improving rural road safety consistent with the long term.

e. other associated matters.

The industries which have advanced from safety statistics similar to road safety to a level of safety performance consistent with the serious crash aspiration have:

- Moved from blaming the worker (aka road user) to holding those responsible for assets and operational systems (road authorities and vehicles) to account – this is yet to happen in road safety
- Moved away from trading off production with safety, making safety a minimum condition – safety continues to be traded off in the road industry
- Close down operations until safety can be assured after an incident – while there might be a road closure after a serious crash, the road is typically reopened and operated again as it was before the crash

Some countries have headed in directions like the above for road safety. For example, Sweden is holding road authorities to account in a way that is reasonable and this has contributed to their leadership in road safety.

As a funder of major road infrastructure projects, the Australian Government is well placed to require safety on all projects that it funds and is well placed to motivate revisions of road design standards, vehicle standards and road rules to bring them into line with the Safe System approach.

Note:

- The current standards and rules were built up from past road safety paradigms and with other priorities heavily weighted. This has led to American standards being favoured which generate the most expensive road infrastructure, the least safe and not so efficient/reliable. Accordingly, there is much opportunity to reduce infrastructure costs and improve outcomes generally.

- The Austroads forum should be restructured so that it has governance and work approval independence from the road authorities and can revise Australia's road design standards and guidelines from "fresh eyes" and objectives. Volumes of material has been entrenched for many years under the current arrangements and significant changes are very slow and laborious which is to the detriment of the objectives of the Australian Government
- The expectations for Infrastructure Australia or Department of Infrastructure (and associates) should be raised so that road funding payment is contingent on the project containing potential crash energies to within the human tolerances for serious injury and death. The most accepted tolerances are:
 - 30km/h: Unprotected road user
 - 50km/h: side impact (e.g. T-Bone crash)
 - 70km/h: head on, run off road and roll over
- The difference between the P10 and P90 project cost estimate amount should only be allocated to the State if after two years, there have not been any serious injury or fatal crashes on the project.

Thank you for the opportunity to contribute.

Thanks and regards

Brendan Marsh