Submission No 69

SPEED LIMITS AND ROAD SAFETY IN REGIONAL NSW

Organisation: Transport for NSW

Date Received: 25 July 2022

Transport for NSW submission

Speed limits and road safety in Regional NSW

1. Executive Summary

The NSW rural road network is vast, spanning over 200,000 kilometres. This is made up of major highways, state roads and local streets with speed limits ranging from 10km/hr in high pedestrian shared zones, up to 110km/hr on high volume and critical corridors.

Safe speeds are a fundamental part of the NSW Government's approach to road safety. They are critical to the safe movement of people in regional NSW, including those travelling both within the state and from interstate, and to managing the growing freight task on high volume corridors. Safe speeds on local streets where people live and in regional towns and centres also deliver vibrant and productive places and communities. People living in country NSW make up only a third of the State's population, but deaths on country roads make up around two-thirds of the NSW road toll.

Robust international and Australian research evidence indicates that safe speed limits save lives and prevent serious injuries. Safer travel speeds can increase the amount of time available to a driver to react to a hazard or correct a mistake, reducing the likelihood of a crash. Safer speeds also reduce the risk of severe outcomes including serious injury and death.

Available research indicates that NSW drivers are generally supportive of and comply with speed limits. Importantly, there is also no evidence to support a link between lower speed limits and an increase in fatigue related crashes in drivers.

TfNSW is the agency responsible for setting speed limits on roads across the State as well as conducting reviews in accordance with the NSW Speed Zoning Guidelines. These reviews consider the physical characteristics of the road and roadside, as well as a broad range of other local factors, such as crash history and land use.

Under the NSW 2026 Road Safety Action Plan (the 2026 Plan), the NSW Government is conducting speed zone reviews of high-risk, default speed zones on low-quality, high-speed country roads, as well as delivering safer speeds in towns.

Roads that meet high design standards and have proven safety infrastructure features may safely support higher speeds. However, if speed limits are increased beyond what has been identified as safe for a particular length of road, and the impact of a crash goes beyond human physical tolerances, even safety infrastructure provides little (if any) benefits. Furthermore, while safer design of modern vehicles can help protect vehicle occupants from exposure to some forces, crashes at higher speed continue to lead to a high risk of fatality.

TfNSW continues to work on road safety strategies, policies, programs and community education campaigns, to reduce trauma on NSW roads, including regional roads. In the 2022-23 Budget, the NSW Government committed $880 million towards improving road safety in NSW including implementing road safety initiatives in the 2026 Plan.

2. Context

Role of TfNSW in speed management

TfNSW develops road safety strategies, policies and programs to reduce trauma on NSW roads. Under the *Road Transport Act 2013* (NSW), TfNSW also determines speed limits across the road network. TfNSW conducts speed limit reviews in accordance with the *NSW Speed Zoning Guidelines*, and in collaboration with relevant stakeholders including local councils and the NSW Police Force.

Speed limits form part of a broader speed management framework that reflects the Safe System approach to road safety. Other measures that deliver safer speeds include infrastructure, public education, effective enforcement, penalties and vehicle technologies.

The Safe System approach to road safety

The Safe System approach, comprising Safe Roads, Safe Vehicles, Safe People and Safe Speed, is a method of road safety management based on the principle that life and health should not be compromised by the need to travel.

Originally developed in Sweden and the Netherlands, the Safe System approach has been adopted across Australian jurisdictions to support road safety outcomes in the National Road Safety Strategy 2021-2030, as well as jurisdictional road safety action plans, including the 2026 Plan.

The Safe System approach is an internationally proven approach to road safety and acknowledges:

- The human body has physical limits to withstanding the impacts of a crash
- People sometimes make mistakes or break the rules – but this shouldn't cost anyone their lives
- Roads, roadsides, protective equipment and vehicles need to be designed to minimise crashes or reduce forces if a crash happens
- Road safety is a shared responsibility – everyone needs to make decisions with safety in mind, from the design of roads and vehicles, use of protective equipment, investments, laws and education, to each road user acting safely every day.

2026 Road Safety Action Plan

In April 2022, the NSW Government announced the 2026 Road Safety Action Plan. The Plan includes new targets to halve deaths and reduce serious injuries by 30 per cent on NSW roads by 2030. It outlines priority initiatives for delivery over the next five years to progress towards achieving the new targets.

In regional NSW, key initiatives include:

- Continuing to upgrade roads and essential infrastructure across NSW, through the Safer Roads Program and Saving Lives on Country Roads Initiative
- Conducting speed zone reviews of high-risk, default speed zones on low-quality, high-speed country roads, as well as delivering safer speeds in towns

- Supporting the Road Trauma Support Group, to deliver services to families impacted by road trauma
- Supporting local councils with resources, training, collaboration and networking opportunities to develop road safety knowledge and skills through a new online Towards Zero Collaboration Hub and safe systems training
- Establishment of a new digital Road Safety Education Centre to make education resources more readily available and current for delivery of road safety education by agencies, business, local government and community organisations
- Working in partnership with the freight and heavy vehicle industry, to deliver a new Heavy Vehicle Safety Strategy
- Revitalising the strategy for drug and alcohol testing of drivers.

The 2026 Plan also includes ongoing commitment to established and proven safety measures implemented across regional NSW. These include road safety advertising campaigns and information for all road user groups, mandatory road safety education from early childhood through schooling, the Enhanced Enforcement Program with the NSW Police Force, as well as vehicle and equipment safety testing and research.

Lifesaving measures in the 2026 Plan are delivered through the Community Road Safety Fund, which ensures every dollar generated from road safety camera detected offences is used towards the delivery of road safety initiatives, alongside funding by NSW Government.

Future Transport 2056

Future Transport 2056 (Future Transport) sets out an integrated vision for transport in this State. This includes a vision for zero trauma on the NSW transport network and the assurance that people enjoy safe travel and are not harmed when moving around our network.

Delivery of this vision involves a mix of targeted and proven initiatives that consider how people, vehicles, speeds and infrastructure work together to create a safe system now and into the future.

Future Transport recognises that designing trauma out of the network will mean ensuring the majority of road travel occurs on 4- to 5-star roads, incorporating key safety measures such as median and roadside safety barriers, wide centrelines, audio tactile line markings, safe speeds and traffic calming methods.

The 2026 Plan and programs, including the approach to speed management, are aligned with and support the objectives of Future Transport.

3. Road trauma in NSW

In 2021p[1], 272 people were killed on NSW roads, a four per cent decline compared to the year prior. In the 12 months ending September 2021, 8,976 people were hospitalised as a result of road crashes. While the outcome of a crash is more likely to be severe in higher speed road environments, a range of factors contribute to road crashes and this varies across road users and road environments. This can involve a combination of factors related to infrastructure, vehicle and equipment features, travel speeds as well as road user behaviour. People make mistakes and unsafe behaviour by some road users remains a complex challenge, including speeding, drink and drug driving, driving whilst fatigued and not using appropriate restraints.

Reducing trauma on regional and rural roads is one of TfNSW's most significant challenges. People living in rural and regional NSW make up only a third of the State's population, but deaths on rural and regional roads make up around two-thirds of the NSW road toll.

Between 1 January and 3 July 2022, there have been 157 fatalities on NSW roads which is one death more than the three-year average (2019-2021p).

For the purposes of NSW crash data outlined in this submission, TfNSW has defined regional NSW as per the 'country areas' definition used in NSW crash data publications (unless otherwise indicated). Country areas comprise those parts of NSW outside of the Sydney, Newcastle and Wollongong metropolitan areas.

Road trauma in Regional NSW

Road trauma in NSW country areas is dispersed across the entire road network (see *Figure 1* below). Between 2016 and 2020 there were 9,776 people killed or seriously injured on NSW country roads, with an estimated cost to the community of around $13.7 billion. Direct community costs include emergency services, hospital and health care and loss of productivity in the workplace. The risk of road trauma is pervasive, and a combination of effective road safety measures is required to systematically reduce this risk.

[1] References to data including 2021 are marked 'p', reflecting they are based on provisional data that is pending finalisation.

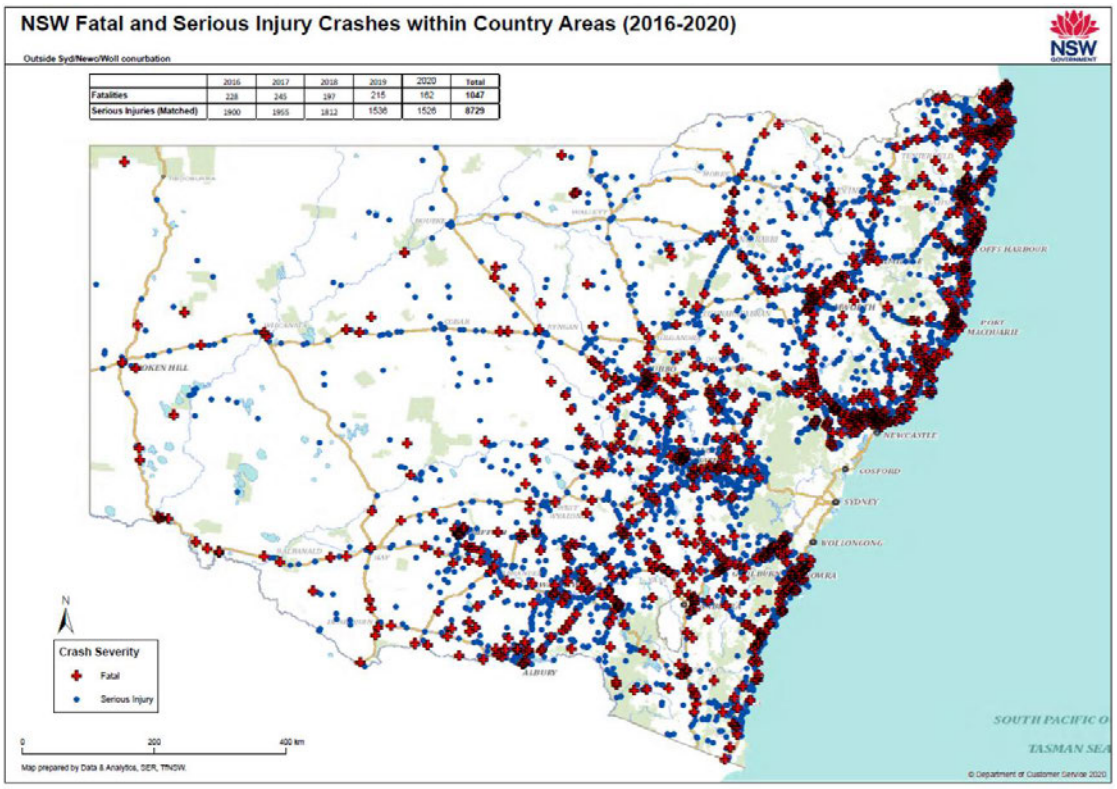


Figure 1: NSW fatal and serious injury crashes within country areas 2016-2020

Between 2019 and 2021p, around 200 deaths per year occurred on country roads in NSW. Half of those killed lived in the same Local Government Area as where the crash occurred, and more than half were the driver. Drivers are over-represented in country road fatalities compared with metropolitan areas. Conversely, pedestrians are very under-represented in country road fatalities compared with metropolitan areas. The proportion of NSW road fatalities by road user type for 2019 to 2021p is shown in *Figure 2*.

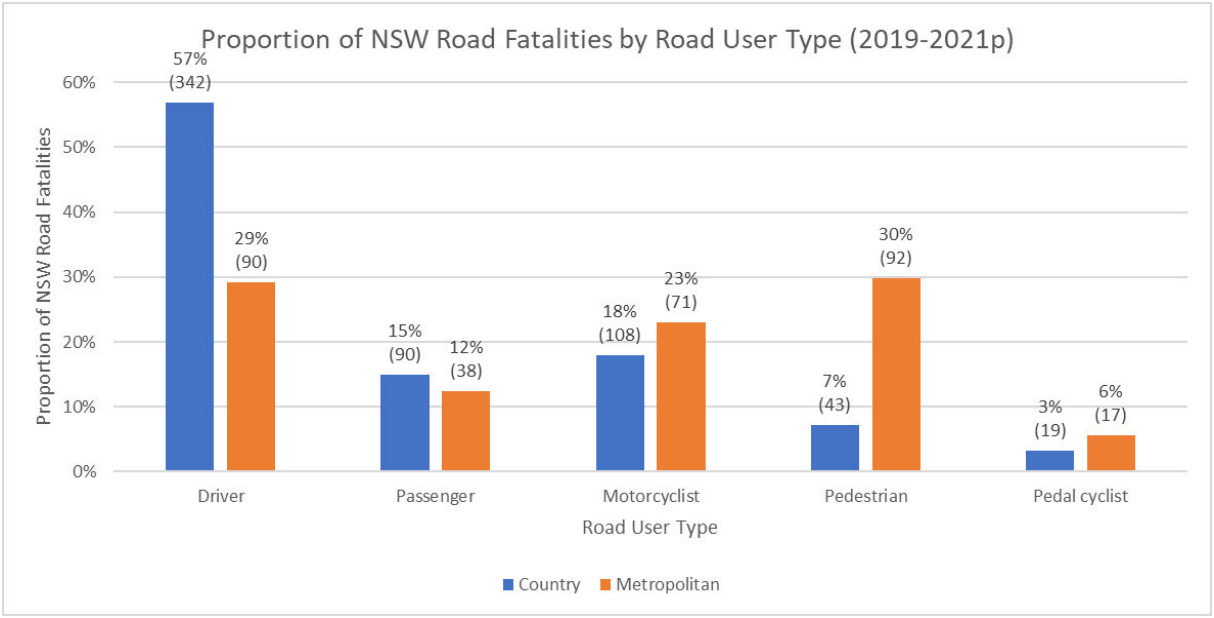


Figure 2: Proportion of NSW road fatalities by road user type, 2019-2021p

A significant proportion of the NSW country road network has a posted speed limit of 100 km/h or greater. Between 2019 and 2021p, an average of 123 road users were killed each year on country roads with a posted speed limit of 100 km/h or greater.

This represents 61 per cent of all country road fatalities during this period, which is a significantly greater proportion than metropolitan roads, where the figure is only 7 per cent. The proportion of NSW road fatalities by speed limit for 2019 to 2021p is shown in *Figure 3*.

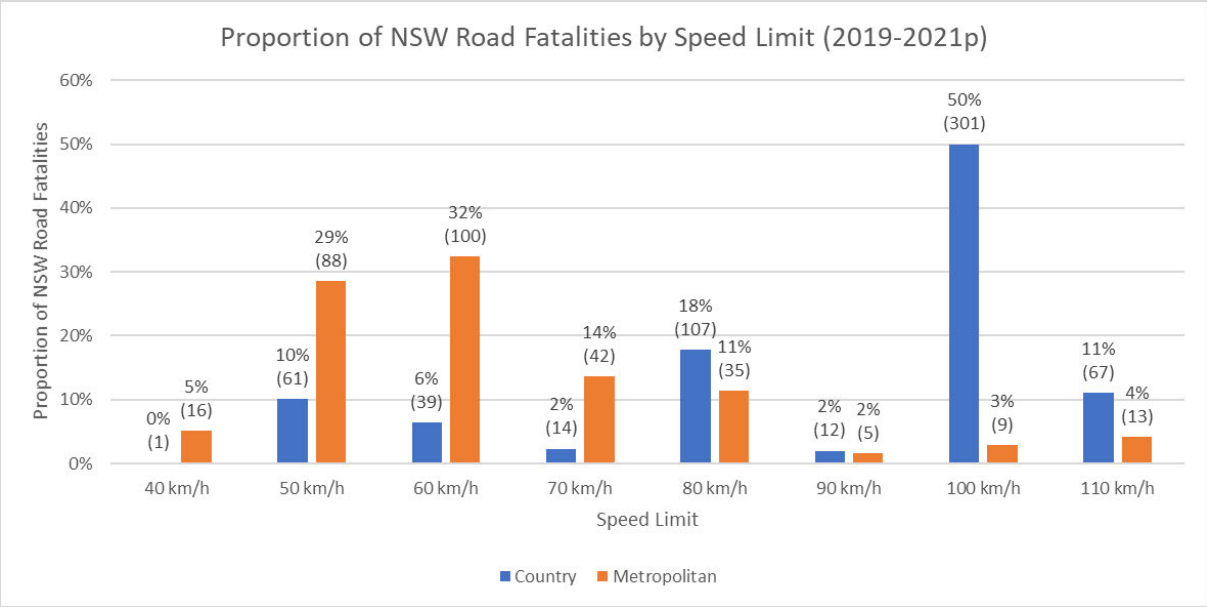


Figure 3: Proportion of NSW road fatalities by speed limit, 2019-2021p

Fatalities on country roads are most likely to be single vehicle crashes and often occur on higher speed roads. Between 2019 and 2021p, an average of 109 road users were killed in single vehicle crashes on country roads. Single vehicle crashes are most likely to be a result of a driver losing control, often due to driving at an inappropriate speed for the conditions.

This represented 54 per cent of all country road fatalities during this period, more than double the percentage for metropolitan roads. The proportion of NSW road fatalities by number of vehicles involved in a crash for 2019 to 2021p is shown in *Figure 4*.

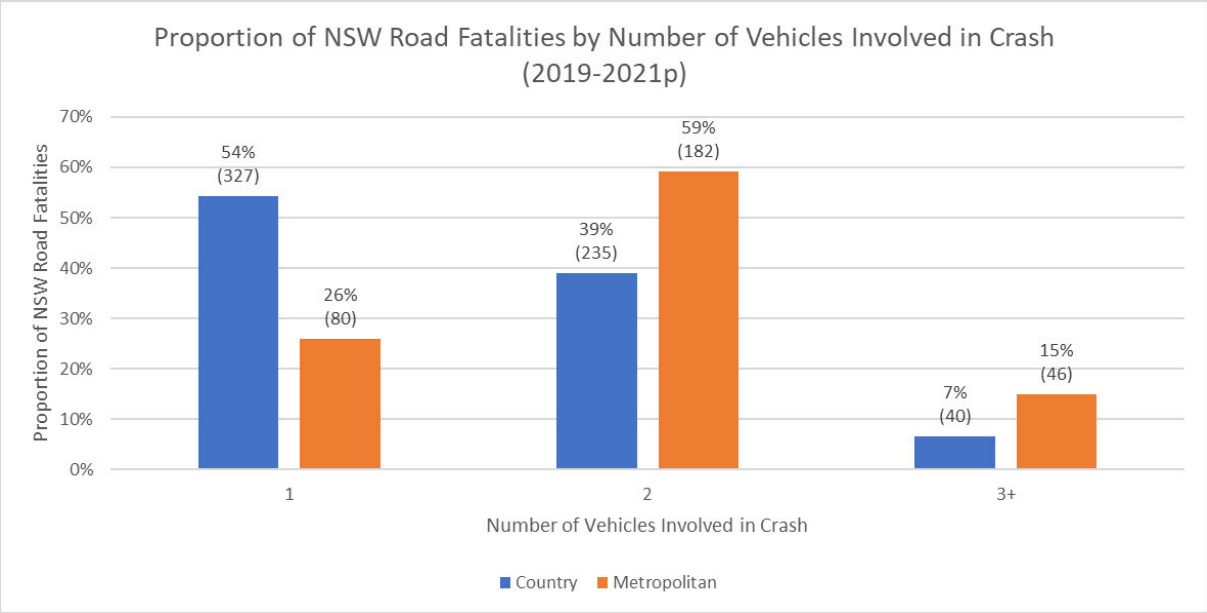


Figure 4: Proportion of NSW road fatalities by number of vehicles involved in a crash, 2019-2021p

Fatalities on country roads are more likely to occur on curves compared with metropolitan roads. This is typically a result of the vehicle approaching the curve at a speed that is inappropriate for the road alignment. Between 2019 and 2021p, an average of 98 road users were killed in crashes on curves in country areas. This represented 49 per cent of all country road fatalities during this period, compared with only 26 per cent for metropolitan roads.

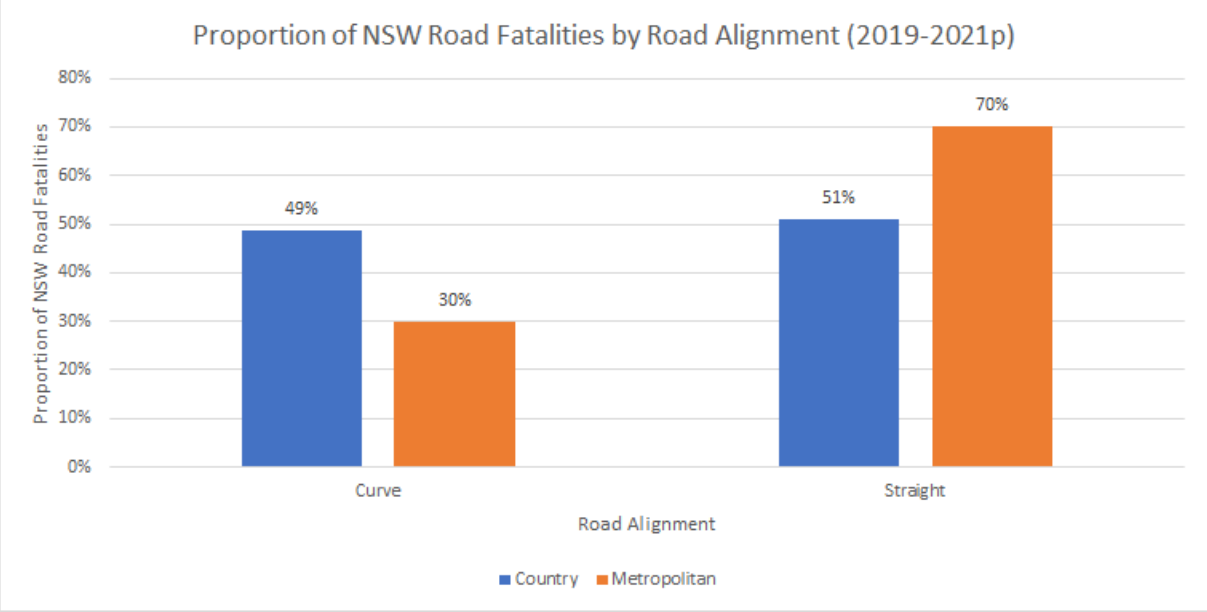


Figure 5: The proportion of NSW road fatalities by road alignment for 2019 to 2021p.

Around three-quarters of all fatalities on country roads are a result of run-off-road or head-on crashes. Between 2019 and 2021p, an average of 107 road users were killed in run-off-road crashes and 41 road users were killed in head-on crashes each year.

These crash types represented 74 per cent of all country road fatalities during this period, compared with only 40 per cent for metropolitan roads.

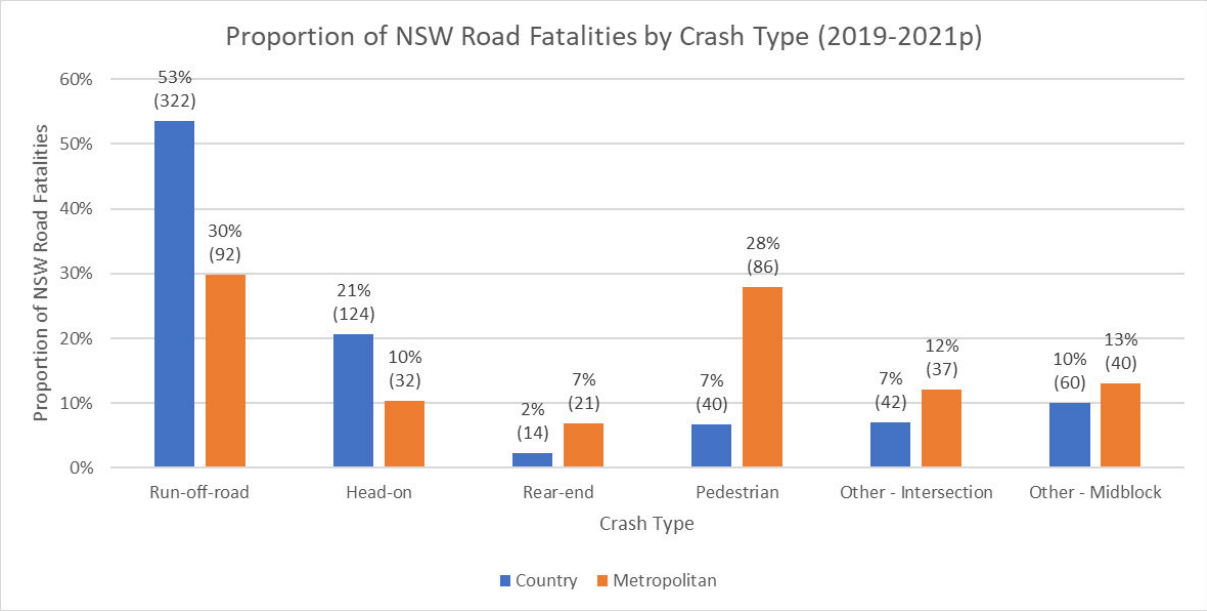


Figure 6: *The proportion of NSW road fatalities by crash type for 2019 to 2021p*.

The main behavioural factors that contribute to road fatalities in NSW are more likely to be present in crashes on country roads than metropolitan roads. These are increased speed, fatigue and seatbelt compliance.

Between 2019 and 2021p, speed – both higher speed and speeding – was a factor in 43 per cent of fatalities on country roads in NSW and 38 per cent of fatalities on metropolitan roads during the same period. Between 2019 and 2021p, fatigue was a factor in 22 per cent of fatalities on country roads in NSW compared to only 6 per cent of fatalities on metropolitan roads during the same period. Seatbelt compliance is a concerning issue in country NSW. Between 2019 and 2021p, an average of 25 vehicle occupants per year (17 per cent) were not wearing a seatbelt when they were killed on a country road.

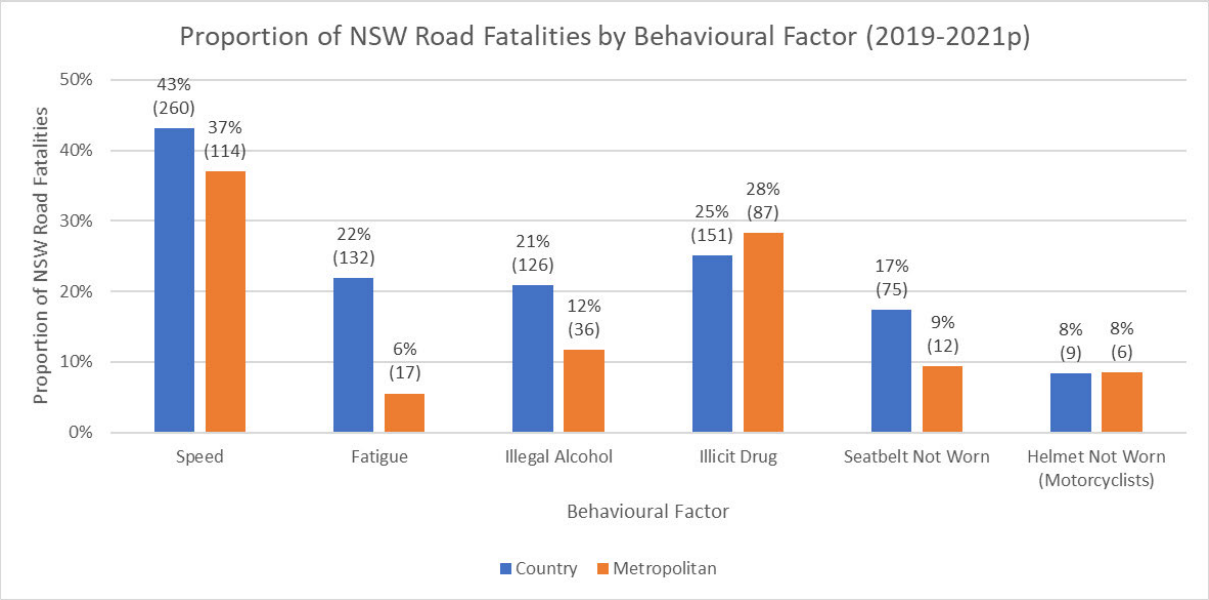


Figure 7: Proportion of NSW road fatalities by behavioural factor, 2019-2021p

4. Managing speed within a safe system

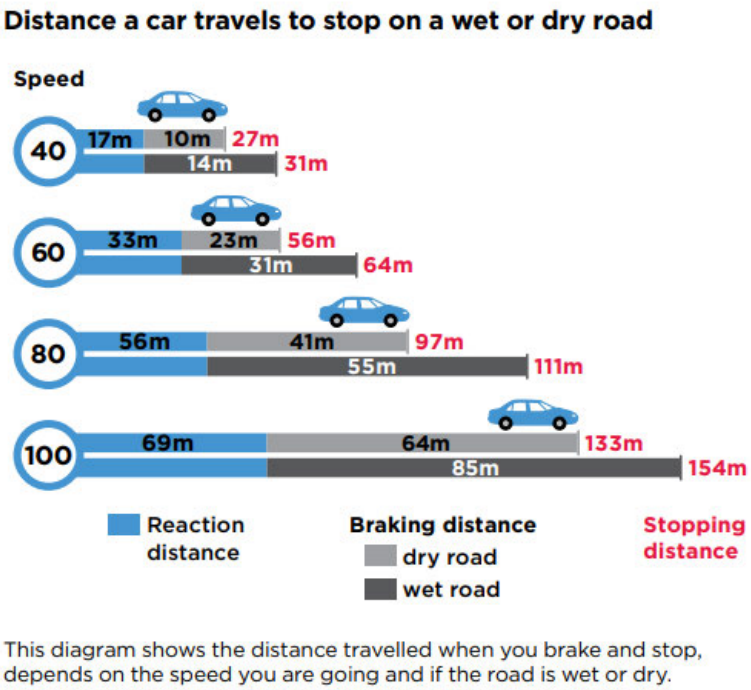
Speed is a critical factor within a Safe System and links closely to the other principles. Research over the last few decades has clearly and consistently demonstrated that road crash frequency and severity are closely related to speed – the faster a driver travels, the more likely they are to crash, and the greater the risk of serious injury or death.

Regardless of the cause of a crash, vehicle speed directly affects the force of the impact and the resulting trauma outcome. As speed increases, there is an increase in the risk of a crash due to factors such as:

- Failure to anticipate and react to oncoming hazards
- Increases in the distance travelled when reacting to hazards
- Increased distance required for reaction time and braking
- Reduction in vehicle control and stability
- Increased speed variability causing other road users to misjudge the speed of the vehicle.

The higher the speed, the longer it takes to stop. A typical stopping distance when travelling in a car at 40 km/h on a reasonable, dry road surface is 27 metres, while at the faster speed of 80 km/h, the stopping distance increases to 97 metres, see *Figure 8* below.

Figure 8: Typical car stopping distances when driving on a wet or dry road



This diagram shows the distance travelled when you brake and stop, depends on the speed you are going and if the road is wet or dry.

Safe speed

To both prevent and reduce the severity of crashes, managing the energy in a crash is key, which places safe speed at the heart of a Safe System. Safer travel speeds can increase the

amount of time available to a driver to react to a hazard or correct a mistake, reducing the likelihood of a crash.

Safer speeds also mean that less energy is absorbed by the human body if a crash occurs, which reduces the risk of severe outcomes. In the event of a crash, your impact speed will dictate whether you survive or are seriously injured. This varies for different road users and driving environments.

Speed limit setting aims to manage the risk of crashes and the force which road users are exposed to. Road users such as pedestrians and cyclists are particularly at risk in a crash, given they are less physically protected (compared to motor vehicle occupants) to absorb the impact force. Motorcyclists also have limited protection.

For example, at locations where there is a significant level of pedestrian or cyclist activity, lower speed limits are appropriate. This is consistent with the NSW Government's Movement and Place Framework. Similarly, where the potential for conflict is high, such as winding roads with no side or median barriers, speed limits are set at a level which minimises the risk of fatal or serious injuries in the event of a crash.

Key measures available for effective speed management framework include:

- Setting appropriate speed zones for safety, mobility and place
- Road design to support desired speeds/compliance
- Enforcing speed limits
- Changing behaviour through community engagement and education
- Vehicle technologies to support compliance and limit speeding.

Speed and injury severity

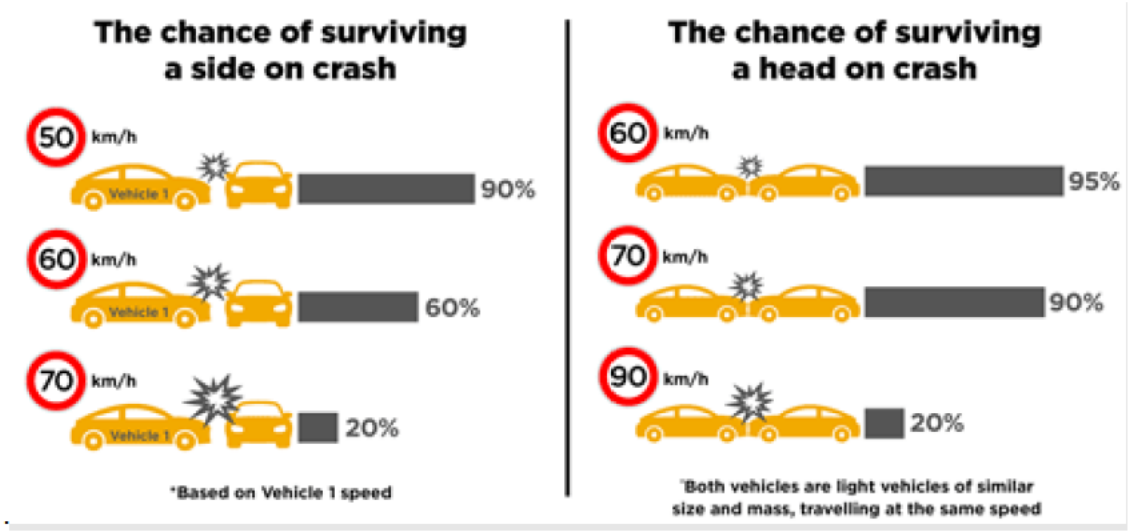
Speed and mass determine the likely severity of an impact when a crash occurs. The human body can only withstand limited forces before injury or death ensues. While safe design of modern vehicles can help protect vehicle occupants from exposure to some forces, crashes at higher speed remain less survivable, even in the safest vehicle.

International studies have shown relatively small changes in travel speeds can result in substantial changes in death or injury in crashes.

Crashes on high-speed regional roads

Much of the rural road network is undivided high-speed roads. In these environments, head-on crashes in which a driver crosses over the centre line are likely to be catastrophic as drivers often have little or no time to react given the high-speed nature of the environment. Research shows the risk of a motor vehicle occupant being killed in a head-on crash dramatically increases as impact speeds increase above 70 km/h see *Figure 9* below.

Figure 9: Chance of crash survival



Source: https://roadsafety.transport.nsw.gov.au/speeding/index.html.

In regional areas, there are also many crashes involving a vehicle departing its lane to the left. In these circumstances, if the vehicle strikes a fixed object on the side of the road (e.g. a tree or utility pole) or rolls over, the crash is likely to result in serious injury or death of vehicle occupants.

Controlling any vehicle manoeuvre such as braking, accelerating and cornering relies on frictional force between tyres and the road surface. The amount of friction required for a vehicle to safely navigate a curve increases as the vehicle speed increases. Effective speed management can reduce loss of control circumstances and misjudgement of curves in the roadway, which are common contributing factors in these crashes.

Vulnerable road users

Road users such as pedestrians, motorcyclists and cyclists are particularly vulnerable in a crash with a motor vehicle because they are unprotected, having no vehicle to absorb any of the impact force. The probability a pedestrian will be killed if hit by a motor vehicle increases dramatically with speed.

Research indicates pedestrians have a higher risk of dying at higher crash impact speeds, with the fatality risk at 50 km/h being more than twice as high as the risk at 40 km/h and more than five times higher than the risk at 30 km/h2, as outlined in Figure 10 below.

1 Kröyer. H. R. G., Jonsson, T., Varhelyi, A. (2014). Relative fatality risk curve to describe the effect of change in the impact speed on fatality risk of pedestrians struck by a motor vehicle. Accident Analysis and Prevention, 62, 143-152.

Figure 10: Chance of crash survival

Source: https://roadsafety.transport.nsw.gov.au/speeding/index.html.

Effect of speed limit changes

International research has established a clear relationship between changes in average traffic speed and crash outcomes. Nilsson[3] conducted a systematic analysis of a number of published studies investigating speed changes and crash outcomes to determine the overall effect and developed the Nilsson power model. Based on the investigations of 50 separate speed limit changes on urban and rural roads in Sweden, Nilssonderived a series of mathematical functions that explain the relationship between changes in speed and traffic safety. The Nilsson model is accepted as fundamental road safety research in the area of speed limits, both in Australia and internationally.

Nilsson's findings clearly demonstrate the relationship between crash severities in cases of positive or negative changes – increased speeds, resulting in reduced road safety, and decreased speed, resulting in enhanced road safety – and that the impact in both cases is greatest on the most serious crashes (see *Figure 11* below).

[3] Nilsson (1981) The effects of speed limits on traffic accidents in Sweden

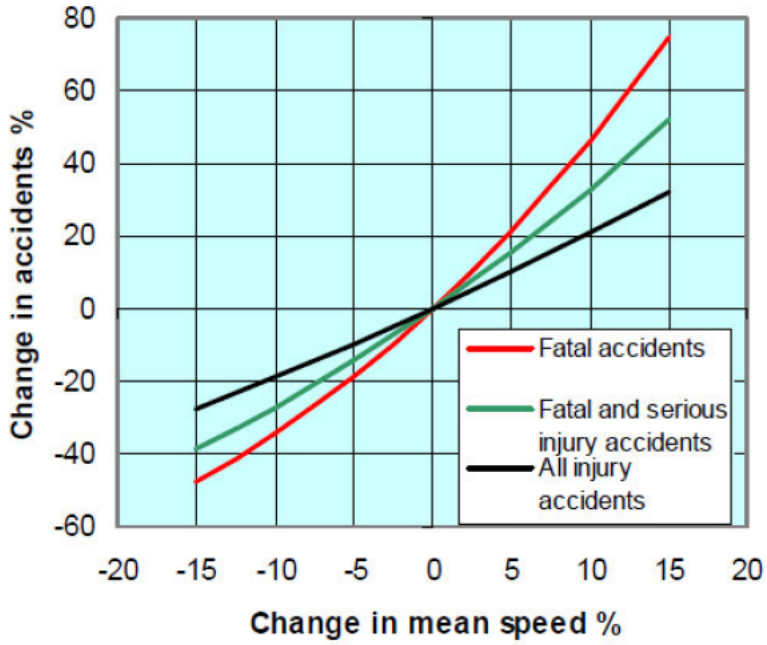


Figure 11: The Power model - Relationship between mean speeds and crashes
Source: Nilsson (2004) The effects of speed limits on traffic accidents in Sweden

The relationship described by Nilsson is also reflected in a diverse range of Australian and international studies into speed limit changes, both increases and decreases. Research consistently shows that speed limit reductions which produce a reduction in the average speed at a location have a positive effect on road safety.

5. Setting speed limits in NSW

Speed limits

In setting speed limits based on Safe System principles, it is vital to take into account a range of factors, such as the threshold of physical resistance of the human body to the energy released during crashes, the road's function and its type of users. As far as possible, it is also important to make sure that the layout of the road and its surroundings match that function.

This approach ensures that speed limits are safe and appropriate, allowing time for drivers travelling at the limit to detect a hazard and react quickly enough to brake or take evasive action. Lower speed limits are generally imposed where there are a greater number of potential conflict points and greater mix of road users such as pedestrian crossings and intersections. Higher speed limits are typically zoned on lengths of road where there are few or no conflict points and the road environment has been engineered to reduce the likelihood and severity of a crash.

Speed zoning

In NSW, speed zoning consists of a system of default speed limits and signposted changes. The default speed limit is the limit that applies automatically unless an approved speed limit sign is installed, and varies in built up areas compared to areas with less concentrated development (and that typically applies on rural roads). Built up area means a length of road where, for a length of 500m (or the entire road if the road is shorter than 500m) there are either buildings or street lights not more than 100m apart. The default speed limit in these built up areas is 50 km/h. Any road that does not have this level of development has a default speed limit of 100km/h.

TfNSW is responsible for the setting and signposting of safe and appropriate speed limits in NSW in accordance with the *NSW Speed Zoning Guidelines* and the NSW Road Rules. In NSW and other jurisdictions in Australia, the maximum speed limit applied to public roads is 110 km/h, typically on higher standard motorways and rural arterial highways. The exception to this is in the Northern Territory, which applies 130 km/h on sections of rural highway.

NSW Speed Zoning Guidelines

The *NSW Speed Zoning Guidelines* have been developed to provide a state-wide point of reference to ensure consistent application of speed limits throughout NSW and make the roads and the roadside environment safer for all road users.

The purpose of the *NSW Speed Zoning Guidelines* is to guide the review and installation of speed limits to:

- ensure that speed limits and speed zones are set to balance road safety with mobility needs
- ensure an appropriate balance of speed zones which are sensitive to changes in conditions along the length of a road without an excessive number of changes
- ensure that community views are considered in speed zone management
- identify and investigate aspects of speed zone policy to ensure that they are practical and balance mobility, road safety and community concerns.

The current *NSW Speed Zoning Guidelines* follow the fundamental principle that the appropriate speed limit for a specific length of road should reflect the safety risk to the road users. The fundamental principle is that the established speed limit should reflect the road safety risk to the road users while maintaining mobility and amenity.

The *NSW Speed Zoning Guidelines* were originally prepared in April 1995, with revised versions released in 2004 and 2011. TfNSW is in the process of reviewing the current Guidelines to ensure they reflect the latest research.

NSW Speed Management Program

TfNSW regularly reviews speed limits on the NSW road network in accordance with the *NSW Speed Zoning Guidelines*.

The review process includes technical assessment of a range of factors including road environment and traffic characteristics, crash profile as well as community concerns. This technical assessment of the road environment is critical because the safety risks that lead to the establishment of a speed zone may not always be obvious to a driver.

The community has an important role in identifying concerns about speed zones and signage for investigation by TfNSW. In NSW, community concerns about speed limits or speed limit signs can be made via the Safer Roads NSW website. Concerns can also be raised directly with TfNSW staff and through local councils.

During 2020–2021, 1,138 speed zones were reviewed across the NSW road network, of which 40 per cent were requested by the community. The setting of safe speed limits is a critical part of ensuring the safety of all road users. Speed zones are regularly reviewed to ensure speeds are appropriate to the road design and use. Of the 1,138 reviews with 1,251 kilometres reviewed:

- over 368 kilometres resulted in no change to the speed limit
- over 819 kilometres resulted in a speed limit decrease
- 13 kilometres resulted in a speed limit increase
- 43 kilometres resulted in an existing speed limit being reduced or increased over a default speed limit
- 8 kilometres in other categories e.g. zone type change or new road.

Case studies outlining the considerations and outcomes in speed zone review conducted in regional locations are included at *Appendix A*.

6. Travel times, speed limits and driver behaviour

The most immediate effect of a change in speed limit is a change to the average speed of vehicles travelling at a location, as drivers shift their behaviour to comply.

TfNSW continues to deliver public education, engagement, as well as enforcement activities in partnership with NSW Police and through automated enforcement programs as part of the broader approach to address non-compliance with safe speeds. There is also a role for improved education and engagement around the rationale and benefits of speed limit changes and safer operating speeds to support compliance. The research indicates that these benefits are not outweighed by commensurate costs. Travel time changes from speed limit decreases are not often as significant as anticipated, and lower travelling speeds are not known to increase fatigue related crashes.

Travel time and speed limits

Research shows that changes in travel time associated with speed limit variations are often minimal and less (in terms of either increasing or decreasing journey times) than the community might anticipate.

Research has estimated the increase in travel time on a rural road if a speed limit of 110 km/h was replaced with a speed limit of 100 km/h (accounting for factors such as vehicle speed distributions, vehicles travelling in the opposite direction and the ability for vehicles to perform an overtaking manoeuvre). The research estimated a 4 per cent to 10 per cent increase in travel time, would equate to an increase of between 2.2 minutes and 5.5 minutes, over a 100 km journey.

Evidence to date suggests that where speed limits are lowered, net road injury reduces and there is no increase in the effect of fatigue crashes (Austroads, 2021[4]).

If a speed limit is lowered, the increase in travel time will generally be less than the decrease in speed limit as:

- the actual reduction in average travel speed is less than the reduction in speed limit
- vehicles are unlikely to travel at free speeds for 100 per cent of a journey
- other sources of influence on a vehicle's speed can include townships, intersections, curves, grade changes and interactions with other traffic.[5]

Driver fatigue and speed limits

Driver fatigue is one of the top contributors to the road toll, particularly on regional roads. Research has shown that fatigue can be as dangerous as other road safety issues, such as drink driving. Drivers in regional and rural parts of NSW often find themselves driving longer distances for work, health or recreation purposes which puts them at risk of becoming fatigued while driving.

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[4] Austroads (2021), *Guide to Road Safety Part 3: Safe Speed*, AGRS03-21, Austroads Ltd, Sydney, NSW
Austroads (2021), *Guide to Road Safety Part 3: Safe Speed*, AGRS03-21, Austroads Ltd, Sydney, NSW

There is no evidence that increasing speed limits would reduce fatigue related crashes. Travelling at higher speeds requires more concentration and alertness from the driver, given the reduced time and shorter distance over which a driver has to react to hazards or correct a mistake, which builds up the driver's cognitive load over longer journeys and, thus possibly increasing increases driver fatigue.. As the research in the previous section indicates, journey travel times only increase a very small amount with a downward change in the speed limit.

Research evidence shows there are a number of other risk factors that increase the chances for driver fatigue including:

- Sleep loss/sleep deprivation
- Long hours of wakefulness
- Driving during normal sleeping hours (disrupting circadian rhythms)
- Sleep disorders
- Time spent driving without rest
- Alcohol consumption.

Fatigue can occur on any length journey. What the driver brings to the road, including physical exhaustion before commencement of driving, is as great a risk factor as time spent driving without rest. Regarding journey length, it is not so much the length that increases fatigue risk but lack of breaks on that journey. To avoid fatigue-related crashes, drivers need to ensure they are well rested before driving and take regular rest breaks to avoid becoming fatigued while driving.

The NSW Government encourages drivers to appropriately manage their fatigue. TfNSW provides information and resources on how to manage fatigue and stay safe. These include:

- The 'Don't trust your tired self' public education campaign, which positions fatigue as one of the major road safety dangers – along with drink driving and speeding
- The 'Test your tired self' interactive test, which allows motorists to see how tired they might be before driving. It provides useful tips on what drivers need to do before getting behind the wheel to avoid driving tired, as well as during their drive
- Supporting Driver Reviver, which operates during peak holiday periods and encourages motorists to take a break
- Rest areas across the road network, which allow motorists to park safely, walk around and refresh themselves or have a short nap before continuing their journey. They are available 24 hours a day year-round and are clearly signposted. Rest area locations are published to assist motorists in planning breaks on their trip
- Working directly with organisations to educate staff on driver fatigue and ways to manage it
- The Saving Lives on Country Roads 'Yeah…Nah' campaign, which encourages country drivers to re-think the common excuses used to justify their behaviour on the road, including driving while tired.

Driver behaviour and attitudes to speed limits and speeding

Public attitudes to speed limits can vary, including in regional and rural areas. Local community perspectives are important and are considered through nominations for speed limit reviews. TfNSW has conducted research to inform development of the speed management framework, and to target initiatives to address the NSW road toll and speeding related crashes.

Speed limits and support for related initiatives

2Additional research conducted on behalf of TfNSW in 2021, showed support for lower speed limits in higher risk locations. A representative sample of 1,200 NSW motorists found over 80 per cent of respondents felt ‘lower speeds on narrow or high-risk roads’ are important in making our roads safer.

Respondents also showed an eagerness for technology that assists them to comply with the set speed limits, with over 70 per cent of motorists believing that ‘intelligent speed assist’ is important in making roads safer. In planning for the future, 44 per cent of respondents believe ‘vehicle technology that ensures the vehicle stays within the speed limit’ will improve safety over the next 40 years. These findings were similar to the 2016 research, where 70 per cent respondents approved of a speed advisor mobile app (44 per cent strongly) and almost 90 per cent approved of ‘technology in a car that makes a sound or flashes when a driver goes over the speed limit’ (57 per cent strongly).

Annual speed surveys

To further understand how driver attitudes and reported behaviours translate to compliance with speed limits on NSW roads, vehicle speeds are assessed state-wide through annual speed surveys undertaken by TfNSW.

Speed surveys involve installing temporary devices on the road that measure vehicle travel speed at the same locations every year. These speed surveys are conducted across NSW on a range of roads with a range of speed limits to gather current information about the speeds of light vehicles and heavy vehicles. They are not enforcement devices.

The surveys measure free travel speeds, which involves measurement of only the speeds of vehicles that are unimpeded by other traffic. The survey provides a measure of the speed that drivers choose to travel rather than a measure of traffic congestion. Overall, results from annual speed surveys show a general level of compliance with speed limits.

Public educations campaigns to enhance safe speeds

TfNSW engages with the community across a range of platforms to educate road users about safe driving behaviour. Effective community engagement raises awareness and understanding of the risks of speeding, fosters positive community and stakeholder involvement in speed management activities such as enforcement and infrastructure treatments, and contributes to better acceptance of, and compliance with speed limits.

TfNSW continues to develop public education campaigns that are based on research insights and trauma data, and which are consistent with the *NSW Government Advertising Guidelines*. Continuing to educate and inform the community is an important commitment in the 2026 Plan. Key current speed-related campaigns in regional NSW are outlined below:

Saving lives on country roads

The Saving Lives on Country Roads campaign encourages country drivers to re-think the common excuses used to justify their behaviour on the road, including travelling over the speed limit. It shows that although locals believe they are safer on the road than ‘city people’ or ‘tourists’, the majority of deaths on country roads involve country residents and encourages drivers, friends, family and local communities to influence safe driving behaviour.

The campaign has strong recognition with 70 per cent of people in regional NSW able to recall the campaign. Research also indicates that the campaign has been successful in driving desirable attitudes amongst all regional NSW drivers, specifically around the road toll in regional NSW being unacceptably high as well as the positive commitment to following rules and driving safely.

Casual speeding

Most drivers believe they can easily handle driving slightly over the speed limit and that this behaviour is not dangerous. The truth is that most speeding deaths occur at no more than 10km/h over the speed limit. Evidence shows that small changes in speed can have a big impact on the outcome of a crash.

TfNSW released a new speeding campaign "Casual Speeding. Every K Counts,' on 31 October 2021 which focuses on reframing speed and changing attitudes towards every day, casual speeding by:

- educating motorists on the significant impact that travelling just a few km's over the speed limit plays in fatalities and serious injuries on NSW roads
- resetting drivers' attitudes to how they view their normalised 'everyday speeding' behaviour in order to prompt behaviour change
- encouraging drivers to slow down.

The campaign is being delivered to NSW drivers, including regional drivers through TV and cinema advertising, radio advertising, outdoor advertising and digital advertising.

Despite being in market for a short period of time, interim results (October 2021 – March 2022) show that the campaign is positively impacting attitudes towards lower-level speeding, in particular:

- 90 per cent of people who have seen the campaign believe that speeding is the biggest killer on NSW roads (up 3 per cent from prior to campaign launch)
- 67 per cent of people who have seen the campaign agree that there is a very high risk of crashing if exceeding the speed limit up to 10km/h over the limit (up 9 per cent from prior to campaign launch).

Slow down road workers around

In April 2022, TfNSW launched 'Slow down, road workers around' to encourage motorists to slow down in road work zones across NSW. The campaign is a reminder for drivers to slow down and pay attention at all road work sites, and aims to humanise road workers, the people who are making our roads safer.

The primary audience for the campaign is all motorists in regional NSW, with advertising reaching the community via TV, digital, outdoor and radio channels.

Since launch, research shows that the campaign has already had a positive impact on attitudes towards road worker safety, including:

- 80 per cent of people who have seen the campaign agree that it is important to reduce speed near road-workers in regional NSW at all times (up 2 per cent from prior to campaign launch)
- 68 per cent of people who have seen the campaign agree it is important to actively look out for road workers in regional NSW (up 7 per cent from prior to launch).

Other community engagement and education initiatives

TfNSW has also developed a suite of complementary communications and educational content to raise public awareness of the risks of speeding, importance of speed limits, stopping distances and to encourage drivers to slow down on our roads. This includes communications tailored to regional NSW to support more localised messaging and enhance relevancy to local communities.

A suite of engaging videos has recently been launched to educate the community about both the physics and the human cost of speeding. This includes personal stories of road trauma from people in Coffs Harbour and stopping distances with mathematician Eddie Woo. Senior Constable Wal Brooks from NSW Police Traffic and Highway Patrol also features in a video about speeding in regional NSW, reflecting on a TV advertisement he filmed 20 years ago and discusses the impact speeding still has on country roads.

The Centre for Road Safety and Towards Zero websites provide information to the community around speed with webpages dedicated to speed and fatalities on our roads, speed zones and advisory signs, and the speed advisor app, featuring spoken and visual warnings when the speed limit is exceeded and school zones are in operation.

Regional speeding is featured in many other community programs throughout the year, such as Road Rules Awareness Week, National Road Safety Week and Rural Road Safety Month. TfNSW also engages with the community at regional events and activations including a crash car display highlighting the difference in crash impact of travelling at 100 km/h versus 60 km/h.

These initiatives complement other road safety programs, including local council partnerships through the Local Government Road Safety Program. Ongoing local engagement, including local government capacity building and engagement initiatives, are an important part of the 2026 Plan.

7. Vehicle technology and speed limits

Design of motor vehicles has improved steadily over time, with some innovations providing quantum reductions to a drivers' risk of being involved in a crash and the risk of injury or death for those who are involved in a crash. Notable among these developments have been the introduction of seat belts, vehicle crumple zones and rigid occupant cells, plus front and side airbags – all of which have improved occupant protection and crash outcomes. More recently, Intelligent Speed Adaptation and other Advanced Driver Assistance Systems (ADAS) are increasingly present in new vehicles and have been proven to reduce crash risk.

Vehicle safety improvements have helped support a significant reduction in the road toll since their introduction. Unfortunately, vehicles in regional NSW tend to be older and have less safety features than vehicles in metropolitan NSW. This means that the benefits of new technologies, particularly those that are not yet mandated, are only slowly entering the fleet and contribute to reduction in road trauma. If speed limits are not appropriate, and fleets have fewer safety features, the risk of trauma greatly increases, highlighting the importance of safe speeds in regional NSW.

While the safety of vehicles continues to improve, they must also still operate within physical boundaries. If the speed of a vehicle is inappropriate, or a vehicle is travelling on a road without key safety features such as line marking or road shoulders, this can reduce the effectiveness of various technologies, even in a new model vehicle equipped with advanced features.

Safer vehicle uptake in regional NSW

The risk of death or serious injury in a crash is lower for newer model cars. Older vehicles without proven and advanced safety features are more likely to be involved in fatal crashes and provide less protection.

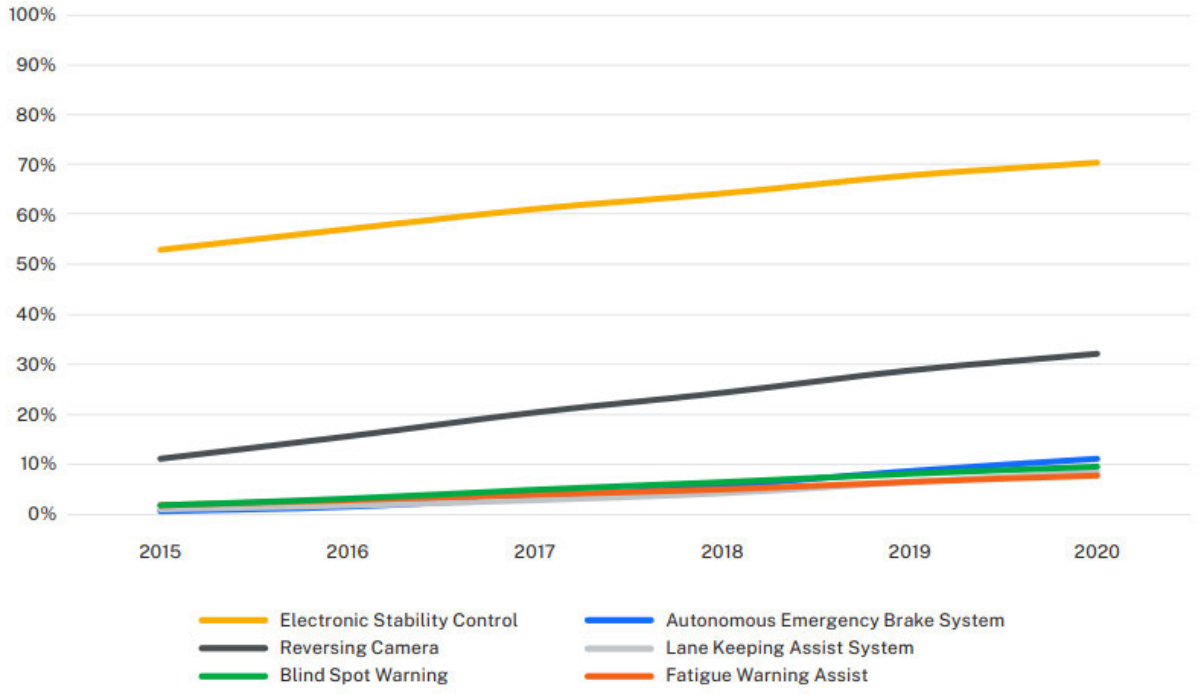
The NSW Government is a founding member of the Australasian New Car Assessment Program (ANCAP) which conducts independent testing of safety features in vehicles to promote safer choices for new cars. Analysis by ANCAP shows vehicles built before 2000 made up 20 per cent of the fleet but featured in 33 per cent of fatal crashes. Newer vehicles built between 2011 and 2016 made up 31 per cent of the fleet yet were involved in only 13 per cent of fatal crashes. Between 2016 and 2020 in NSW, 39 per cent of cars and light trucks involved in fatal crashes were manufactured before 2005.

Rural areas are falling behind in the uptake of five-star ANCAP rated light vehicles. The average age of a light vehicle within NSW urban areas is nine years old, and 11 years in regional areas. In metropolitan areas, 67.7 per cent of registered light vehicles manufactured after 2000 have a five-star rating, compared to 31.7 per cent in regional areas. At the current rate of turn-over, it will take about two decades before the fleet is completely replaced. The life of heavy vehicles is even longer.

Growth of advanced safety features in the NSW fleet

Mandated technology such as electronic stability control has reached a large and increasing proportion of the light vehicle fleet in NSW. Technologies that are not mandated, but are desirable and common in five-star vehicles, remain in a small proportion of vehicles.

Figure 12: Uptake of selected safety features in NSW in NSW passenger vehicles, 2015–2020



Source: 2026 Road Safety Action Plan

Potential benefit of Intelligent Speed Adaptation

Intelligent Speed Adaptation (ISA) involves advanced systems that assist drivers to stick to the speed limit. Technology using a global navigation satellite system such as GPS is linked to a speed zone database that allows the vehicle to "know" its location and the speed limit on that road. The ISA system provides visual and auditory feedback to the driver if the vehicle exceeds the speed limit.

Speed Assistance Systems consist of either manual speed limiters, speed sign recognition or ISA. These can all assist a driver managing appropriate speeds, with the first two systems being advisory and ISA automatically limiting the speed of the vehicle.

A NSW trial found that road deaths would be reduced by 8.4 per cent and the number of people injured would be reduced by 5.9 per cent if all vehicles in NSW were equipped with ISA. The Australian Design Rules (ADR) do not currently require vehicles to have ISA fitted.

As part of the 2026 Plan, the NSW Government is accelerating the uptake of ISA through supporting and advocating for the mandatory introduction of ISA in light and heavy vehicles and through investigating the offender Intelligent Speed Assist program (recommended by the NSW Sentencing Council for high-risk speeding offenders).

Other Advanced Drive Assistance Systems (ADAS)

Vehicles also have other safety features that not only reduce the impact of the crash on the occupants but also reduce the risk of the crash happening at all which benefits all road users. When vehicles equipped with these features are operating in an environment where the speed limit has been set appropriately, crash risks are lower due to the influence of both safe vehicles and safe roads, as part of a safe system.

ADAS has the potential to reduce road trauma by either avoiding crashes or by reducing their severity. Research[6] has shown that young drivers are at particularly high risk of being injured in a crash and would benefit from driver assist systems. Three of the most effective ADAS against road trauma are:

- Electronic Stability Control (ESC)
- Autonomous Emergency Braking (AEB)
- Lane Keep Assist (LKA) / Lane Departure Warning (LDW).

Electronic Stability Control (ESC)

ESC is mandatory in new light passenger and commercial vehicles. It is a system that helps prevent a vehicle from losing control by braking individual wheels if it senses the car veering off course.

ESC is particularly effective in preventing single-vehicle crashes, including roll-over and off-curve crashes (which can often be the result of losing control and inappropriate speed). It is also effective in preventing crashes into other objects. Research conducted in the US has shown that ESC can reduce the risk of single-vehicle crashes by about 40 per cent and up to 67 per cent for 4WD and sports utility vehicles. These are the key types of crashes that occur frequently on regional NSW roads.

Autonomous Emergency Braking (AEB)

AEB systems reduce vehicle to vehicle rear-end crashes, or vehicle to vulnerable road user crashes. AEB is a relatively new technology that is still maturing and there are many AEB and forward collision warning systems currently available with varying functionality and reliability.

The roll out of mandatory AEB in new vehicles in Australia has begun with staged implementation in light passenger vehicles, light goods vehicles and heavy vehicles between 2025 and 2026.

Lane Keep Assist (LKA)

LKA refers to systems that help a driver remain in their lane by gently steering the vehicle to maintain it within its lane. This is a relatively new technology and is not currently mandated within the ADRs. The Commonwealth Government are considering making LKA mandatory for all new vehicles from 2026 as part of the ADR, however a decision has not yet been made.

Occupant protection

Occupant protection in a vehicle refers to how a vehicle's structure and safety features protect an occupant of a vehicle during a crash. It refers to the safety provided by the vehicle's structure, crumple zones, seatbelts, airbags and similar equipment.

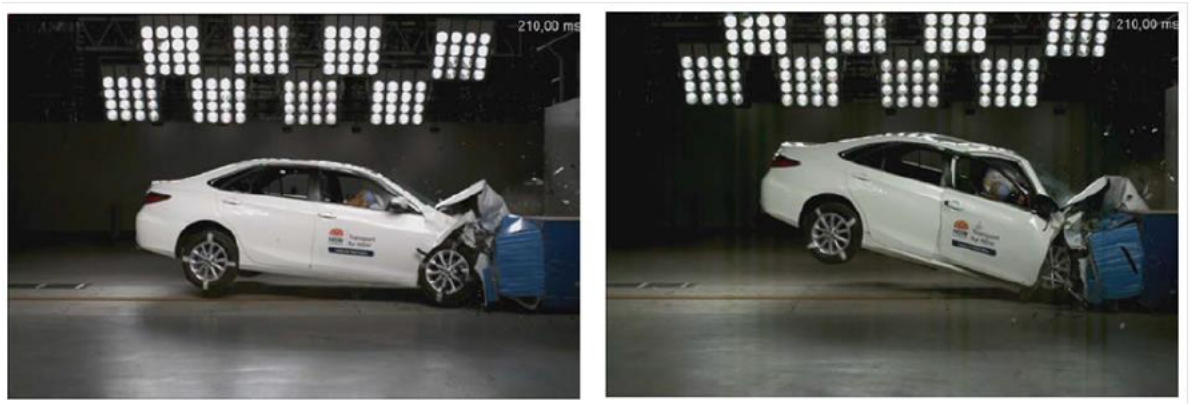
Vehicle crash tests show the impact crashes can have at different speeds and the benefit that safety features, such as occupant protection, can have on the vehicles' occupants. These speeds, particularly the 80 km/h and 100 km/h, are reflective of the speeds at which an impact may occur if a driver was travelling on a higher speed regional road. These tests highlight that

[6] Budd, Keal, Newstead (2010) The potential benefits for young drivers from increased fitment of driver-assist systems

for occupant protection to work optimally to save lives, the speed that the crash occurs and the speed limit are important.

Figure 13 below shows the outcomes of two crashes, at 60 km/h and 80km/h, in a typical partial head on crash.

Figure 13: Crash test – 60km/h and 80km/h offset crash

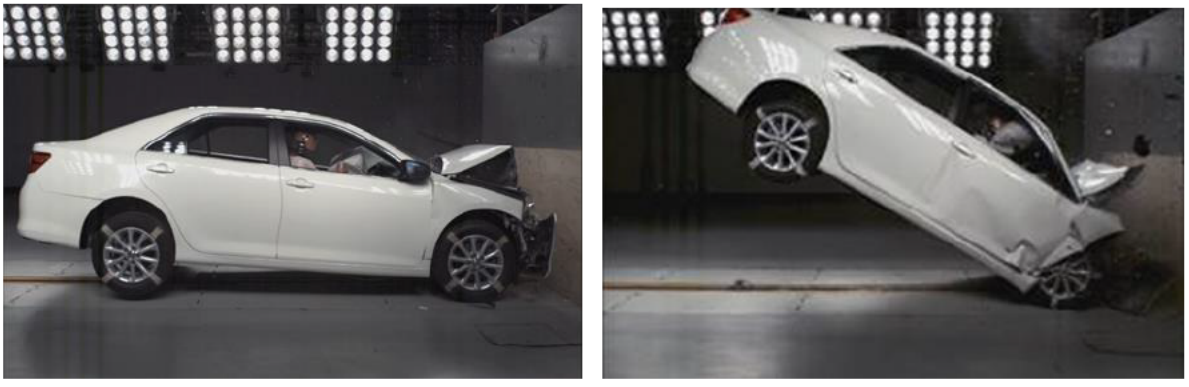


60km/h Crash test 80km/h Crash test

Data from the crash test showed a 9 per cent risk of serious injury for the crash at 60km/h, and a 37 per cent risk of serious injury at 80km/h.

Similar tests were conducted for head on crashes at 60 km/h and 100 km/h, *Figure 14*.

Figure 14: Crash test - 60km/h and 100km/h head-on crash



60km/h Crash test 100km/h Crash test

Data showed a 15 per cent risk of serious injury for the crash at 60km/h, and a 100 per cent risk of serious injury at 100km/h.

8. Road infrastructure and speed limits

The Safe System approach to road safety is based on the principle that if a driver or rider makes a mistake, road infrastructure can significantly reduce the chance of this resulting in a fatality or serious injury.

Roads are crucial to country life, linking people and goods to regional and economic centres and connecting NSW to the rest of Australia. Fewer transport options mean people living outside of major centres rely on the road network.

There are several approaches available to road managers to ensure road infrastructure aligns with the principles set out in the Safe System. They include best practice road design, infrastructure upgrades to retrofit safety measures and if physical infrastructure measures are not installed, considering the appropriate speed limit for the road and roadside conditions and road users. Infrastructure upgrades are the key road safety treatment. When it cannot be delivered, speed reduction is the next line of defence.

Road design

Evidence suggests that road design contributes to the choice of travel speed. Self-explaining roads are where implicit messages in the road design can influence a road user's perception of an appropriate speed of travel. For example, drivers tend to select lower speeds when they are travelling on roads that have rough surfaces, are narrow, winding, hilly, and where the direction of the road and boundaries are not well delineated.[7] By reducing their speed, drivers in these situations are more able to navigate through the road environment safely.

The influence of road design on travel speeds is based on the road user's ability to manage the information flow rate in their peripheral vision. As speed increases, the amount of information the brain processes also increases and in a shorter time period.

Increasing speed limits beyond what has been identified as 'safe' for a particular length of road may result in safety critical infrastructure not providing safety benefits due to the impact forces going beyond their physical tolerances.

Benefits of safety infrastructure

Around three-quarters of deaths on high-speed country roads involve a vehicle leaving its path. Many country roads include curves that make it harder to negotiate when driving in higher speed environments. There are also more roadside hazards, such as trees, that increase the severity of a crash on a curve. Many of these crashes can be prevented, or the harm reduced, with implementation of proven safety infrastructure treatments.

Safety infrastructure is fundamentally linked to safe speeds as the presence of this infrastructure can improve safety outcomes at the posted speed limit, or be implemented alongside a safer speed to significantly reduce trauma.

[7] J Edquist, C Ruddin-Brown & M Lenne (2009) *Road Design Factors and their interactions with speed and speed limits*, Monash University Accident Research Centre.

NSW has a hierarchy of six sub-network rural road classes for State roads. The classification system adopted by NSW for state rural roads assists defining the design characteristics of different roads based on the intended function within the network. In terms of road safety, this includes setting network performance targets for road elements such as average crash rate, carriageway arrangement (i.e. divided vs. undivided), lane and shoulder width, design speed, the use of edge lines and safety barriers.

Flexible roadside and median barrier

Safety barriers are also designed to redirect vehicles along the barrier when a crash occurs, reducing the likelihood of secondary crashes from traffic in the same direction flow. Flexible barrier treatments, such as wire rope safety barriers, can almost eliminate head on and run off road crashes when installed correctly. Flexible safety barriers have consistently shown to reduce crash severity to vehicle occupants by 85 per cent along both roadside and median installation[8].

Audio Tactile Line Markings (ATLM)

ATLMs are designed to alert the driver with audio and haptic feedback to prevent the vehicle from leaving the lane unintentionally. A meta-analysis from ARRB Group found that ATLM mostly impacts run off road and head on crashes with a crash reduction factor of 20-30 per cent (23 per cent as best estimate) for roadside and centre ATLM[9].

Wide Centreline Treatment (WCLT)

WCLT generally provides more space and time for drivers to react to hazards or correct a mistake. Similar to ATLM, WCLT targets preventing vehicles from leaving the lane and reducing run off road and head on crashes. As a result, WCLT produces an effectiveness similar to ATLM, with around 20-25 per cent reduction in run-off-road crashes and 50 per cent reduction in head-on crashes[10].

Motorcycle underrun protection

Motorcycle underrun protection is designed to be installed on barrier systems to prevent sliding motorcycle riders, that have lost control of their motorcycle, colliding with the exposed poles. Evaluation of a motorcycle black spot program in Victoria showed a 74 per cent reduction in FSI crashes[11].

High speed roads and safety infrastructure

Ongoing investment in infrastructure safety treatments across our network will produce sustainable safety benefits. Safe speed settings are essential to reducing crashes especially on narrower roads where retrofitting of safety infrastructure treatments is challenging.

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[8] Candappa, Nimmi*, D'Elia, Angelo, Corben, Bruce and Newstead, Stuart , Wire Rope Barrier Effectiveness on Victorian Roads, Monash University Accident Research Centre

[9] Turner, B., Imberger, K., Roper, P., Pyta, V., & McLean, J. (2010). *Road Safety Engineering Risk Assessement Part 6: Crash Reduction Factors* (AP-T151/10). Retrieved from https://austroads.com.au/publications/road-safety/ap-t151-10/media/AP-T151-10.pdf

[10] Transport for New South Wales. (2019): Road Cross Section Selection for Safety Benefits v3.

[11] ARRB (2015). Evaluation of the Motorcycle Blackspot Program. Report No. 010074-1.

Safe speeds are set using the NSW Speed Zoning Guidelines in a way that is appropriate and considers the road safety infrastructure in place to ensure safety of all road users.

Star rating of the road network

Star ratings of the road network are valuable indicators of the level of infrastructure-based safety risk that exists on a route or across a network. They provide road managers with a relative measure of road safety.

Sections of road are rated, using a standard methodology, on a scale of 1 to 5-stars with 1-star being the least safe and 5-star being the safest. Research shows crash rates per distance travelled reduce between 33 per cent and 50 per cent for each additional star awarded.

Safe roads with design elements such as dual lane divided carriageways, good line marking and wide lanes have a higher star rating. Lower-rated roads are likely to have single-lanes and be undivided with poor line marking and hazards such as trees, poles and steep embankments close to the edge of the road.

Speed limits are an important factor when determining a star rating.

Use of 110km/h speed limits in NSW

High speed roads are areas of the network that generally have speed limits of 110 km/h, especially on high design quality motorways constructed with divided carriageways.

Remote undivided roads with low traffic volumes, few intersections or accesses, wide clear zones with roadside barrier protection (i.e. minimal number of rigid roadside objects) and adequate pavement widths (such as some existing in remote rural areas of NSW) may also be seen as suitable for 110 km/h speed limits.

9. Use of variable speed limits

Variations in applicable speed limits or maximum speed limits on NSW roads can result from measures that aim to address specific risks at a location, or more generally to reduce crash risks involving a category of drivers. Key examples of these measures include:

- Use of variable speed limit signs, which can adjust speed limits for all motorists in certain conditions for more efficient and safe traffic flow
- Speed limits that apply to certain vehicles, or to all vehicles in wet weather conditions
- Maximum speed restrictions, including for heavy vehicles and novice drivers.

Illuminated variable speed limits

Variable speed limits (VSL) are used to achieve and maintain optimal network traffic conditions, with minimal delays and congestion to provide an appropriate balance between safety, mobility and amenity on public roads. Specific speed limits for heavy vehicles on a particular stretch of road may be appropriate where there is a significant risk to this road user group due to steep grades and/or a previous heavy vehicle crash history. Wet weather variable speed limits are generally only used on roads where there is significantly more crashes and crash risk linked to wet weather.

Information around the criteria of the use of electric variable speed limits on NSW Roads are set out within the NSW Speed Zoning Guidelines 2011 as well as TfNSW Technical Direction TTD2014/006.

TfNSW is committed to progressively incorporating Managed Motorway technology into existing and future motorways. This will provide the most productive and resilient motorway network capable of delivering the maximum travel reliability, efficiency, safety and sustainability benefits to the community. This will be realised through the application of Intelligent Transport Systems which have been adopted across Australia to enable dynamic network management and operation in real-time.

Speed limits for trucks and buses

Specific speed limits for heavy vehicles (trucks and buses) on a particular stretch of road may be appropriate where there is a significant risk to this road user group due to steep grades and/or a previous heavy vehicle crash history. Examples of truck and bus speed limits include those implemented on Mount Ousley Road at Mount Pleasant and Warringah Road at Dee Why.

Wet weather variable speed limits

Wet weather variable speed limits are generally only used on roads where there is significantly more crashes and crash risk linked to wet weather. When signposting a wet weather VSL, there must be:

- A ‘Wet weather speed limit ahead’ sign
- A ‘Speed restriction – when raining here’ sign alongside a ‘Speed restriction – unless raining’ sign at the start of the zone.

Work zones

The Traffic Control at Work Sites is the operational manual used to manage safety and traffic management at road work sites, it outlines specific criteria for road work speed zones.

As part of the new 2026 RSAP the NSW Government has committed to exploring further options to improve road safety in work zones.

Maximum speed restrictions for heavy vehicles

Under the NSW Road Rules 2014, the maximum speed limit for a vehicle more than 4.5 tonnes Gross Vehicle Mass (GVM) is 100 km/h.

Heavy vehicles are over-represented in fatality and serious road trauma in NSW. While heavy vehicles make up less than three per cent of all registered motor vehicles in NSW and around eight per cent of all motor travel, they are involved in around 20 per cent of fatal crashes on NSW roads.

Heavy vehicles cannot stop as quickly as some other vehicles on our roads due to their size and mass. Additionally, the dynamic performance of a heavy vehicle is sensitive to speed. The higher the travelling speed of the vehicle the worse it performs, measures such as off-tracking, rearward amplification, dynamic rollover and stopping distances are all adversely impacted.

In NSW, road trains are further restricted to 90km/h. Road trains are multi-combination trucks larger than a B-double, including A-doubles, super-B-doubles, all triples and quads. Due to their size, mass and manoeuvrability road trains are restricted access vehicles. Restricted access vehicles are only permitted on roads assessed as able to accommodate the nominated vehicle.

Maximum speed restrictions for novice drivers and motorcycle riders

Maximum speed restrictions are also part of the NSW Graduated Licensing System (GLS) and apply to both learner and provisional drivers.

NSW Learner and Provisional (P1) drivers cannot exceed 90km/h at any time, and Provisional (P2) drivers cannot exceed 100km/h. The maximum speed limit for P1 drivers is in line with the recommendation in the Auditor-General's *Performance Audit: Improving Road Safety: Young Drivers* and provides opportunity for learners to gain experience at a lower, safer speed so that in the event of a crash the outcomes are less severe.

Addressing young driver crash risk

Speed restrictions, combined with a zero-tolerance approach to speeding offences, are in place to manage risk and young driver trauma. Maximum speed limit restrictions for learner and provisional drivers are part of the overall GLS framework in NSW in response to the increased risk young drivers face. They aim to reduce both incidence and severity of crashes.

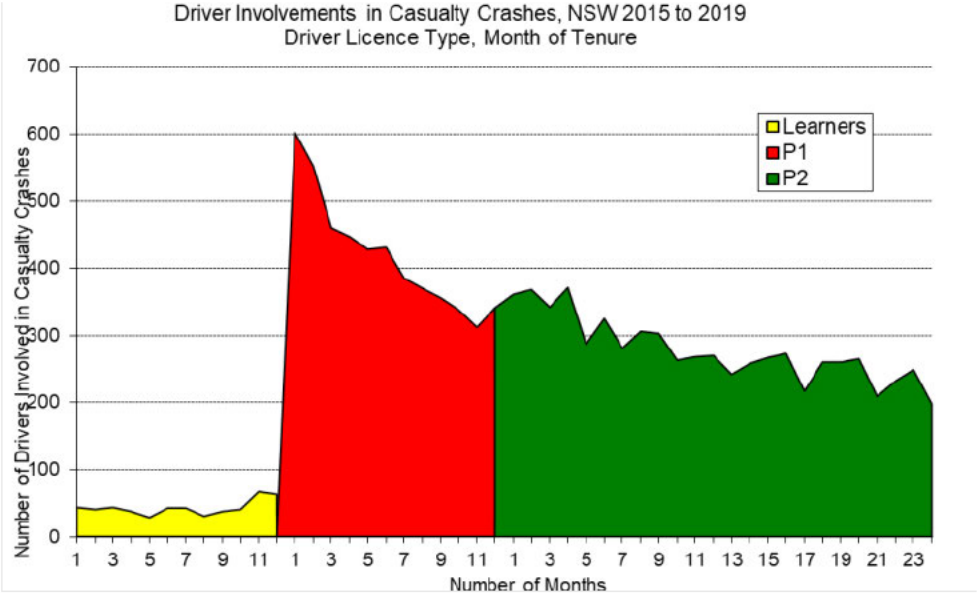
Younger drivers aged between 17 and 25 years are over-represented in NSW road trauma. Younger drivers account for just 14 per cent of all licence holders in NSW, yet 23 per cent drivers involved in fatal crashes during 2019 to 2021p were aged between 17 and 25 years.

A key reason for this is that younger drivers are still developing the skills and experience needed to respond in unexpected situations. Faster travel speeds reduce the available time to

react and to avoid a crash if a hazard is detected. Higher speeds also mean higher impact forces and serious trauma if a crash does occur. Younger drivers are also more likely to engage in risky driving behaviour. 31 per cent of all speeding drivers involved in fatal crashes in NSW between 2019 and 2021p were aged between 17 and 25.

This is especially critical in the Provisional (P1) phase. As outlined in *Figure 15* below, the 12 month period when a driver first moves from a learner licence (where they are low risk and fully supervised by an experienced driver) to driving solo as a provisional driver is the highest risk period for a casualty crash. By reducing driver speeds, novice drivers are able to build experience under less risky conditions and exposure to travelling at high speeds is reduced.

Figure 15: Driver involvements in Casualty Crashes, NSW 2015 to 2019 Driver Licence Type, Month of Tenure



Source: Transport for NSW

GLS was introduced in June 2000, driver fatalities aged 25 years and under have reduced by 58 per cent. This is over 1.5 times the reduction of driver fatalities aged 26 and older, which have reduced by 36 per cent over the same period of time.

10. Any other related matters

Speed enforcement in NSW

Enforcement is important to achieving compliance with a speed limit and reducing trauma. In NSW, enforcement is primarily the responsibility of the NSW Police Force. Over the three years from 2018/19 to 2020/21, the NSW Police issued an average of 213,379 speeding infringements per year.

Speed cameras support police enforcement by broadening the benefits of speed enforcement across the network, consistent with a general deterrent approach. They can also operate at locations that are difficult for police to enforce. General deterrence aims to increase the certainty that speeding can be enforced anywhere at any time, thereby reducing speeding not only at identified enforcement locations but also across the road network, thus creating a general deterrence effect.

The NSW Mobile Speed Camera Program operates across regional NSW to support the work of NSW Police. Fixed, red-light, speed and average speed cameras (which only apply to heavy vehicles) are also present on the regional network, to address safety risks at specific locations.

NSW Safer Roads Program

The NSW Government funds infrastructure programs that support the continued effort to make NSW roads safer, halving deaths and reducing serious injuries by 30 per cent on NSW roads by 2030.

The NSW Safer Roads Program prioritises funding to provide essential infrastructure to make NSW roads safer. This program enhances the safety of regional and rural roads, which in turn allows speed limits to be set in a way that balances the safety of all road users and the road function.

TfNSW directly delivers or coordinates local councils to deliver projects under the Program. Typically, the projects delivered specifically mitigate known and potentially severe crash locations. Projects are funded through a robust technical assessment process where candidate projects are analysed to prioritise funding towards the most critical safety issues on the NSW road network.

The Safer Roads Program is supporting the delivery of life saving road safety treatments through two initiatives such as:

- Saving Lives on Country Roads: Addresses two key contributors to road fatalities and serious injuries on country roads: high risk curves and fatigue. This initiative was allocated $640 million between 2018/19 to 2022/23
- Liveable and Safe Urban Communities: Improves the safety of people in urban areas, through infrastructure safety upgrades for pedestrians and bicycle riders, and by specifically addressing serious injury crashes in urban areas. This initiative was allocated $180 million between 2018/19 to 2022/23.

The Saving Lives on Country Roads Initiative delivers route-based, mass action road safety engineering treatments and targeted crash location treatments that reduce road fatalities and serious injuries in country areas. This program includes reducing crash types commonly related to lane departure, especially at high-risk curves, through flexible safety barriers, audio-

tactile line marking, wide centrelines, improved curve signage, shoulder widening, sealed shoulders and vehicle activated signs.

As part of the Safer Roads Program between 2018 and 2022/23 there has been 329 urban projects funded as part of the Liveable and Safe Urban Communities Initiative and 443 rural projects funded as part of the Saving Lives on Country Roads.

Once all projects have been completed, the Program would have delivered more than 400 kilometres of safety barrier, more than 5000 kilometres of audio-tactile line marking, more than 3500 kilometres of wide centreline and upgraded more than 280 urban intersections. It is also estimated the Safer Roads Program will prevent around 1500 serious injuries and deaths on NSW roads over 15 years.

11. Appendix A

Regional case studies – Speed zone reviews

Oxley Highway

Between 2013 and 2017, six people died and more than 57 were injured on a section of the Oxley Highway, west of Wauchope. All six fatalities were motorcyclists and 42 of the 67 crashes involved motorcyclists.

Crash data indicated that speeding was a factor in 45 of the 67 (67 per cent) crashes and four of the five fatal crashes. Fatigue was reported as a factor in three crashes (4.5 per cent) and alcohol in two crashes (3 per cent).

Crash analysis and a speed zone review was carried out in line with the NSW Speed Zoning Guidelines, which provides a well-established point of reference to ensure the consistent application of speed limits throughout NSW. It was determined that a new speed limit of 80km/h and minor infrastructure upgrades should be implemented on a section of the Oxley Highway to the west of Wauchope.

The 20 km/h reduction on the stretch of road only added a few minutes to travel times between Wauchope and Walcha. For the majority of car drivers this change didn't increase travel time because they are already travelling at 80 km/h or below.

Crash analysis since the speed reduction and infrastructure upgrades were completed shows that there have been zero fatalities and 21 injuries, demonstrating a clear safety benefit of the safety measures.

Pacific Highway, Charmhaven Speed Zone Review

A speed zone review was undertaken along the Pacific Highway, Charmhaven following community concerns about safety and the number of crashes at this location. Between April 2016 and April 2021, there were 44 crashes resulting in 45 casualties.

The review was conducted in consultation with NSW Police and Central Coast Council and considered several factors such as the urban environment being more suited to a lower speed limit road, high traffic volumes, and crash history along the length including at the intersection of Pacific Highway and Chelmsford Road. Following the speed zone review, a recommendation was made to reduce the 70km/h speed limit to 60km/h. The speed zone change was found to have increased travel time by just 19 seconds.

The speed zone review was completed in conjunction with other safety improvements including right turn bays and turn restrictions at selected intersections as well as a widened painted median. Reducing the speed limit was a key component in the safe systems approach to improving safety at this location.

Moruya Speed Zone review

In November 2021, TfNSW reduced the speed limit from 50km/h to 30km/h on Ford and Shore streets in East Moruya to make it safer and more accessible for pedestrians in the busy town centre and to support Eurobodalla Shire Council's placemaking vision for Moruya.

The 30km/h speed zone change was initiated by Council, delivered with the support of TfNSW, the local Police and the community. TfNSW undertook the speed zone review and implemented the change following the Council's completion of significant pedestrian and traffic calming infrastructure to support the speed zone reduction and improve pedestrian safety.

This reduced 30km/h limit is a first for the NSW South Coast and has received interest from other Councils looking to follow the example set by Eurobodalla Shire Council.

Pacific Motorway Corridor - Frederickton to Eungai, Kempsey sped zone review

A new dual carriage way was designed and constructed to complete the Pacific Highway upgrade and bring the route up to motorway standard, and was designed to be signposted at 110 km/h. The construction of the dual carriageway enabled an increase in speed limit from 100km/h to 110km/h along the new alignment of the route.