**Submission No 48**

# SPEED LIMITS AND ROAD SAFETY IN REGIONAL NSW

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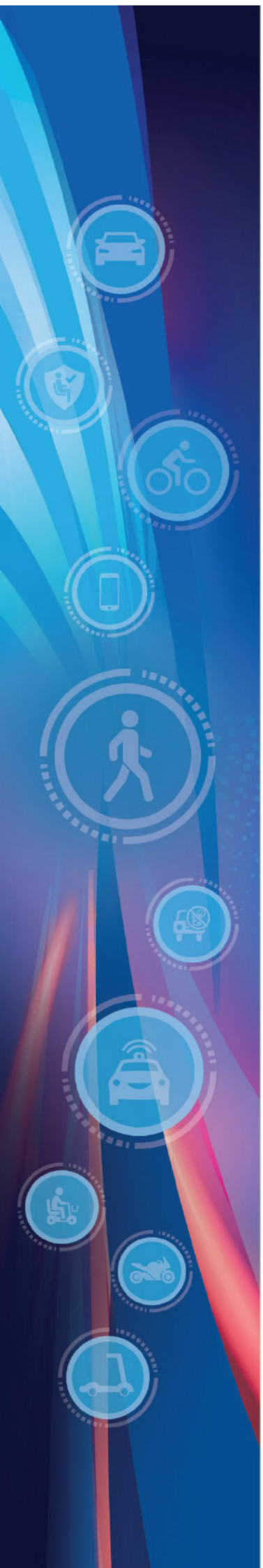

Centre for Accident Research & Road Safety - Queensland

# Submission on the inquiry into speed limits and road safety in regional New South Wales

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# 1. Introduction

This submission has been prepared in response to the Parliament of New South Wales Joint Standing Committee on Road Safety (Staysafe) *Inquiry into speed limits and road safety in regional New South Wales*. This submission relates to the following terms of reference:

a) The impact of speed limits and travel times on driver behaviour and safety
b) The impact of improved vehicle technology and road infrastructure
d) Any other related matters.

The Centre for Accident Research and Road Safety – Queensland (CARRS-Q) is a leading and internationally recognised research institution in the road safety field. CARRS-Q was established in 1996 as a joint initiative of Queensland University of Technology (QUT) and the Motor Accident Insurance Commission (MAIC). The Centre provides evidence-based research to inform future road safety policy to reduce fatalities and the burden of serious injuries.

Dr Sherrie-Anne Kaye was trained in cognitive and social psychology and has over 10 years' experience working in road safety research. Professor Teresa Senserrick was trained in developmental psychology and has focused solely on road safety policy and practice relevant research since 1999.

Road trauma represents a significant public health problem. In Australia, there were 1,123 road fatalities in 2021, 527 (46%) deaths which occurred on roads with a speed limit of 100km/hr or higher, and 271 (24%) of deaths occurring in New South Wales (NSW) alone.[1] The lasted injury statistics from 2018 showed that 39,598 people were hospitalised because a road crash, 25.5% of whom receive an injury classified as high threat to life.[1]

Speeding behaviour remains a major contributing factor to road fatalities and injuries in Australia, and it has been estimated that speeding behaviour contributes to approximately 41% of road fatalities and 24% of serious injuries in NSW each year.[2] However, a recent study has shown that speeding behaviour and speeding in serious crashes may be greatly underestimated.[3] Therefore, there is need for better evidence to determine the significance of speeding behaviour.

# 2. Key points

The key points highlighted in our submission are:

- Default speed limits of 100km/hr may not be appropriate for all regional roads. Roads without roadside and median treatments should have a maximum default of 70km/h.
- Low-level speeding behaviour remains largely socially acceptable in Australia and there is a common public misperception that speeding reduces travel time. Speed limit compliance alone would dramatically reduce road fatalities.

- Initial research has shown that Advanced Driver Assistance Systems (ADAS) may be effective at reducing speed-related crashes and the severity of these crashes. However, the average age of passenger vehicles in Australia is 10.1 years, indicating that many vehicles are not equipped with these advanced systems. Further, and for those drivers with vehicles with ADAS, there is a lack of understanding on how these systems operate
- Besides reduced speed limits, infrastructure designs and treatments should be considered that visually compel drivers to reduce travel speeds due to higher perceived risk.
- Compliance increases with enforcement, with point-to-point cameras the most successful on higher speed roads. Limiting use to heavy vehicles in NSW is unique and unjustifiable.

# 3. Discussion in response to Terms of Reference

## 3.1. The impact of speed limits and travel times on driver behaviour and safety

Speeding behaviour can be defined as a) exceeding the posted speed limit or b) driving faster than appropriate for the road conditions. Evidence has shown that speeding behaviour not only increases crashes, but also increases the severity of crashes.[4] Speed limits are critical to ensure the safety of all road users. In NSW, the default speed limit in built-up areas is 50km/hr and on regional and rural roads 100km/hr, unless otherwise stated. A default speed limit of 100km/hr may not be appropriate for all regional roads. For example, in Australia in 2021, 385 deaths occurred on roads with a posted speed limit of 100km/hr.[1] While it is not known how many of these crashes occurred on a road with a default speed limit or the cause of these crashes, the statistics still highlight the significance of road trauma in Australia. It is important that speed limits take into consideration all road users, the road conditions, and the road environment. To truly adopt a safe system approach, any sub-arterial or arterial road without roadside safety barriers (to prevent run-off-the-road-crashes, particularly in pedestrian or tree-lined areas) and median safety barriers (to prevent head-on collisions) should have a posted limit of no more than 70km/h.[5]

Low-level speeding behaviour remains largely acceptable in Australian society. Low-level speeding behaviour can be defined as exceeding the posted speed limit by up to 10km/hr. Research has reported that while most drivers are aware of the dangers associated with speeding behaviour,[6] some drivers in Australia continue to engage in this risky driving behaviour, practically low-level speeding behaviour.[7, 8] Further, there is a common public misperception that speeding behaviour reduces travel time. However, research has shown that exceeding the posted speed limit has little impact on travel time.[9, 10] Despite the evidence that speeding behaviour has minimal impact on travel time, convincing drivers that speeding does not save time remains a sizable challenge within Australia.[11] Improved awareness might increase speed compliance, with 100% compliance estimated to reduce fatalities by 20-50% in various modelling studies.[12]

### 3.2. The impact of improved vehicle technology and road infrastructure on speed limits and road safety

Advanced Driver Assistance Systems (ADAS) are systems which are designed to assist drivers in the safe operation of their vehicle. Some systems, including heads-up display (i.e., a system which projects the speed limit and current speed of the vehicle on the front windshield), intelligent speed adaptation (i.e., a system which actively adjusts the vehicle's speed to the posted speed limit by reducing power), and adaptative cruise control (i.e., a system which adjusts the speed of the vehicle to maintain a safe distance to the vehicle driving in front) are becoming increasingly common as standard features in new mass-market brand vehicles. Some of these advanced systems are designed to assist drivers with monitoring the speed of their vehicle and reducing speeding behaviour. However, and despite the potential benefits of improved vehicle technology on speed limits and road safety, the following points need to be taken into consideration:

1. While there has been an increase of new light vehicles with 5-star ratings between 2010 and 2020 (from 56% to 91%), the average age of the vehicles in Australia remains at over 10 years (10.1 years for passenger vehicles, 10.4 years for the vehicle fleet).[1] These statistics highlight that many vehicles on Australian roads are not equipped with ADAS. Therefore, the benefits of improved vehicle technology on speed limits and road safety in Australia may not be known for some time.

2. Previous research has shown that there remains a lack of consumer knowledge of the functions of ADAS.[13, 14] Further, recent research undertaken at CARRS-Q has shown that trial and error is one of the most common methods used by drivers to learn about ADAS after purchase.[13] Limited education on the latest safety features is provided at point-of-sale for purchases of new vehicles and it is unknown if any education is provided to buyers when purchasing private second-hand vehicles. As such, drivers may incorrectly use these systems or switch off these safety systems if they are unaware of the systems capabilities. Therefore, it is important that more is done to educate drivers about the functionality of ADAS.

3. Most studies which have examined the effectiveness of ADAS rely on laboratory testing (i.e., assessing driver behaviour via driving simulators). Initial studies which have used modelling to evaluate the effectiveness of ADAS, such as automatic emergency braking, have reported encouraging results. Specifically, that automatic emergency braking may have the potential to reduce the number of rear-end crashes.[15] However, other research has reported that automatic emergency braking was less effective at preventing crashes occurring at high speeds.[16] There is a continued need to undertake more research to evaluate the impacts of improved vehicle technology on speed limits and road user safety.

Beyond speed limit setting and infrastructure treatments (such as barriers) to reduce certain crash types, other design features can inherently improve compliance with speed limits, sometimes

referred to as self-explaining roads. For example, research in New Zealand has demonstrated that even on rural roads, features such as double yellow and wide centreline markings, more narrow lanes and one-lane bridges are associated with higher perceived risk and lower speed choices.[17] For a long time, such research and developments have focused attention either on urban or rural settings. More specific focus on best practices for regional areas is needed.

### 3.3. Other relevant matters

As noted, 100% compliance, even with existing speed limits and infrastructure, could reduce road trauma substantially. Enforcement is proven critical for improving speed compliance, with all modes of police enforcement and all types of speed camera programs (e.g., mobile or fixed, overt or covert) effective, but demonstrated as strongest (up to 100% compliance) on higher speed roads with use of point-to-point speed cameras (those that measure average speed between two points).[18, 19, 20, 21] Moreover, multiple studies demonstrate the substantial cost-benefits of optimised speed camera programs.[18, 22] NSW remains the only jurisdiction in Australia not to implement point-to-point speed camera enforcement for all vehicles. The evidence base to expand the program is compelling, such that restriction to heavy vehicles cannot be justified and could be argued as discriminatory. All road users deserve to be protected.

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