



TS 03631:2.0

RTA 11.432

Standard

NSW Speed Zoning Standard

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Transport acknowledges the traditional custodians of the land and pays respect to Elders past and present.

We acknowledge Aboriginal people as the traditional custodians of the lands and waterways on which we build infrastructure, deliver projects and serve Transport's customers and are grateful to Elders past and present for their continual leadership.

Transport acknowledges many of the transport routes we use today – from rail lines, to roads and water crossings – follow traditional Songlines, trade routes and ceremonial pathways in Country that Aboriginal people followed for thousands of years.

Our future projects will positively reflect the values, sustainability and spirituality of the Aboriginal cultures in the areas where we work. We acknowledge that our First Nations people and our customers, passengers and community today are still travelling these ancient Songlines, still doing business and still moving resources.

To do this, we will engage early with Aboriginal people on projects; respect and value their expertise; and integrate their understanding of Country and place into the design process and outcome. This is Planning for Country and Designing with Country.

For queries regarding this document, please email Transport for NSW Prioritisation and Asset Management at standards@transport.nsw.gov.au or visit www.transport.nsw.gov.au

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Document history

Revision	Effective date	Summary of changes
4.0	1/04/2011	Fourth issue as RTA 11.432 <i>NSW speed zoning guidelines</i>
1.0	10/07/2023	First issue as TS 03631. Version numbering recommenced in line with new designation.
2.0	23/09/2025	Second issue as TS 03631.

Preface

This document is the second issue as TS 03631 and supersedes TS 03631:1 *NSW Speed Zoning Standard*.

Speed is the biggest single factor involved in road deaths, contributing to around 40% of road fatalities each year in NSW. Speed limits are one of the simplest and most proven strategies for controlling and regulating driving speeds.

TfNSW is responsible for setting speed limits on all roads – state, regional and local. The *Road Transport Act 2013* authorises TfNSW to install prescribed traffic control devices, including speed limit signs.

This document outlines the principles and process for setting speed zones on roads and streets within NSW. The core purpose of this document is to support the use of safer speeds within NSW, with the intention of the elimination of road trauma within NSW. TfNSW have aligned with the Safe Systems Approach (with safer speeds being one component of the four pillars within the Safe Systems Approach) to ensure NSW moves towards its target of Towards Zero. This document also supports the movement of people and goods, facilitating people-centred environments and connecting places.

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1 Scope

This document sets out principles and the technical information for reviewing, determining, and implementing speed zones on NSW public roads. It enables practitioners to make recommendations that promote the safe and efficient movement of people and goods, facilitate people-centred environments and connect places.

TfNSW does not set speed limits, install signage, or undertake speed zone reviews on private roads, even though they may be classified as a road or road-related area under the *Road Transport Act 2013*. Privately owned motorways and school zones can be an exception to this and may be reviewed on a case-by-case basis.

2 Application

This document applies when a new technical speed zone review is undertaken on new or existing public roads. The speed zoning principles specified in Section 8, the review process specified in Section 9 and review steps in Section 10 apply to both new and existing roads.

This document applies to TfNSW employees responsible for reviewing, designing, and implementing speed zones on NSW roads to make informed and consistent technical decisions. This document also applies to local government in respect of information requirements for speed zone review requests.

This document does not apply to speed zones at work sites. Refer to TS 05492 for speed limits that apply at work sites. This document does not apply to the setting of variable speed limits. Refer to TS 06339.1 for variable speed limits on smart motorways with lane use management systems.

This document acknowledges that not every situation is covered within this document. Where a situation arises and the requirements of this document cannot be applied, the advice of the responsible speed authoriser is to be sought in the first instance. If the speed authoriser cannot determine a position, then the decision should be escalated to the document owner.

This document may also be used in other business areas in TfNSW where speed zoning is a consideration including network planning, road design and traffic engineering.

3 Referenced documents

The following documents are cited in the text. For dated references, only the cited edition applies. For undated references, the latest edition of the referenced document applies.

Australian standards

AS 1742.2 *Manual of uniform traffic control devices – Part 2: Traffic control devices for general use*

AS 1742.4 *Manual of uniform traffic control devices – Part 4: Speed controls*

AS 1742.4:2020 *Manual of uniform traffic control devices – Part 4: Speed controls*

AS 2890.5 *Parking facilities – Part 5: On-street parking*

AS 2890.6 *Parking facilities – Part 6: Off-street parking for people with disabilities*

AS 4049.4 *Paints and related materials – Pavement marking materials – Part 4: High performance pavement marking systems*

AS/NZS 1428.4.1 *Design for access and mobility – Part 4.1: Means to assist the orientation of people with vision impairment – Tactile ground surface indicators*

AS/NZS 2890.1 *Parking facilities – Part 1: Off-street car parking*

Austrroads guides

Austrroads, *Guide to Road Design* (all parts), AGRD

Austrroads, *Guide to Road Safety Part 2: Safe Roads*

Austrroads, *Guide to Road Safety Part 3: Safe Speed*

Austrroads, *Guide to Road Safety Part 6: Road Safety Audit*

Austrroads, *Guide to Traffic Management Part 8: Local Street Management*

Austrroads, *Infrastructure Risk Rating Manual for Australian Roads*

Transport for NSW standards

TS 00003.1 *Concessions to Transport Standards Part 1 – Concessions Process*

TS 00020 *Town Entry Gateway Treatment*

TS 00066 *Design of Roads and Streets Manual (DORAS)*

TS 00142 *Rural Intersection Speed Zones*

TS 05384 *Supplement to Australian Standard AS 1742 Manual of Uniform Traffic Control Devices*

TS 05411 (TD 2009 SR02) *Dragon's Teeth at School Zones*

TS 05462 (RTA/PUB 08.091) (all parts) *Delineation and Pavement Marking*

TS 05462.3 (RTA/PUB 08.091) *Delineation Part 3 Pavement Markings*

TS 05492 (20.346) *Traffic control at work sites – Technical manual*

TS 06320 (RMS 17.168) *Smart motorway design guide – Tunnel traffic management*

TS 06339.1 (17.177) *Smart motorway supplements – Austroads report AP-R341-09: Freeway design parameters for fully managed operations – Section 9: Lane use management systems (LUMS) including variable speed limits (VSL) (2009)*

Legislation

Disability Discrimination Act 1992 (Cth)

Road Rules 2014 (NSW)

Road Transport Act 2013 (NSW)

Other referenced documents

Ancillary document NSW Speed Zoning Standard (This document is not publicly available. To obtain access email: standards@transport.nsw.gov.au.)

Austroads AP-C87-15 Glossary of Terms

Austroads Research Report AP-R560-18 Towards Safe System Infrastructure: A Compendium of Current Knowledge

Austroads Research Report AP-R611-20 Integrating Safe System with Movement and Place for Vulnerable Road Users

Commonwealth of Australia 2021, *National Road Safety Strategy 2021-30*

Commonwealth of Australia 2023, *National Road Safety Action Plan 2023-25*

Roads and Traffic Authority of New South Wales, 2011 *Guidelines for Road Safety Audit Practices*

TfNSW *Evaluation of permanent 40 km/h speed limits: Summary report – October 2018*

TfNSW *Speed Zoning Engagement Guidelines* (This document is not publicly available. To obtain access email: standards@transport.nsw.gov.au.)

TfNSW *2026 Road Safety Action Plan – Toward zero trauma on NSW roads*

TfNSW *Movement and Place Framework*

TfNSW *Speed Zoning Communication and Engagement Framework*

TfNSW *Towards Zero Speed Management Plan – September 2024* (This document is not publicly available. To obtain access email: Safer.Roads@transport.nsw.gov.au)

TS 06313 *Curve advisory speed assessment practice in NSW* (This document is not publicly available. To obtain access email: standards@transport.nsw.gov.au.)

TfNSW The Cycleway Design Toolbox was produced by Aurecon SMM on behalf of TfNSW
Cycleway Design Toolbox – Designing for cycling and micromobility

TfNSW *Flashing lights request form (D.4)* ((This document is not publicly available. To obtain access email: Safer.Roads@transport.nsw.gov.au)

Turner, Blair M.; Eichinger-Vill, Eva M.; El-Samra, Siba; Adriaola-Steil, Claudia; Burlacu, Alina F. 2024. Guide for Safe Speeds: Managing Traffic Speeds to Save Lives and Improve Livability. © World Bank

Wramborg, P. 2005, *A New Approach to a Safe and Sustainable Road Structure and Street Design for Urban Areas*, Road safety on four continents conference, 2005, Warsaw, Poland, Swedish National Road and Transport Research Institute (VTI), Linköping, Sweden, 12 pp.

4 Terms, definitions and abbreviations

The following terms, definitions and abbreviations apply in this document.

85th percentile speed (V85 km/h) The speed at or below which 85% of vehicles are observed to travel under free-flowing conditions past a nominated point

AADT annual average daily traffic

active level crossing for the purposes of this document level crossings that have flashing lights or flashing lights and boom gates to alert road users when a train is approaching

alignment geometric form of the centreline (or other reference line) of a carriageway in both horizontal and vertical directions (Source: Austroads *Glossary of Terms* (2015))

arterial road a road that provides for traffic movement across and between regional areas. In NSW, state roads and freeways are considered primary arterials and regional roads are sub arterials

Australian Road Assessment Program (AusRAP) a risk model based on International Road Assessment Programme (iRAP) specifications. AusRAP is a five-tier star rating system that measures the inherent safety of the road infrastructure for vehicle occupants, motorcyclists, bicyclists and pedestrians. It provides an objective measure of the likelihood of a road crash and its severity. Road sections are rated on a scale of one to five-stars, with one-star being the least safe and five-star being the safest

built-up area in relation to a length of road, an area in which either of the following is present for a distance of at least 500 m or, if the length of road is shorter than 500 m, for the whole road:

- buildings, not over 100 m apart, on land next to the road
- street lights not over 100 m apart.

(Source: *Road Rules 2014* (NSW))

CBD central business district

classified road any of the following – a main road, a highway, a freeway, a controlled access road, a secondary road, a tourist road, a tollway, a transitway, a state work. (Source: *Roads Act 1993* (NSW))

controlled access property access is provided but access points are consolidated (multiple properties are accessed by a single access point)

curved alignment moderate horizontal curves (typical radii of 500m to 1500m) with some straight sections or isolated sharp curves. (Source: *Austrroads Infrastructure Risk Rating Manual for Australian Roads*)

default rural speed limit statutory 100 km/h speed limit that applies in the absence of a sign posted speed limit in non-built-up areas

default urban speed limit statutory 50 km/h speed limit that applies in the absence of a sign posted speed limit in a built-up area

desire lines the generally preferred routes of people cycling or pedestrians; often the shortest or flattest route between two attractors or paths across the road section. Note, some desire lines may be discerned even if they are not observable by pedestrian counts, for example, a straight-line distance between a university gate and a bus stop on the opposite side of the road, where pedestrian fencing may be suppressing pedestrian movements

direct access property access is provided directly to the road for each property

DORAS Design of Roads and Streets

freeway a motorway for which vehicles do not pay a toll (see also **motorway**).

FSI fatal and serious injury

gateway traffic calming the addition of traffic calming or changed road environment at the start of the new speed zone to clearly highlight the changed speed limit. Commonly used when wanting vehicles to reduce speed when traveling into a lower speed limit

Green and Blue Infrastructure the Green and blue theme refers to the network of green spaces (including “blue” water systems) that deliver multiple environmental, economic, and social values and benefits to communities. This network includes parks and reserves, backyards and gardens, waterways and wetlands, drainage corridors, streets and transport corridors, pathways and greenways, squares and plazas, roof gardens and “living” walls, sports fields, and cemeteries

HPAA high pedestrian activity area

IRR the infrastructure risk rating is a road safety risk assessment methodology based on road and roadside features

median divided separation between opposing travel lanes

- traversable includes a physical separation between opposing travel lanes however is mountable, therefore not fully eliminating head on risk, examples include concrete median.
- non-traversable barrier includes a physical separation between opposing travel lanes eliminates head on risk, examples include grade separation, wire rope barrier, F-type barrier

motorway for the purpose of this document, a divided highway for through traffic with little or no access for traffic between interchanges and with grade separation at some interchanges

MVK million vehicle kilometres

no direct access no property can be accessed from the road except through an intersection

place for the purpose of this document, identifiable geographic area or location, which is a social and physical concept – a physical setting, point, or area in space conceived and designated by people and communities

practitioner for the purpose of this document, a TfNSW employee whose role specifically requires them to undertake speed zone reviews

private road any road that is not a public road (Source: *Roads Act 1993 (NSW)*)

quietway a high-quality mixed traffic treatment where bicycle riders travel in a mixed traffic environment with motorised traffic and are positioned in the centre of the traffic lane. The key design philosophy of a quietway is the safe integration of people cycling as equal road users to motor vehicles – they are environments where the motor vehicle is a guest on the roadway. This requires drivers to reduce travelling speeds to 30 km/h or lower and discourages them from overtaking through effective design treatments that send visual cues to road users about appropriate speeds and behaviours.

RISZ rural intersection speed zones

road an area that is open to or used by the public and is developed for, or has as one of its main uses, the driving or riding of motor vehicles (Source: *Road Transport Act 2013 (NSW)*)

road related area includes:

- an area that divides a road; or
- a footpath or nature strip adjacent to a road; or
- an area that is open to the public and is designated for use by people cycling or animals; or
- an area that is not a road and that is open to or used by the public for driving, riding or parking vehicles; or
- a shoulder of a road, or

- any other area that is open to or used by the public and that has been declared to be an area to which specified provisions of the *Roads Transport Act 2013* (NSW) or the statutory rules apply

(Source: *Road Transport Act 2013* (NSW))

RUM code road user movement code, used for describing the first impact for a crash and used in determining crash risk scores on a stretch of road

SCATS Sydney coordinated adaptive traffic system

SFAIRP so far as is reasonably practicable

sight distance the distance, measured along the road over which visibility occurs, between a driver or rider and an object or between two drivers at specific heights above the carriageway in their lane of travel (Source: Austroads *Glossary of Terms* (2015))

storage gaps allows gaps in the road to allow moving vehicles to pass each other

SZA speed zone authorisation

TMC Transport Management Centre

tortuous alignment numerous consecutive horizontal curves (radii of 350 m to 500 m) and numerous sharp curves (radii of less than 350 m) (Source: Austroads *Infrastructure Risk Rating Manual for Australian Roads*)

traffic control device a traffic sign, road marking, traffic signals or other device to direct or warn traffic on, entering or leaving a road (Source: *Road Rules 2014* (NSW))

VPD – vehicles per day

VSL variable speed limit

winding alignment many consecutive horizontal curves and sharp curves (350 m to 500 m radius). (Source: Austroads *Infrastructure Risk Rating Manual for Australian Roads*)

5 Safety concepts

5.1 Safe System approach to road safety

The Safe System approach was pioneered in Sweden and acknowledges the physiological and psychological limitations of humans. It puts responsibility on the designers and operators of the transport system to accommodate these human limitations. This approach is derived from an understanding that people make mistakes and that no one should be fatally or seriously injured when using roads. The focus is on adapting the road system to humans, rather than the traditional approach of trying to fix human behaviour on the roads.

The Safe System approach requires a holistic overview of the safety of the road system, taking into account the interactions among roads and roadsides, travel speeds, vehicles, and road users. It is an inclusive approach that caters for all groups using the road system, including drivers, motorcyclists, passengers, pedestrians, cyclists, and commercial and heavy vehicle drivers. The Safe System approach operates on the following guiding principles:

- People make mistakes that can lead to crashes. Humans will continue to make mistakes. The transport system needs to accommodate human error and unpredictability. The transport system should not result in death or serious injury because of human error.
- The human body has a known physical tolerance to withstand crash forces before harm occurs. System designers and operators should take into account the limits of the human body when designing and maintaining roads, vehicles and speeds.
- There is a shared responsibility between individual road users and those who design, build, and manage roads and vehicles to prevent crashes that cause serious injury or death. While individual road users are obligated to act with care and obey traffic laws, the burden of road safety responsibility no longer rests solely with the individual road user. System managers have a primary responsibility to provide a safe operating environment for road users to ensure the system is forgiving when people make mistakes.

When all parts of the system work together if one part fails, other parts can protect people involved from serious harm. The pillars of this system are:

- Safe roads – roads and roadsides that are designed and maintained to reduce the risk of crashes occurring, and to lessen the severity of injury if a crash does occur.
- Safe speeds – speeds that are managed to complement the road environment and ensure crash impact forces are within human tolerances.
- Safe vehicles – vehicles that lessen the likelihood of a crash and protect occupants and other road users.
- Safe people – road users that are skilled, competent, alert, and unimpaired.

- Post-crash care – a system where crash victims are provided with quality care and transported from the crash site to the hospital door in a timely manner.

The Safe System approach has been adopted by all Australian jurisdictions to support road safety outcomes in jurisdictional and national road safety action plans. It underpins the *2026 Road Safety Action Plan* and this document.

5.2 How speed affects the likelihood and severity of crashes

Speed is the most critical risk factor in road crashes because it influences the risk of being involved in a crash, as well as the severity of the crash outcome. Research shows that even small increases in speed can significantly heighten risk, while reducing speeds can lower risk in several ways, including by reducing impact forces, by providing additional time for drivers to react and slow down, and by giving vulnerable road users additional time to react. As a vehicle's speed increases, the likelihood of a crash occurring increases as:

- the vehicle is less able to negotiate curves without losing control or crossing the centreline
- in a busy road environment, a driver is less likely to see a hazard as they have a narrower field of vision and less time to scan the environment ahead
- the vehicle travels further in the time it takes the driver to see and react to an approaching hazard
- the vehicle takes longer to stop once brakes are applied
- a driver is less able to manoeuvre and stay in control of the vehicle to avoid a hazard.

The potential severity of the outcome of a crash also increases as speeds increase due to the greater kinetic energy absorbed by the vehicle and the human body. Aspects contributing to the likelihood of a collision and severity of outcome at different speeds are shown in Figure 1.

» When a vehicle is travelling at...



30
KPH



50
KPH

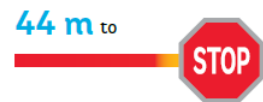


65
KPH

» This is the driver's field of vision



» It takes...



» Pedestrians hit at this speed have a...



Figure 1 – Influence of driving speed on vision, stopping distance and outcome
(Source: World Bank, *Guide for Safe Speeds: Managing Traffic Speeds to Save Lives and Improve Livability*)

Central to the Safe System approach is the human tolerance to crash impacts and the management of kinetic energy transfer so that these are within survivable limits. Higher speeds increase both the severity of a crash and the likelihood of a crash occurring. As speed increases, risks rise more steeply, as shown in Figure 2.

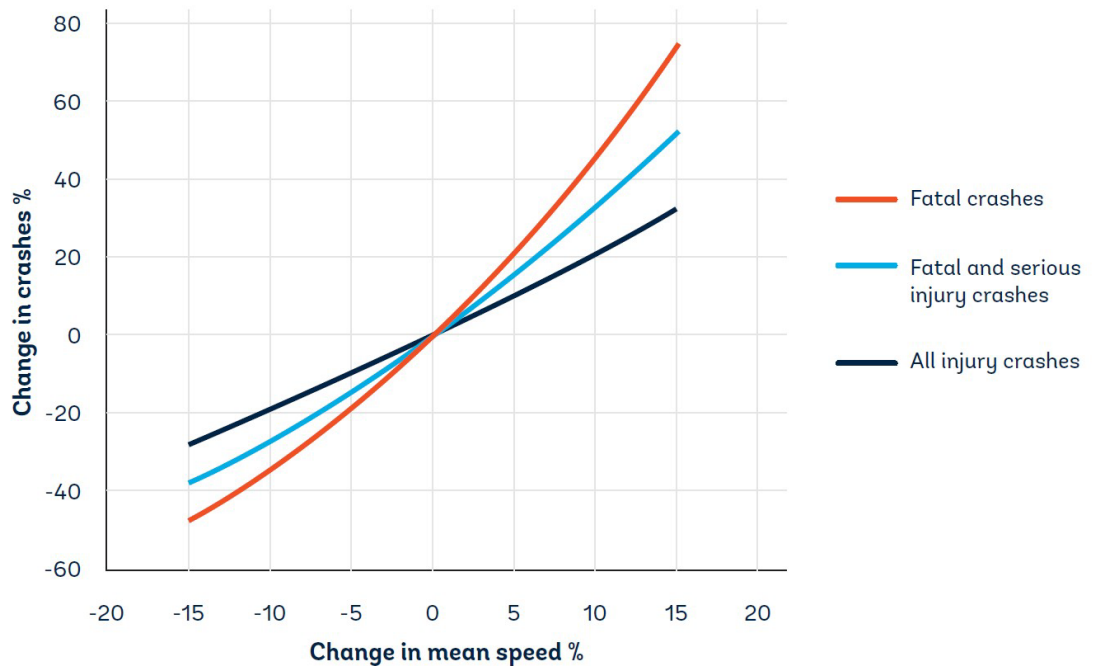


Figure 2 – Relationship between speed and crash outcome
 (Source: World Bank Guide for Safe Speeds: Managing Traffic Speeds to Save Lives and Improve Livability)

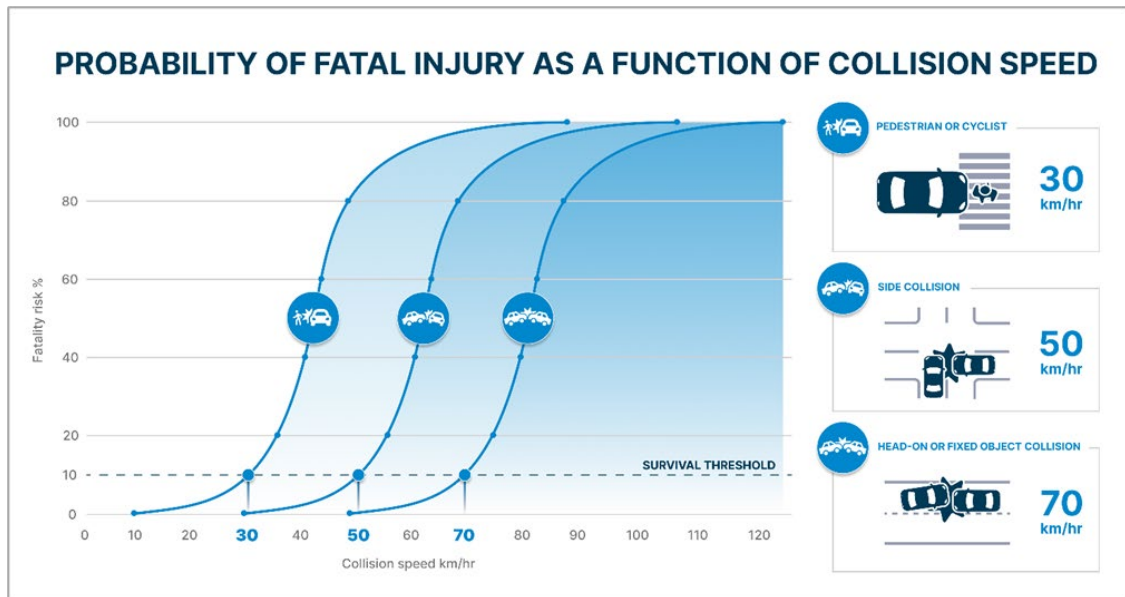
Figure 2 shows that a 1% increase in average speed results in an approximate 2% increase in injury crash frequency, a 3% increase in severe crash frequency, and a 4% increase in fatal crash frequency.

These findings show how even very small changes in speed can have a substantial impact on crash outcomes. Reducing speeds has a positive impact, increasing speeds has a negative impact. This relationship is especially stark for severe crash outcomes as well as fatal and serious injury crashes.

5.3 Speed and fatality risk

The risk of a fatal outcome varies significantly for different crash types. The ‘Wramborg curves’ (Figure 3) demonstrate the relationship between the collision speed in a motor vehicle crash and the likelihood of a fatal outcome (Refer Wramborg, P. 2005, *A new approach to a safe and sustainable road structure and street design for urban areas*). These curves demonstrate that the likelihood of a fatal outcome reduces as the collision speed reduces.

The 10% threshold for a fatality, as indicated by the dashed lines in Figure 3, is widely adopted internationally as the Safe System benchmark for a survivable operating speed.



**Figure 3 – Probability of fatal injury as a function of collision speed
(Source: Austroads Guide to Road Safety Part 2: Safe Roads (Original image: abley Limited))**

It is important to note that Safe System speed thresholds for vehicle occupants are considerably higher than for other road users, including pedestrians, people cycling, and motorcyclists. This is because the vehicle and its safety systems act as a filter to reduce the occupant's force loading to acceptable levels in the event of a crash. Vehicle safety systems, in combination with supportive road infrastructure, such as deformable roadside objects and forgiving safety barriers, can keep forces on vehicle occupants below levels likely to cause fatal or serious injuries, even on roads with higher speed limits. For vulnerable road users, there is no protective filter, or at least not to the same extent. As such, Safe System speed thresholds for these users are set at lower impact speeds.

Speeds should be at or below the Safe System survivable impact speeds presented in Figure 3 to reduce the risk of road death or serious injury. A higher standard of road and road related infrastructure is needed to ensure that the road environment can support speeds greater than the Safe System survivable impact speeds. A higher standard of road and road related infrastructure includes separate crossing facilities for pedestrians and people cycling with no direct conflict with vehicles, or barrier protection systems to prevent run-off road and head-on crashes.

With advances in vehicle technology, it is expected that some of these survivable limits may increase marginally over time as a greater proportion of the vehicle fleet comes equipped with autonomous emergency braking (AEB) for low and high speed, including braking for vulnerable road users, intelligent speed assist (ISA), lane keep assist (LKA), automatic emergency steering (AES), and other more advanced vehicle safety technologies.

5.4 Safe speed limits

Speed limit setting aims to manage the risk of crashes and the force that road users are exposed to, minimising the risk of fatal or serious injury in the event of a crash. For example, at locations where the level of pedestrian or cycling activity is significant, lower speed limits are appropriate. Similarly, where the potential for conflict is high, such as winding roads with no side or median barriers, speed limits should be set at a level that minimises the risk of fatal or serious injuries in the event of a crash.

Key measures for achieving safe speeds should include:

- setting appropriate speed zones for safety, mobility and place
- road design to support desired speeds and compliance, for example, self-explaining speed environments
- changing behaviour through community engagement and education
- vehicle technologies to support compliance and limit speeding.

All parts of the Safe System approach play an important role in managing speed and achieving safety outcomes.

5.5 Self-explaining roads

A self-explaining road is a traffic environment that elicits safe and consistent behaviour among road users simply by its design.

Self-explaining roads are based on the concept that implicit messages in the road design can influence a road user's perception of an appropriate speed of travel. There are multiple factors that provide these implicit messages and are given context by the adjacent environment, which are analysed by a road user into an appropriate response.

In urban areas these factors include features such as the number and width of lanes, how different road users are accommodated (separated or mixed), the presence of horizontal and vertical deflection devices, the type of access provided to adjacent properties.

In rural areas, factors include features such as lane and shoulder width, the median treatment, road surface type and quality, and the standard of delineation. 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. By reducing their speed, drivers in these situations can navigate through the road environment safely.

The self-explaining road should also take into account how road users perceive and process information, make decisions and react to stimuli within specific timeframes. Comfortable and

safe driving occurs when road users operate below a stressful process and decision-making rate.

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 needs to process also increases and in a shorter time. Drivers account for this by narrowing their field of vision (see Figure 1), which is the area that is analysed for information about the upcoming environment to anticipate the responses required. If this process becomes too strenuous or limited information is available about the upcoming road, motorists will generally slow down to adapt to the road environment. An effective self-explaining road can assist and moderate driver speeds.

A well-designed road should be self-explanatory and allow road users to accurately perceive the demands of the road and thereby prevent crashes in the first place. If there is a failure of the road user's ability to accurately perceive the demand, then the road and roadsides should be forgiving allowing the road user to safely recover and avoid a crash or minimise the severity of a crash.

Design speeds are found to have a greater effect on driver speed choice than sign posted speed limits. For speed limits to be effective, they shall be compatible with the road design and roadside environment.

Achieving self-explaining road environments requires the application of appropriate design speeds to different speed zones (see Figure 4):

- For speed zones of 50 km/h and below the design speed shall match the posted speed.
- For speed zones of 60 km/h the design speed shall match the place context and movement function of the street.
- For speed zones of 70 km/h and above the design speed shall be 10 km/h above the posted speed in the absence of any other evidence to match the posted speed for the context of that street.

Streets and roads speeds

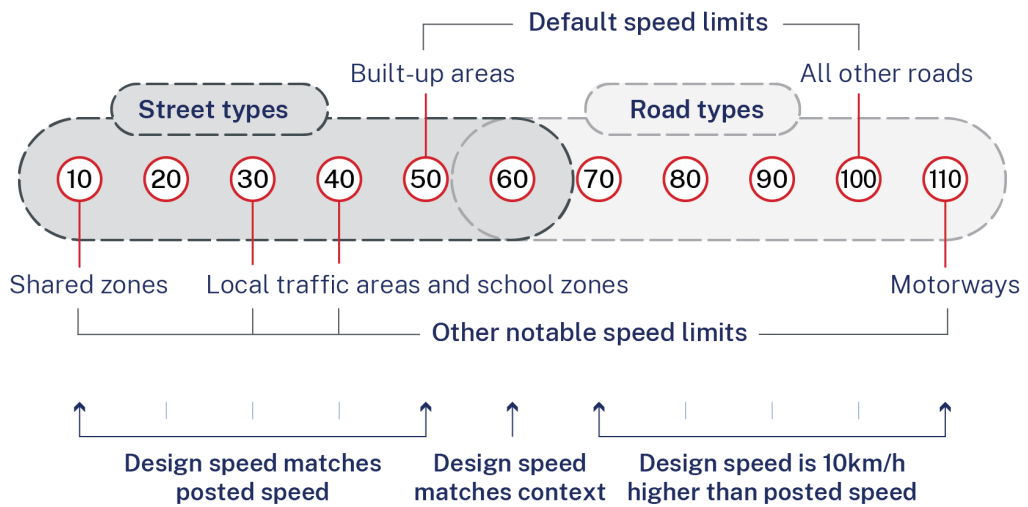


Figure 4 – Context for self-explaining roads for the design of streets and roads (Source: DORAS)

The willingness of some road users to tolerate uncertainty and risk-taking can mitigate the safety effect of a self-explaining road. For example, pedestrians at signalised intersections are likely to attempt to cross on a red walking phase if they perceive that their wait time is too long or their crossing time is too limited. The role of the Safe System is to adopt a holistic approach to addressing the overall road safety challenge for all road users.

6 National guidance on speed zoning

6.1 National Road Safety Strategy 2021-30

The *National Road Safety Strategy 2021-30* reinforces a commitment to the Safe System approach and to strengthening all elements of the road transport system through improvements under the key themes of safe roads, safe vehicles and safe road use. Speed management is embedded across all three themes, as shown in Figure 5.



Figure 5 – Embedment of speed management across all Safe System approach themes
(Source: This image was provided by the Office of Road Safety, Department of Infrastructure, Transport, Regional Development, Communications, Sport and the Arts)

The strategy notes speed management is critical, underpinning the themes and addressing the priority areas for this strategy. The strategy also advocates the widespread introduction of the movement and place planning approach, recognising a shift is needed from a traditional road categorisation system, to focus on people, and that the design of streets should work to maximise safe access for people.

Taking a movement and place approach supports the delivery of the Safe System. The movement and place approach informs road design and uses speed management to ensure reductions in road trauma in urban, regional and remote communities. Implementing the best features of self-explaining roads is also important when considering treatment options in urban areas.

By 2030, the strategy aims to reduce the annual number of fatalities by at least 50% (an estimated reduction in the fatalities per capita of 55%) and reduce the annual number of serious injuries by at least 30% (an estimated reduction in serious injuries per capita of 38%).

The focus on speed as a critical component in achieving these targets is reflected in the lead indicators in the strategy, including:

- the increase of high pedestrian activity within CBD and town centre areas under movement and place or equivalent approaches with posted speed limits ≤ 40 km/h
- the increase of roads in urban areas with a posted speed limit ≥ 50 km/h with separated cycle ways, and in urban areas outside of the Australian Bureau of Statistics remoteness category of major cities

- signalised intersections with a speed limit < 70 km/h
- vehicles traveling at or below speed limit.

6.2 National Road Safety Action Plan 2023-25

The *National Road Safety Action Plan 2023-25* includes several actions related to speed.

Significant commitments in the action plan include:

- developing a Regulatory Impact Statement (RIS) on reducing the open road default speed limit in consultation with state and territory governments, including police, and local government
- developing a RIS on reducing the default speed limit for unsealed roads across remote areas in consultation with states, territories and police.

The action plan promotes lower speed zones in areas with high risks to vulnerable road users.

Direction around the setting of speed limits is provided in the context of addressing speeding. The action plan notes that setting appropriate speed limits is a critical component of road safety. It directs that the speed limit should take into account the standard and condition of the road, the function the road performs and level of safety to all road users, traffic volumes and the environment.

The action plan includes an action for the Australian Government to develop national best practice guidelines for speed management in consultation with state and territory governments and police agencies.

6.3 Austroads Guide to Road Safety Part 3: Safe Speed

The *Austroads Guide to Road Safety Part 3: Safe Speed* notes that each jurisdiction has its own prescribed speed limit review and speed limit setting procedures. The guide notes that when setting speed limits, a range of factors should be taken into account within the context of the Safe System. The key factors are:

- Crash risk – the most important factor that should be taken into account in the assessment or review of a speed zone. Individual or personal risk is the preferred metric for providing a consistent relationship between speed limits and the characteristics of the road and road environment.
- Current operating performance – the physical and operating environment of a road is noted as having a major influence on risk. Speed zone assessments should account for factors which have an impact on the selection of driving speeds and the risks these factors present. These factors include but are not limited to:
 - the presence of pedestrian and cycling facilities
 - the volume and composition of traffic

- special activities adjacent to the road, such as schools
 - roadside hazards
 - uncontrolled intersections
 - access points (driveways)
 - locations where collisions between motor vehicles and vulnerable road users are possible.
- Road and roadside infrastructure, geometry, and roadside development – These are all factors that strongly influence the selection of driving speeds. Speed zone assessments should account for factors such as road alignment, cross-section characteristics, and the level of activity generated by abutting roadside properties.
 - The guide notes that speed zoning is generally not appropriate for addressing isolated roadside hazards or blackspots (high crash locations). The appropriate course of action for these sites should be to undertake appropriate remedial work to ameliorate the problem. However, a lower speed zone may be appropriate where there are a series of hazards that prevail along an extended length of road. To avoid frequent changes in speed limit over short distances adjacent road sections should be considered as part of a speed zone assessment.
 - Unsealed roads – These roads typically have the same default speed limit as sealed roads, except in Tasmania where the default speed limit for unsealed roads is 80 km/h. Lower speed limits should be considered on unsealed roads where there is direct roadside development, the road has a poor crash history or has poor alignment. Other factors such as effect on driving amenity (especially dust), are also highlighted as being matters for consideration.

It is noted that the function of a road is important in the determination of appropriate speed limits and that road authorities should seek to align road function and road design as far as possible. The guidance goes on to note that traditional methods of using the 85th percentile speed to inform speed limit setting is not supported by the Safe System approach.

6.4 Australasian College of Road Safety – policy position statement on speed management

The Australasian College of Road Safety produced a policy position statement on speed management in 2023. The objective of the policy position is to describe a more holistic framework for speed management. It notes that speed management is best achieved through a comprehensive scope such as the eight-step approach to speed management policy put forward by the Organisation for Economic Co-operation and Development (OECD) and European ministers of transport. The principal tenet of that approach is that the nature and function of roads and speed limits be consistent. This means that, SFAIRP, roads should be

designed to explain the safe and appropriate speed to road users and make the safe speed in that location obvious and intuitive to drivers. This results in speed limits and enforcement that is credible and realistic to drivers and other road users.

7 State plans and policies

7.1 2026 Road Safety Action Plan – Toward zero trauma on NSW roads

The *2026 Road Safety Action Plan – Toward zero trauma on NSW roads* has a vision of zero fatalities and serious injuries on NSW roads by 2050. Through the Safe System approach to road safety, the plan aims to halve fatalities and reduce serious injuries by 30% on NSW roads by 2030.

The targets set out in the plan are supported by in-depth modelling. Enhanced speed management is identified as a key initial priority delivery area to set NSW on the path to a low trauma future.

There are three targeted actions that specifically mention speed management and setting safer speed limits. These are mentioned under three different focus areas (see Table 1).

Table 1 – Speed-related actions in the 2026 NSW Road Safety Action Plan

Focus area	Action
Creating safer country roads and urban places	Deliver a new Towards Zero Safer Roads Program by 2030 to systematically build a safer road network through safety infrastructure and speed management, with the majority of this investment going to the Saving Lives on Country Roads Program.
Enhancing road safety in local communities	Strengthen the role of local government and related operational and business processes in funding, planning, designing, and operating safe local road networks including: <ul style="list-style-type: none"> streamlining operational and business processes to better support local government requests to lower speed limits in line with revised NSW Speed Zoning Guidelines.
Ensuring the safety of vulnerable and other at-risk road users	Treat urban places and local streets with safety measures such as pedestrian crossing facilities, raised safety platforms, and safer speed settings particularly 30 km/h and 40 km/h zones.

The plan notes that around two-thirds of fatalities on NSW roads occur in country areas, and of these around 60% occur on high-speed roads where the speed limit is ≥ 100 km/h. It goes on to note that as more than 80% of the rural road network is made up of roads with a speed limit of 100 km/h, reducing risks on high-speed roads remains a key challenge and priority.

This document is a key enabler in achieving these targets.

7.2 NSW Movement and Place Framework

Under the NSW road classification system, state roads are operated by TfNSW and regional and local roads are operated by local governments (see Figure 6). Motorways are operated by the relevant motorway authority. However, TfNSW may have a significant interest in the

operation of a local or regional road if it adversely impacts the operation of an adjoining state road.

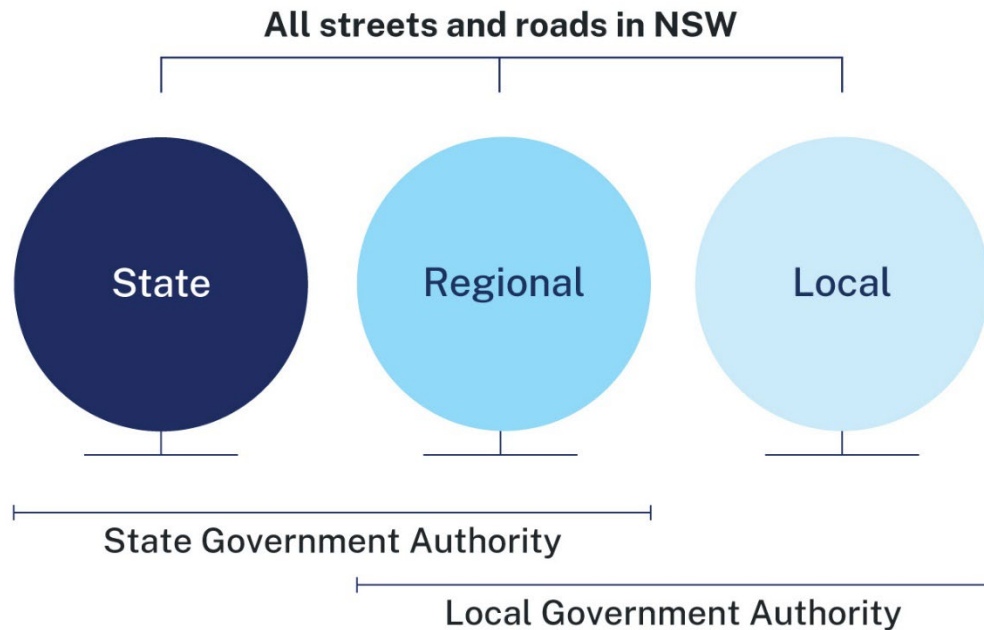


Figure 6 – Governing authority of different road classifications in NSW

(Source: TfNSW *Movement and Place Framework*)

Local roads are primarily designed and delivered by local governments. State roads and, to a lesser extent, regional roads shall be co-designed and delivered by the respective council and TfNSW. TfNSW should take a collaborative approach with local governments for the design of state roads and regional roads to ensure that appropriate street designs are implemented successfully.

While road classification establishes ownership and responsibility for managing and maintaining roads and streets, it does not describe their roles, characteristics and functions.

The *Movement and Place Framework* recognises that there are many different types of roads and streets, reflecting the variety and complexity of their contexts, functions and users. These can be grouped across four distinct road and street environments.

Movement and Place is a cross-government framework for planning and managing roads and streets across NSW. The framework delivers on NSW policy and strategy directions to create safe and successful streets and roads by balancing the movement of people and goods with the amenity and quality of places.

In the past, roads have been considered as just a way to get vehicles from A to B. The *Movement and Place Framework* recognises that streets are not just about moving people and goods, they also interact with places where people live, work, and spend time. The *Movement and Place Framework* considers the whole street, including footpaths, from property line to property line and how the space interacts with surrounding land uses. It considers the needs of

all users of this space, including people walking and cycling, freight, servicing and deliveries, private vehicles and public transport. Every location has a movement and place function.

It also considers the people spending time in those places, whether moving around the place or enjoying street life, including outdoor dining, shopping, or waiting for a bus. A movement and place approach acknowledges the effect road design, speed and associated environmental factors such as traffic noise and air pollution have on the land use and adjoining properties.

More information about the classification of movement and place can be found in TS 00066.

8 Speed zoning principles

Six foundational principles for how speed zones in NSW shall be assessed, designed, and implemented are specified in this document (see Figure 7). The principles align with the Safe System approach to road safety and objectives of the *Movement and Place Framework*.

The emphasis placed on each of the principles may vary from case to case according to its context. However, the principles shall be read and applied as a set. All principles shall be taken into account to form a robust, evidence-based decision.

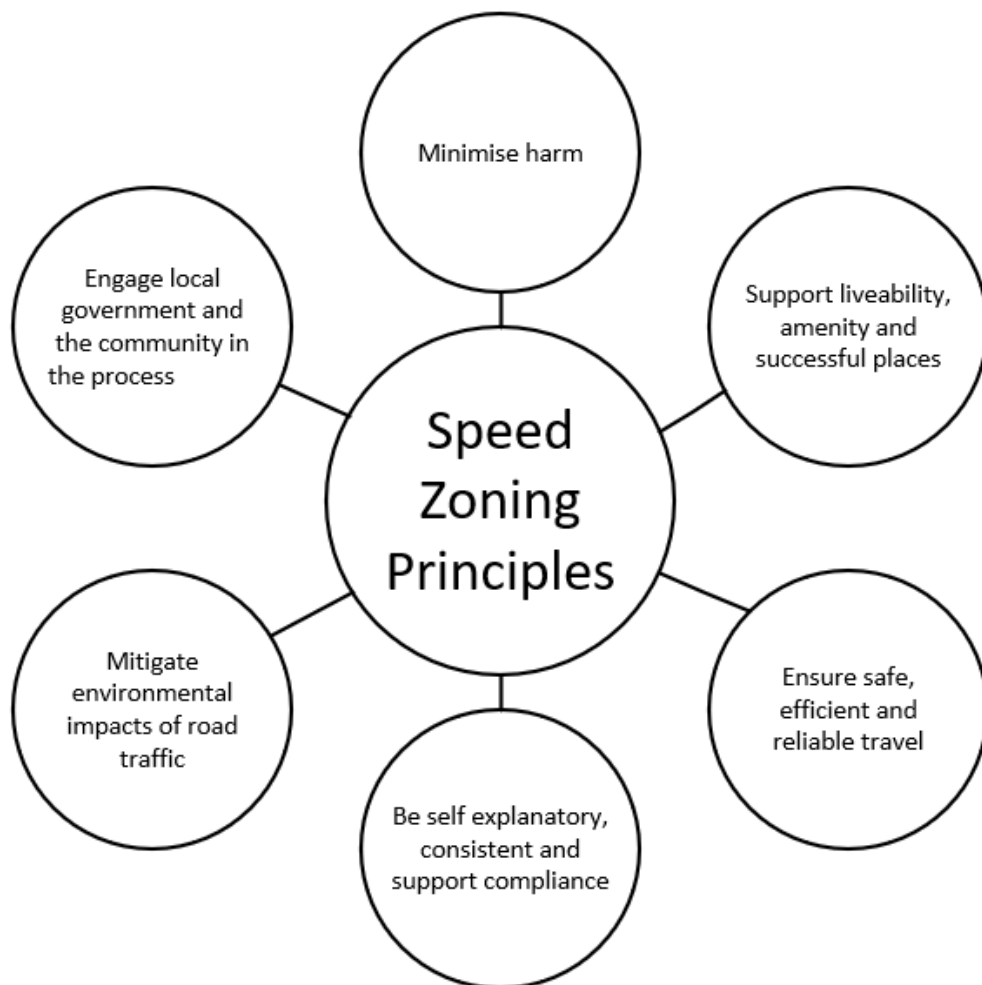


Figure 7 – NSW speed zoning principles

8.1 Principle 1 – Speed zones should be set to minimise harm

Speed zones should be reviewed and implemented to reduce the likelihood and severity of a crash. When setting speeds, both of the following points should be taken into account:

- the types of vehicles and road users using the road and the degree to which different road users are exposed to potentially serious and life-threatening risks

- the nature and standard of the road infrastructure and its surrounds.

Vulnerable road users such as pedestrians and people cycling are much more likely to be fatally or seriously injured at impact speeds above 30 km/h. Priority should always be given to the needs and volume of vulnerable road users when setting speeds.

On rural roads, which have a primary movement function that supports efficient travel, speed zones are often mitigated by lower advisory speed limits and other infrastructure measures, such as barriers, to reduce harm.

In movement corridors, vehicle occupants face increased risks of fatality and serious injury at different speeds depending on the crash type. Low-angle, merge-type impacts are more survivable than high-angle impacts such as head-on and right-angle impacts. Potential crash types in a particular road environment should be taken into account when setting speeds.

Travel speeds and fatalities usually decrease when speed limits are lowered, and higher travel speeds and fatalities follow increases in speed limits. Lower speed limits result in irrefutable road safety benefits.

8.2 Principle 2 – Speed zones should align with surrounding environments to support liveability, amenity and successful places

The liveability, amenity and economic success of communities and places are enhanced by appropriate speed zoning. In town centres and precincts with a high place function, lower speeds enable the use of civic street design elements. Roads that have both a high place and movement function may require speed limit setting to balance function, safety and comfort. On roads that have lower movement functions, such as local streets, speed limits should enhance comfort and amenity and promote the safe use of active transport modes.

The current and future use of the road and adjacent places should be taken into account when setting speed limits. The road environment should include infrastructure treatments to ensure the road is self-explaining. Aligning speed limits with the surrounding environments delivers a more integrated network that caters for all users.

8.3 Principle 3 – Speed zones should ensure safe, efficient and reliable travel on roads that have a primary movement function

For roads that have a high movement function and a low place function, speed zones should maximise safe, efficient and reliable travel to reflect the nature and standard of the road infrastructure and its surrounds. In urban environments, the surroundings can dictate a lower speed than non-urban environments due to the higher place function, presence of vulnerable road users, closer spacing of intersections and traffic signals. Where high-speed travel is being

considered, appropriate infrastructure and clearances should be in place to decrease the severity and likelihood of trauma.

8.4 Principle 4 – Speed zones should be self-explanatory, consistent and support compliance

Road user behaviour, including the perception of an appropriate speed of travel, can be influenced by the design of a road. Where possible, the speed limit of a road should be self-explaining. The visual cues such as vehicle composition, road environment and road quality should align with safe and appropriate behaviours.

Speed zones should be clearly indicated to road users through appropriate signage. In addition, supporting infrastructure such as traffic calming devices in lower-speed zones, should reinforce safe behaviours.

Speed zone changes along a route should be kept to a minimum. Route and area-based speed limit reviews should be conducted to ensure consistent speed zones can be achieved where the road environment is similar.

Where the street environment changes, such as entering a town, a change in speed zone consistent with that change in environment also supports compliance. Speed zoning in a consistent manner increases acceptance and compliance with the speed zone.

8.5 Principle 5 – Speed zones should mitigate environmental impacts of road traffic

The NSW Government has committed to a 35% cut in emissions by 2030 compared with 2005 levels. As a significant emitter of greenhouse gases, transport has an important role to play by operating in a more sustainable way to limit environmental impacts.

Appropriate speed zones can lead to more sustainable transport choices. For example, lowering speeds in civic spaces may encourage more people to walk. Mode shift can reduce congestion and the transport sector's emissions intensity, improve air quality and support better health and wellbeing.

Appropriate speed zone application can also result in less stop-start driving and more efficient engine operation, leading to a reduction in emissions and noise. Safer speeds reduce the number of crashes that can result in significant traffic delays and unnecessary emissions. These outcomes can provide benefits by increasing the place qualities of areas and allow for greater activation of spaces such as outdoor dining.

8.6 Principle 6 – Local government and the community engagement in the speed zoning process

Opportunities to foster positive and proactive local government and community engagement in speed management activities should be optimised to improve road user understanding of travelling at safe speeds.

TfNSW, in partnership with local government, shall engage with local communities and road users during the speed zoning review process.

The level of engagement may differ depending on the review. Effective communication and engagement can increase community acceptance of speed limits by improving their understanding of the change, expectations and impacts.

9 Speed zone review process

9.1 Introduction

Section 9 of this document sets out the process for conducting a speed zone review in NSW. It details the applicability of the process to new and existing roads, and roads where future development is proposed. The process has been established to ensure the steps, analysis and decision-making involved in reviewing and implementing speed zones are transparent and well documented. The process has been designed to promote consistency in the approach to speed zoning in NSW and give effect to the speed zoning principles described in Section 8.

All speed zone reviews shall follow the process outlined in Figure 8.

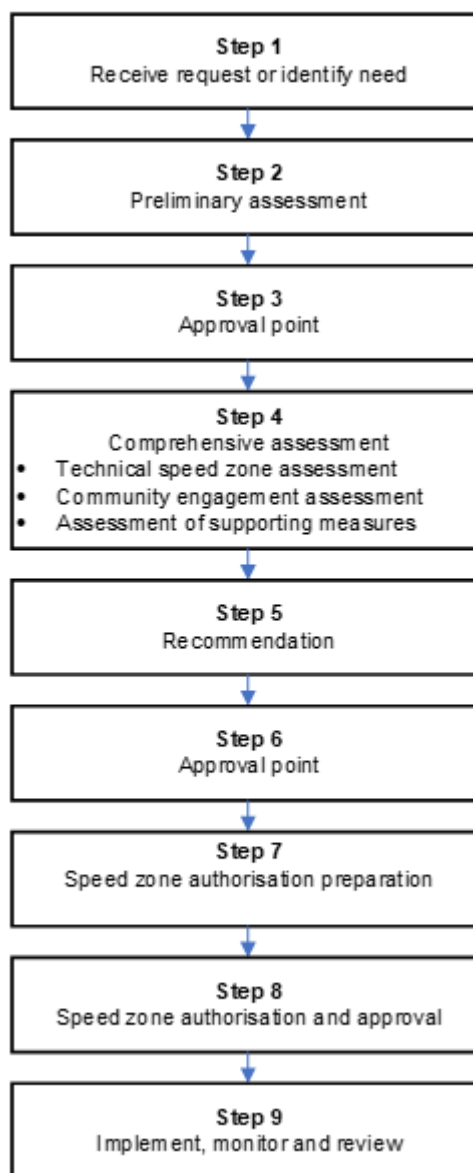


Figure 8 – Speed zone review process steps

Each of the steps in the speed zone review process are detailed in Section 10.

9.2 Application

The NSW road network comprises of more than 220,000 km of roads. The nature of roads and streets change as new development occurs, and the length of the network changes as new roads are built. The speed zone review process shall apply to existing roads, new roads and roads that fundamentally change because of new or proposed land development.

9.2.1 Existing roads

The process set out in Section 10 shall be applied when undertaking a speed zone review of an existing road on the NSW road network.

9.2.2 New and upgraded roads

New roads include those built on new and existing road corridors as well as major road upgrades. The construction of new roads and major road upgrades present opportunities to implement best practice road design and give effect to the principles of this document.

The determination of a speed zone shall be undertaken with the delegated authority, as part of the approval process for new roads and major road upgrades, as outlined in Section 11.1. Delegated authorities should be engaged as early as possible in the planning and design stages of new roads or major road upgrades. The speed zoning practitioner shall be engaged no later than the strategic design phase of the project to ensure that the correct speed limits are selected prior to detailed design being completed.

Local governments should refer to TS 00066 (DORAS) to categorise new roads in line with the design requirements.

9.2.3 New and proposed land development

New and proposed land development can change the way roads and streets operate through changes in the generation and composition of traffic, vulnerable road user activity, and access to and from adjacent land use. All these changes can influence the safe speed limit for a road.

Any proposed land development that will fundamentally change the operating environment of an existing road shall be subject to a speed zone review. This includes changes to the place context (see Section 10.3.2) or changes to any of the moderating factors applicable to the street type (see Appendix B). Any such speed zone review shall be completed according to the process for a new road project, whereby the revised function and operation of the road can inform both the future speed zone, and the infrastructure needed to support the future speed limit. The speed zone change, and any necessary infrastructure upgrades, should be implemented in conjunction with the development becoming operational.

10 Speed zone review steps

10.1 General

Section 10 details the workflow for each step in the speed zone review process, including conducting a preliminary assessment (Step 2 (see Section 10.3)) to determine if a comprehensive assessment (Step 4 (see Section 10.5)) is required. Section 10 details the information that practitioners shall obtain to make an informed technical recommendation on what the appropriate speed limit should be, as well as providing guidance on community engagement, speed zone authorisation (SZA) and high-level implementation guidance.

10.2 Step 1 – Receive request or identify need

A speed zone review can be initiated for a variety of reasons and requested by internal or external stakeholders. Reasons for requesting a speed zone review can include, but are not limited to:

- inconsistency between the street or road design and the current speed limit
- inconsistency between the street or road category and the current speed limit
- inconsistency of speed limits along a corridor
- incompatibility, actual or perceived, between the desired use and function of a street or road and the current speed limit
- safety concerns, actual or perceived.

The speed zone review process is designed to accommodate all types of requests.

All requests from local government should provide information in support of the speed zone review request. The minimum level of information provided should meet the requirements of Step 2 (see Section 10.3). If a review progresses to a comprehensive assessment (Step 4 (see Section 10.5)) then local government shall provide or arrange the collection of necessary operational data (see Section 10.5.1.2).

Upon receiving a speed zone review request, practitioners shall classify the request into one of three categories: risk-based; community-based; or HPAA. Further information regarding the breakdown of the three categories can be found within the *Towards Zero Speed Management Plan*.

All speed zone review requests shall be recorded, including reviews initiated by TfNSW staff. There may be instances where a review request falls outside the scope of this document. These requests, and the reason as to why they are out of scope, shall be documented.

10.3 Step 2 – Preliminary assessment

The primary purpose of the preliminary assessment is, at a high level, to determine whether a speed zone review should proceed to a comprehensive assessment (Step 4 (see Section 10.5)).

The preliminary assessment does not require the same level of detail as a comprehensive assessment. It shall involve an assessment of the speed limit range for each road subject to the speed zone review request and comparing that range with the current speed limit.

Speed limit ranges are specified for all roads based on the street type, place type and other key attributes that influence safety outcomes and road user perceptions of the road environment.

The preliminary assessment shall be completed even if a practitioner determines that a speed zone review will progress to comprehensive assessment (Step 4 (See Section 10.5)), as determination of the street type and speed limit range are fundamental inputs to the comprehensive assessment.

The preliminary assessment shall be complete within four months from the date the request was received or the need identified. This includes notifying the requester of the review of the outcome and outlining the next steps in the review. Requesters shall be informed of these timeframes and of any variation to these timeframes with the reasoning for the variation.

10.3.1 Street environments

The four street environments of the NSW *Movement and Place Framework* (see Figure 9) are:

- Main roads – These roads and routes are central to the efficient movement of people and goods. They include motorways, primary freight corridors, major public transport routes, the principal bicycle network and key urban pedestrian corridors. Main roads are identified by their higher movement functions and lower place intensities.
- Main streets – These streets are some of the most vibrant places in cities and towns. They have both significant movement functions and place qualities. Balancing the functions of these streets is a common challenge.
- Local streets – These streets represent the majority of streets in most communities. They often have important local place qualities. Activity levels are less intense than for civic spaces, but these streets can have significant meaning to local people.
- Civic spaces – These streets are at the heart of communities and have a significant meaning, activity function or built environment. They are often in major centres, tourist and leisure destinations and community hubs. They are places for people, with a priority on place.

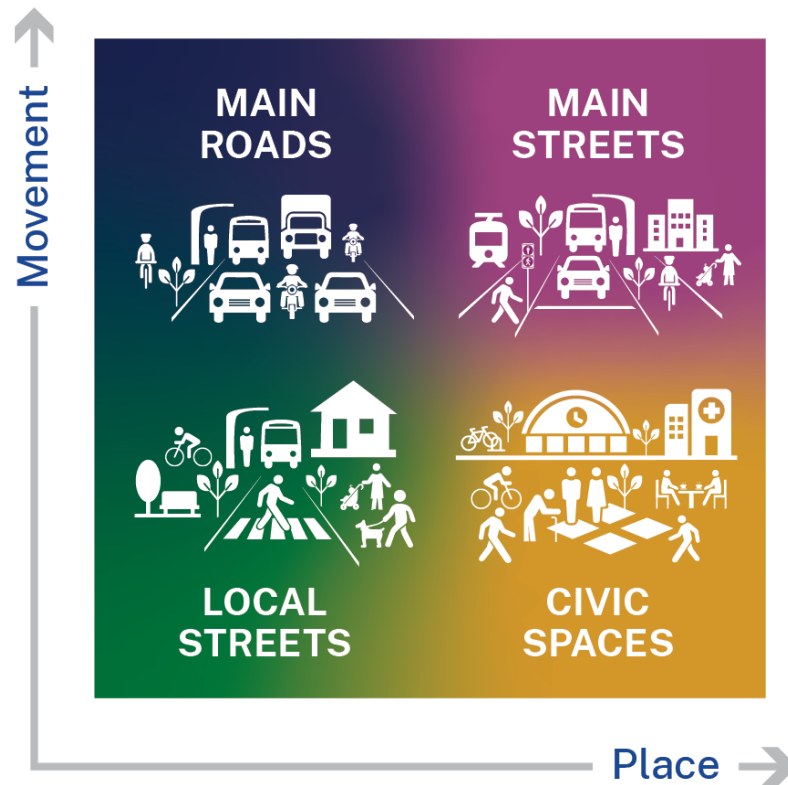


Figure 9 – NSW street environments
(Source: DORAS)

Each type of street environment has typical characteristics. The nature of the road network and needs of users are complex, and the set of rules, assumptions and planning outcomes can vary. Every road and street should be considered individually within its own context.

Managing speed, including setting speed limits, is critical to achieving the movement and place outcomes of the road network and surrounding places. Speed and associated road design are a major determinant of street character and place qualities.

Practitioners shall select the street environment for each road that is subject to a speed zone review and document the rationale. Refer to TS 00066 (DORAS) for more guidance on selecting the street environment for each road.

10.3.2 Place context

Roads and streets sit within six different place contexts as shown in Figure 11:

- Urban centre – dense, diverse and vibrant core neighbourhoods of cities and towns throughout NSW
- Urban – relatively dense inner neighbourhoods and precincts found in many cities, centres and towns in NSW with a mix of residential and retail
- Suburban – sparsely distributed and almost uniformly residential environments

- Enterprise – commercial, industrial and large-lot retail areas found alongside most cities and towns in NSW
- Peri-urban – large areas between built-up suburbs and rural landscapes that feature a diversity of uses, from residential to light industrial and agricultural, and a sparse network of local streets
- Rural – sparsely populated landscapes, featuring agriculture, industry and forested areas.

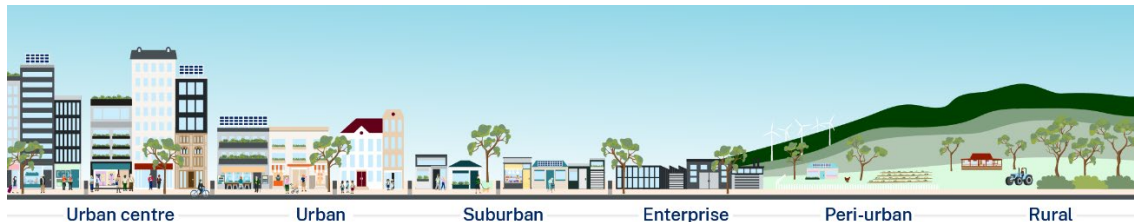


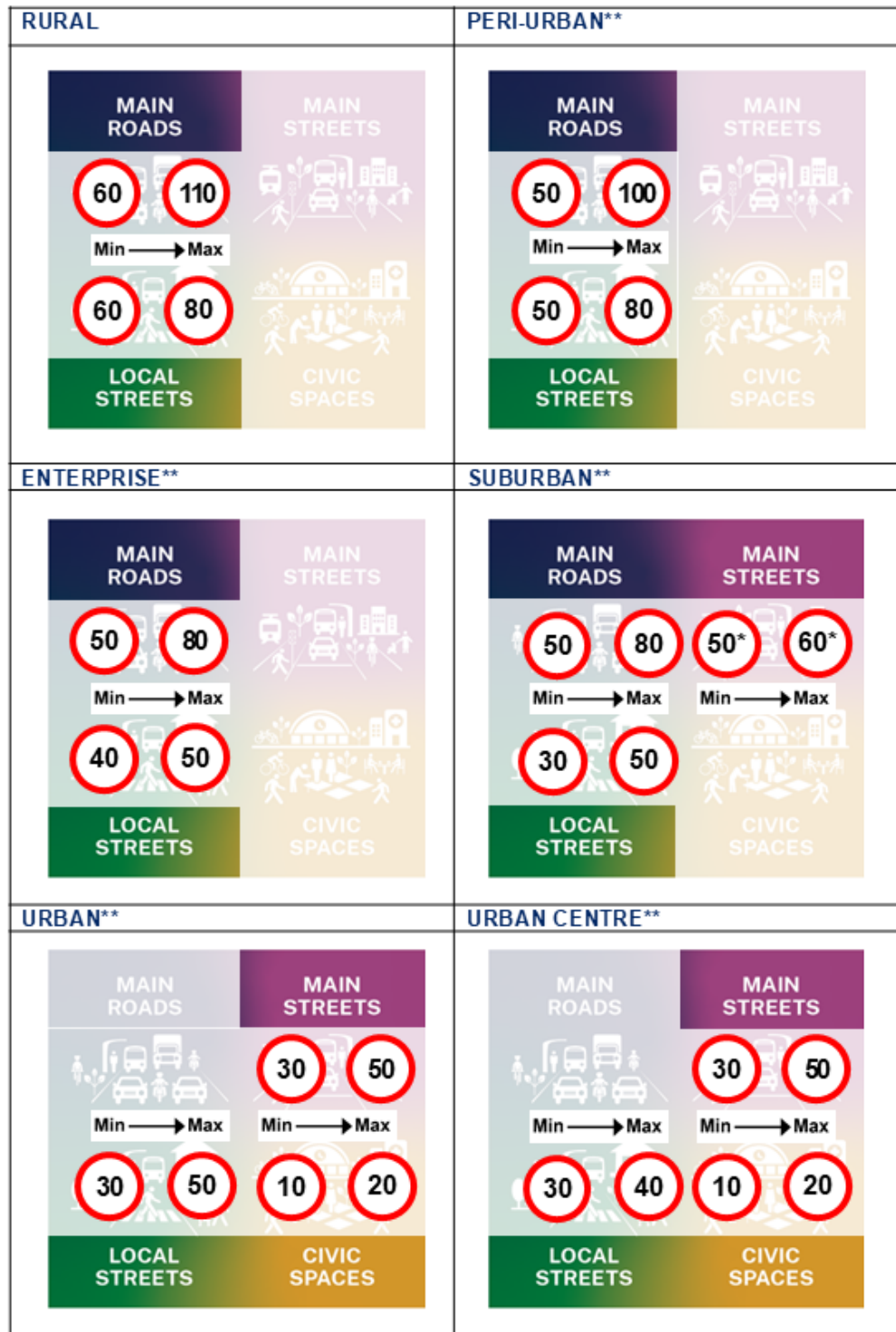
Figure 10 – Place contexts in NSW
(Source: DORAS)

Place context is strongly aligned with the level of roadside development, which is known to have an influence on the speed at which drivers travel (see Figure 10). For example, a peri-urban area will have a denser level of roadside development than a rural area.

Practitioners shall identify the place context for each road that is subject to a speed zone review and document the rationale. All roads and streets shall be divided into homogeneous sections that have uniform characteristics including place context and key road design features such as cross-section and alignment. This is because a different speed limit may be required as a road environment changes.

10.3.3 Speed limit ranges by street environment and place context

Broad speed limit ranges are specified for all roads and streets (excluding motorways) based on the street environment and place context, as shown in Figure 11. This figure also shows that street environments are place context sensitive, only some street environments exist for each place context.



*Note: Excluding transit streets where the speed limit range is 30 km/h to 40 km/h

**Note: Excluding motorways where the speed limit range is 100 km/h to 110 km/h.

Figure 11– Speed limit ranges (min and max) by street environment and place context

Having identified the street environment and place context, practitioners shall then select the street type for each road or street that is subject to the speed zone review. Street type

identification involves analysing the place context for roads and streets in the corresponding street environment. DORAS identifies 22 road and street types, as shown in Figure 12.

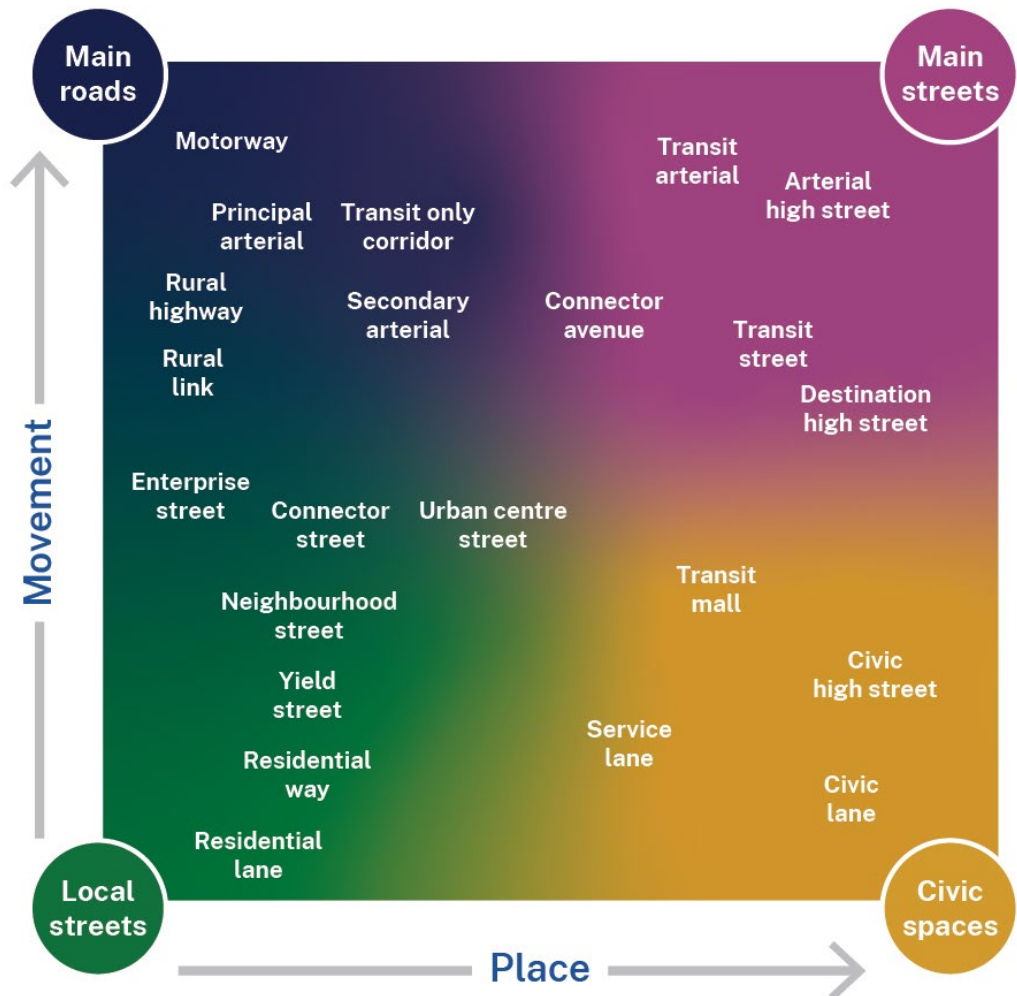
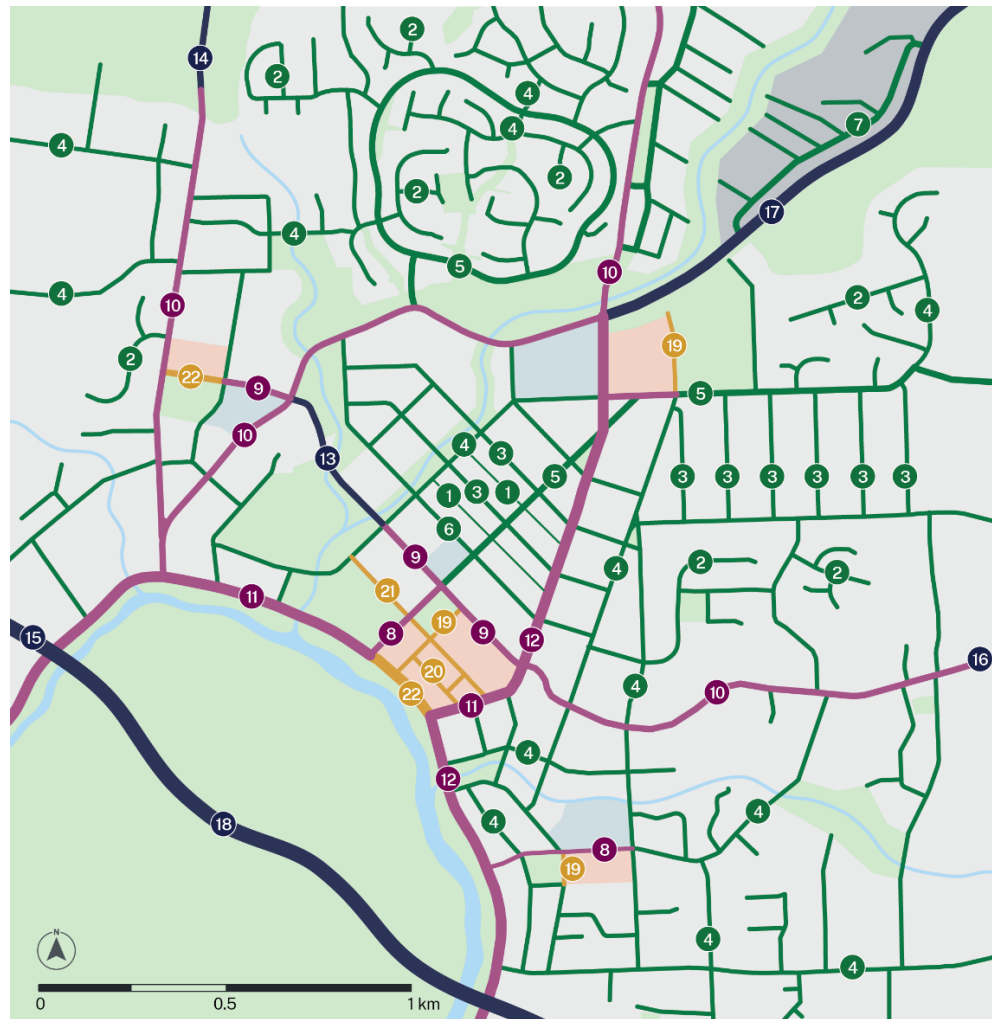


Figure 12 – Street types within street environments
 (Source: DORAS)

High level descriptions of each street type are contained in Appendix A.

An example of street types within a fictional network are shown in Figure 13.



Local Streets	Main Streets	Main Roads	Civic spaces
1 Residential lane	8 Destination high street	13 Transit-only corridor	19 Civic lane
2 Residential way	9 Transit street	14 Rural link	20 Service lane
3 Yield street	10 Connector avenue	15 Rural highway	21 Civic high street
4 Neighbourhood street	11 Arterial high street	16 Secondary arterial	22 Transit mall
5 Connector street	12 Transit arterial	17 Principal arterial	
6 Urban centre street		18 Motorway	
7 Enterprise street			

Figure 13 – Example of street types applied to a fictional network (Source: DORAS)

The rationale for the selection of the street type shall be documented. If there is ambiguity about the street type, or where more than one street type may apply, then a vision and validation process should take place. The vision and validation process shall ensure that the speed limit will align with the future street type function. Relevant stakeholders and positions can be found within the *Ancillary document NSW Speed Zoning Standard*.

Speed limit ranges have been provided for each street type and place context. Practitioners shall refer to Appendix A to determine the speed limit range for each street type that is subject to the speed zone review. The speed limit ranges have been designed to give effect to the principles of this document.

The speed limit range for each road that is subject to the speed zone review request shall be identified and compared with the current speed limit. The next steps are informed by the outcome of the comparison as follows:

- If the current speed limit is outside the bounds of the speed limit range, the speed zone review shall progress to a comprehensive assessment (see Section 10.5).
- If the current speed limit falls within the speed limit range, the speed zone review shall also progress to a comprehensive assessment unless circumstances are satisfied that permits a decision not to progress (see Section 10.3.4).

10.3.4 Decision to not progress a speed zone review

A decision to not progress a speed zone review to a comprehensive assessment may occur if any of the following circumstances apply:

- A comprehensive speed zone review has been completed for the subject road within the past 24 months, and the road design, surrounding land use, traffic volumes and community position have not changed.
- The speed zone review request was raised in response to a safety issue, that is either:
 - not suitable for being addressed by a change to the speed limit (see Section 6.3)
 - not supported by evidence based on crash data analysis or a safety risk assessment (see Section 10.5.1.3)
 - addressed by an infrastructure upgrade that has funding approval for implementation within the next 12 months, or construction works that have commenced. However, in these situations, a speed zone review as an interim measure can be considered.
- The speed zone review request falls outside the scope of this document.
- There is another reason subject to concession approval.

If a decision is made not to proceed with a comprehensive review, the reasons for this decision shall be documented and submitted through the appropriate TfNSW business approval process (Step 3 (see Section 10.4)).

Documenting this decision also allows for the consideration of the completed preliminary assessments for future speed zone reviews on the same road(s).

10.3.5 Extent of speed zone review

If a speed zone review is to progress to a comprehensive assessment, then the extent of the comprehensive speed zone review shall be determined to ensure that effect is given to Principle 4.

Reviewing the extent of the speed zone review helps support a self-explaining road environment by having a consistent set of speed environments where changes in the posted speed limit match the road and roadside environment. This approach can help minimise speed limit changes along a route, across an area or a precinct. Frequent speed zone changes (every three minutes) along a single route can increase the cognitive load for drivers, especially where speed limits vary marginally (by 10 km/h), or where the need for such change is not clear to the road user.

The extent of the comprehensive speed zone review shall take into account all of the following points:

- The proposed speed zone change location on the subject road to ensure they coincide with obvious changes in the road or roadside environment (change points are as intuitive as possible).
- The function and design of intersecting roads. Intersecting roads are to be included in the speed zone review extents if changing the speed zone on the subject road(s) would introduce network inconsistencies, such as:
 - in rural areas, having a lower speed limit on a higher movement function road than an intersecting road with a lower movement function or constructed to a lesser design standard or both
 - in urban areas, lowering speed limits on roads with low to moderate levels of active road users while retaining a higher speed limit on an intersecting road with much higher levels of active road user activity.
- The minimum length of speed zones (see Section 13.1.2).

10.3.6 Minor speed zoning extension

In some circumstances a minor speed zoning extension may be accepted without completion of a comprehensive speed zone review. Each of the following criteria shall be met to complete a minor speed zone extension:

- No speed limit increase within the extended zone length due to minor speed zone extension.
- Maximum length of speed zone extension \leq 500 m.
- The place type and adjacent land use of the extended zone be consistent with the existing speed zone.
- The required attributes associated with the street and place type in the extended zone be consistent with the existing speed zone.

If any of the above criteria are not satisfied, a comprehensive speed zone review shall be completed.

Minor speed zone extensions also apply to existing school zones and shall be subject to the same criteria. Further details on school zones can be found in Section 12.4.3 and Section 13.4.

Requirements to alter, remove or replace a speed zone sign are contained in the *Road Transport Act 2013*. A SZA shall also be obtained for minor speed zone extensions.

10.4 Step 3 – Approval point

If the preliminary assessment (Step 2 (see Section 10.3)) finding is that the speed zone review progresses to a comprehensive assessment, no approval to proceed shall be required.

In all other instances, the findings of the preliminary assessment shall be submitted through the appropriate TfNSW business approval process to confirm the decision not to proceed to a comprehensive assessment.

When the decision is confirmed, the findings of the assessment should be communicated to the speed zone review requestor and the corresponding transport authority such as local government or TfNSW. This excludes speed zone feedback received through the TfNSW website, as this information supports strategic prioritisation of where speed zone reviews take place.

10.5 Step 4 – Comprehensive assessment

The comprehensive assessment shall include all of the following criteria:

- a technical speed zone assessment
- a community engagement assessment
- assessment of supporting measures for the speed zone.

10.5.1 Technical speed zone assessment

The purpose of the technical speed zone assessment is to determine the most appropriate speed limit for the subject road from the speed limit range (see Appendix A). The speed zone assessment shall be informed by:

- assessment of the moderating factors
- assessment of the operational data
- assessment of the crash and crash risk data.

Section 10.5.1.1 to Section 10.5.3 detail the comprehensive speed zone assessment requirements.

10.5.1.1 Assessment of moderating factors

Moderating factors are design and operating characteristics of a road that are used to inform the selection of an appropriate speed limit from within the speed limit range. Moderating factors that promote safer outcomes, such as median barriers and access controls, enable higher speed limits to be selected from within the speed limit range on roads and streets with higher movement functions (Main Roads and Main Streets). Moderating factors that support lower travel speeds, such as an HPAA or local area traffic management scheme, enable lower speed limits to be selected from within the speed limit range on streets with lower movement functions (Local Streets and Civic Spaces).

Addition roads and streets design features can be found in Appendix E.

Moderating factors that are used within this document vary as a function of the street environment, as shown in Table 2.

Table 2 – Moderating factors as a function of street environment

Moderating factors	Main roads	Main streets	Local streets	Civic spaces
Traffic volume	✓			
Carriageway width	✓		✓	
Lane width	✓		✓	
Shoulder width	✓			
Roadside hazards	✓			
Access controls and density	✓	✓		
Kerbside parking	✓		✓	
Cycling facilities	✓	✓	✓	
Terrain	✓			
Footpath provision and design	✓		✓	✓
Road stereotype		✓	✓	
Number of lanes		✓	✓	
HPAA		✓	✓	
Pedestrian crossings design		✓	✓	
Corridor width			✓	
Carriageway surface			✓	
Road markings			✓	
Local area traffic management scheme			✓	
Quietway			✓	
Shared zone				✓

Practitioners are directed to Appendix B, which contains the moderating factors for each street type and place context combination.

Practitioners shall assess the moderating factor requirements of the relevant street type and place context to inform the selection of an appropriate speed limit from the speed limit range.

10.5.1.2 Assessment of operational data

Operational data plays a key role in the comprehensive speed zone assessment. It is used to understand how people currently use the road subject to the speed zone review and to forecast the impacts of any proposed change in speed limit.

The operational data that shall be taken into account for a speed zone assessment are:

- traffic volumes
- vulnerable road user activity for some street environments (see DORAS for examples)
- operating speed information.

10.5.1.2.1 Traffic volumes

Traffic volumes are context sensitive, which is why they are not directly used in the selection of speed limits for most environments. However, the Austroads *Infrastructure Risk Rating Manual* notes that traffic volume influences risk on roads in rural environments. Specifically, as traffic volumes increase so does the crash risk. Therefore, undivided roads in rural environments have moderating factors that vary as a function of traffic volume.

The other key use of traffic volumes in the speed zoning review process shall be the calculation of crash rates (see Section 10.5.1.3). In circumstances where traffic volumes are not readily available within the speed zone review length, the nearest available traffic count data on the same or similar road in close proximity should be obtained. If no suitable traffic volume information is available, a traffic volume count or estimate shall be required.

10.5.1.2.2 Vulnerable road user activity

A key aspect of Principle 2 (that speed zones align with surrounding environments to support liveability, amenity and successful places) is that roads with high place function or lower movement functions should provide speed limits that enhance comfort and amenity, and promote the safe use of active transport modes.

This means, for roads that accommodate both vulnerable road users, such as pedestrians and people cycling, and the vehicular movement of people and goods, priority shall be given to setting speed limits that protect vulnerable road users. Speed limits can vary depending on the level of vulnerable road user activity on a road and the level of infrastructure that is provided.

The level of vulnerable road user activity and the type of infrastructure provided shall be a speed limit input for some street environments. Levels of activity are classed as either very low,

low, medium or high. Specific pedestrian and bicycle rider volumes have not been set for these classifications as they will vary depending on context. For example, low pedestrian volumes on some streets in central Sydney can be considered high pedestrian volumes in a regional town. The following descriptions provide guidance on the determination of the classification:

- Very low – pedestrian or bicycle activity is rare; it is uncommon to see people walking or riding in the area.
- Low – it is common to see pedestrian or bicycle activity. However, the levels of activity are lower than on other roads and streets in the surrounding area.
- Medium – pedestrian or bicycle activity is present at most times of the day and can be busy at times. Levels of activity are average or above average compared to other roads and streets in the surrounding area.
- High – pedestrian or bicycle activity is present at most times of the day and is distinctly busier than other roads and streets in the surrounding area.

Table 3 provides high-level guidance on the range of pedestrian or bicycling activity that can be expected as a function of place context.

Table 3 – Indicative guidance on vulnerable road user activity by place context

Place context	Very low pedestrian or bicycle activity	Low pedestrian or bicycle activity	Medium pedestrian or bicycle activity	High pedestrian or bicycle activity
Rural	✓	✓		
Peri-urban	✓	✓	✓	
Enterprise	✓	✓	✓	
Suburban		✓	✓	
Urban			✓	✓
Urban centre			✓	✓

10.5.1.2.3 Operating speed data

Operating speed data is integral to every speed zoning decision. Operating speed information is needed for a variety of reasons including:

- to understand the speed at which road users currently travel
- to form the baseline conditions for monitoring and evaluating the efficacy of speed zone changes
- to forecast expected change in travel times
- to forecast expected safety benefits
- to inform the need for supporting infrastructure to accompany a speed limit change.

Operating speed information can be obtained from a variety of sources, including speed surveys and third-party data suppliers. This is the only time in the speed limit setting process when current vehicle speeds shall be referenced. This information shall not influence the speed limit to be selected. This information shall be used to determine what else may be needed to enhance speed limit compliance. For example, installation of gateway treatments at the entrance of neighbourhood streets, raised thresholds for pedestrians in civic spaces or the installation of edge line markings and audio tactile line marking (ATLM) on some rural roads.

If there is an existing speed enforcement camera within the speed zone, review and analysis of the camera data should occur as well as consultation with both the Safer People team and Camera Enforcement branch within Safety, Policy, Environment and Regulation. The review of a speed limit should not be influenced by enforcement camera locations.

10.5.1.3 Assessment of crash and crash risk data

Austrroads Guide to Road Safety Part 3: Safe Speed notes that crash risk is the most important consideration in the assessment or review of a speed zone. Crash risk can be identified reactively using crash data or proactively through methods such as a road safety audit, AusRAP and infrastructure risk rating. A high crash risk may indicate that the current speed limit is incompatible with delivering safe outcomes along a road.

As noted in Section 5, speed is the most critical risk factor in road crashes because it influences the likelihood of being involved in a crash, as well as the severity of the crash outcome. Even small increases in speed can significantly heighten risk, while reducing speeds can lower risk in several ways.

Speed zoning is generally not appropriate for addressing isolated roadside hazards or blackspots (high crash locations). The appropriate course of action is for these sites to undertake remedial work to ameliorate the problem. However, a lower speed zone may be appropriate where there are a series of hazards or design features that prevail along an extended length of road.

Practitioners shall assess crash and crash risk data using the methods set out in Section 10.5.1.3.1.

10.5.1.3.1 Crash data

Crash data shall be collated and assessed for two purposes:

- to ascertain the relative safety performance of the road subject to the speed zone review
- to identify if there are any trends or commonalities between the crashes that could be addressed by infrastructure improvements.

10.5.1.3.1.1 Relative safety performance assessment

The relative safety performance of a road involves calculating the crash rate (personal risk) for a road and comparing it to the critical crash rate for the corresponding road type (see Table 4).

Critical crash rates are 1.5 times the average crash rate for a particular road type.

The crash rate shall be calculated using the following formulae:

$$FSI \text{ Crash rate} = \frac{\text{Number of FSI crashes} \times 10^8}{\text{Exposure}}$$

Where exposure is calculated as follows:

$$\text{Exposure} = \text{Length (km)} \times \text{AADT} \times 365 \text{ days} \times \text{number of years of crash data used}$$

Equation 1: FSI crash rate

Five years of finalised crash data using both fatal and serious injury (FSI) crashes shall be used in this assessment.

Table 4 – Average and critical FSI crash rates

Speed limit	Road stereotype	Average FSI crash rate (see Note)	Critical FSI Crash Rate (see Note)
High speed (≥70 km/h)	Median divided (non-traversable)	2.5	3.8
High speed (≥70 km/h)	Undivided	4.2	6.3
Low speed (≤60 km/h)	Median divided (non-traversable)	5.2	7.8
Low speed (≤60 km/h)	Undivided	11.0	16.5

Note: FSI crashes per 100 million vehicle kilometres travelled.

A road with a crash rate exceeding the critical crash rate can be considered to exceed the critical crash rate if there have been at least two fatal or serious injury crashes in the 5-year analysis period. This minimises the risk of drawing tenuous conclusions about crash risk based on one fatal or serious injury crash alone.

10.5.1.3.1.2 *Worked example*

An undivided 10 km road with a 100 km/h speed limit carries 2,000 vpd. The most recent five years of finalised crash data shows there have been 1 fatal and 2 serious injury crashes. The FSI crash rate is calculated to be 8.2 FSI per 100 MVK, as follows:

$$FSI \text{ Crash Rate} = \frac{3(FSI \text{ crashes}) \times 10^8}{10(km) \times 2,000(vpd) \times 365(days) \times 5(years)}$$

$$FSI \text{ Crash Rate} = 8.2 \text{ FSI per 100 MVK}$$

Equation 2: FSI crash rate

In this example, the FSI crash rate is greater than the critical crash rate.

If the calculated crash rate is greater than the critical crash rate:

- the speed limit shall not be increased unless a recent infrastructure improvement has been made and the speed limit moderating factors indicate a higher speed limit is justified

Note: a recent infrastructure improvement is one that was implemented after the first 3 years of the 5-year crash assessment period.

- the existing speed limit shall only be retained if either of the two following conditions are met:
 - confirmed by the assessment of moderating factors
 - safety measures are introduced, such as enforcement or infrastructure upgrades to improve safety performance
- lowering of the speed limit (where a lower speed limit is confirmed by the assessment of moderating factors) shall be prioritised for implementation.

10.5.1.3.1.3 *Trend and commonality assessment*

A request for a speed zone review shall not require a full analysis of each crash. However, if the crash rate is above the average crash rate or the speed zone review request is categorised as risk-based, then practitioners shall review crashes to identify any trends or commonalities in the crash data to inform the development of appropriate measures to improve road safety outcomes. Examples of trends or commonalities that should be explored include, but are not limited to:

- crash severity
- location of crash (intersection versus mid-block).
- road user involvement

- crash type (RUM code)
- vehicle types
- time of day
- weather and road surface condition
- crash contributing factors.

Where a trend or commonality assessment is required, practitioners shall detail any crash trends or commonalities that are identified and suggest possible infrastructure countermeasures to address the likelihood and severity of crashes occurring. Implementation of infrastructure countermeasures to address crash risk shall not delay implementation of a speed zone change if the comprehensive assessment indicates that a lower speed limit is required.

10.5.1.3.2 Crash risk

The reliability of crash data as an indicator of crash risk is highly correlated with traffic volume exposure. When exposure is high, crash data normally provides a good reflection of the crash risk. When exposure is low, using crash data to evaluate crash risk is challenging.

Where road safety risk is perceived to be high but exposure or the recorded incidence of crashes are low, alternative methods to assess the crash risk assessment can be used.

The latest published AusRAP star rating information shall be used on state roads and where star ratings are available unless there has been a recent change to the road environment. Infrastructure risk rating (IRR) can be used for roads in rural areas with an existing speed limit \geq 80 km/h that do not have a star rating. Refer to the Austroads *Infrastructure Risk Rating Manual* for details. Practitioners may also include findings from a road safety audit to determine crash risk.

Roads with a one or two-star rating, high or medium-high IRR or findings of serious or significant safety concerns from an audit, shall be classified as high risk.

If the road is assessed to be high risk:

- the speed limit shall not be increased
- the existing speed limit shall only be retained if:
 - confirmed by the assessment of moderating factors, and
 - safety measures are introduced, such as infrastructure upgrades to improve safety performance to a point where the road would no longer be considered high risk
- where a lower speed limit is confirmed by the assessment of moderating factors, lowering the speed limit shall be prioritised for implementation.

10.5.2 Community engagement assessment

Undertaking a speed zone review requires responding to proposed changes and presents the opportunity to engage with stakeholders and inform and educate the community about safe speeds applying best practice in engagement and communication, why they are important, and how safe speeds fit within the broader context of the DORAS. This approach can help address concerns as well as influence positive behaviours, which are essential for speed zone changes and the broader success of speed management across the State.

Practitioners shall undertake an engagement assessment as part of the speed zone review with their nominated Community Consultation and Engagement (CCE) team. This assessment should be undertaken at the start of the speed zone review process to allow sufficient time for a communications and engagement plan to be developed. The plan shall document how TfNSW will set communication expectations with stakeholders and the community as part of proposed speed zone changes.

The engagement assessment involves the identification of the appropriate engagement style. The *Speed Zoning Engagement Guidelines* provide a guide for relevant stakeholders to assess and determine an appropriate level of engagement. The engagement guidelines also provide tools and content to enable consistent, effective engagement and communications around speed zone changes on a state-wide basis. The *Speed Zoning Communication and Engagement Framework* supplements the Guidelines and provides comprehensive resources and tools guiding engaging activities, building on the commitment to keep stakeholders, local government informed and engaged.

10.5.3 Assessment of supporting measures

When a speed zone assessment has indicated a change to the speed limit, additional measures to support the proposed speed zone shall be taken into account. Supporting measures can include infrastructure or targeted enforcement. This is dependent on the identified need to support the proposed speed zone.

10.5.3.1 Proposed increase in speed limit

Further assessment shall be undertaken if the technical assessment indicates a higher speed limit may be justified including:

- a proactive crash risk assessment (for example, AusRAP Star Rating, IRR, Road Safety Audit or Safe System Audit) to ascertain the risk level with the higher speed limit in place. If the risk assessment indicates that the road will be classified as high risk with the higher speed limit, additional infrastructure needs to be identified that will ensure the road is not classified as high risk and included as part of the recommendation
- checking that the design elements of the road are compatible with the proposed speed limit.

10.5.3.2 Proposed decrease in speed limit

If the technical assessment indicates a lower speed limit may be justified, the current mean operating speed shall be compared with the current speed limit. This comparison is to identify if supporting measures should be implemented to support the proposed speed limit, as follows:

- In urban areas if the current mean operating speed is more than 5 km/h above the current speed limit, then infrastructure measures that reduces operating speeds should be identified to support the speed limit change.
- In urban areas if the current mean operating speed is within ± 5 km/h of the current speed limit, supporting infrastructure measures to reduce operating speeds and support the speed limit change should be identified (acknowledging Principle 4 which highlights that speed zones should be self-explaining, consistent and support compliance).
- In rural areas there is less ability to introduce infrastructure that reduces vehicle operating speeds. Repeater speed limit signs (see Section 13.1.6) should be installed for any roads where the current mean speed is above the current speed limit.
- In either urban or rural environments, if the current mean operating speed is more than 5 km/h below the current speed limit, then a speed limit change should be appropriate as a standalone measure.

In addition to the above, practitioners should refer to Appendix C.

Appendix C provides a high-level description of each of the permissible speed limits (10 km/h to 110 km/h) and includes road and operational characteristics that are typically associated with each speed limit. The descriptions are intended to help confirm the speed limit recommendation process, including the supporting measures that should accompany any speed limit change.

It is important to note that if the relative priority (see Section 10.6.1) of the speed limit change is assessed as 'high', then the speed limit change shall progress regardless of whether funding or resources are available to implement supporting measures in conjunction with the speed limit change.

10.6 Step 5 – Recommendation

Practitioners shall prepare documentation that details the findings of the comprehensive speed zone assessment, including the following minimum level of information for all roads subject to the speed zone review:

- description and map showing the extent of the speed zone review (as determined in Step 2 (see Section 10.3))
- details of the current speed limit
- identification of the street environments, place contexts and street types for all roads included in the speed zone review

- identification of the speed limit range for each street type
- identification of the speed limit determined by the moderating factors
- details of traffic volumes, operating speed, and crash and crash risk data
- the recommended community engagement approach
- identification of recommended supporting measures
- the recommended speed limits, noting whether this is a speed zone reduction, a speed zone increase or no change to the speed zone.
- the relative priority for the change (see Section 10.6.1).

The recommended speed limit shall link directly to the findings of the comprehensive speed zone assessment. If the recommended speed limit differs from the speed limit determined by the moderating factors then the practitioner shall detail the rationale for this, including a detailed description of why the recommended speed limit better meets the policy principles set out within this document than that determined by the moderating factors. Speed limits shall not be recommended if they are:

- outside the speed limit range for the street environment, place context and street type (only applies to a proposal to retain or increase the speed limit)
- higher than determined by the moderating factors if the crash rate exceeds the critical crash rate, or the road is determined to be high risk, unless safety measures are introduced that improve safety performance.

Where a speed limit change is proposed on main streets and main roads, practitioners shall include an assessment of the estimated change in travel times and safety outcomes associated with the speed limit changes. Where a speed limit change is proposed on local streets and civic spaces, an assessment of safety outcomes associated with the speed limit shall be included. Guidance on the estimation of travel time and safety outcomes is provided in Appendix D.

10.6.1 Relative priority

Full implementation of this document will result in a significant transformation of speed limits across NSW. Transforming the safety of the road network (a key focus of the *2026 Road Safety Action Plan*) through widespread speed limit changes should be carefully planned and implemented to ensure the changes are as intuitive as possible for all road users. This is partly addressed by the consideration of the speed zone review extents (see Section 10.3.5).

Another key aspect of transforming the network in an intuitive manner is to determine the relative priority for implementing speed zone changes. This guidance is necessary because of the nomination process to instigate speed zone reviews (see Section 10.1). Nomination processes tend to be biased towards locations with higher levels of road use or location with a known history of crashes. Whilst implementing appropriate speed limits on these parts of the

network is important, a wider network overview shall taken into account to check if a new speed zone will be intuitive for road users.

Austrroads *Guide to Road Safety Part 3: Safe Speed* notes that because large parts of road networks require lower speed limits as a transitional measure, there is growing support for prioritising the implementation of speed limits on roads where existing travel speeds align with the proposed speed zone. This process is likely to be seen as being more credible to the public and can still achieve significant crash risk reductions.

Table 5 sets out the relative priority rating to be assigned to the recommended speed zone change. The relative priority rating generated shall be used to prioritise the preparation of SZA in Step 8 (see Section 10.9).

Table 5 – Relative priority rating

Relative priority rating	Requirements
High (where two or more of the requirements apply)	<ul style="list-style-type: none"> the level of vulnerable road user activity is classified as high (see Section 10.5.1.2.2) the crash rate is above the critical crash rate, or the crash risk is high (see Section 10.5.1.3.1.1)
Medium (where one of the requirements apply)	<ul style="list-style-type: none"> the speed zone change is appropriate as a standalone measure (see Section 10.5.3) there is broad community support for the proposed speed zone change (see Section 10.5.2)
Low (where none of the requirements apply)	<ul style="list-style-type: none"> the existing speed limit is outside the permitted range for street type and place context (see Appendix A), including road design attributes that inform speed limit ranges for main roads the recommended speed zone addresses existing speed limit inconsistencies along a corridor.

10.7 Step 6 – Approval point

The recommendation shall be submitted through the appropriate TfNSW business approval process before the review progresses to Step 7 and beyond.

An approver shall not approve any recommendation that goes against this document. An approver shall not request that a practitioner amend their technical assessment outcomes to cater for their needs. If an approver does not support the technical assessment outcome the approver shall apply for a concession capturing the rationale and reasoning. This ensures that the accountability or liability or both is not left with the practitioner. A concession shall be submitted within a 2-month period from the technical assessment being submitted to the approver to the relevant *NSW Speed Zoning Standard* owner.

A comprehensive speed zone review in an unresolved status within Step 6 shall be audited and reviewed by the program owner.

Step 6 marks the end of the comprehensive assessment.

10.8 Step 7 – Speed zone authorisation preparation

An SZA shall be prepared once a recommendation has been approved.

The relative priority rating generated in Section 10.6.1 shall be used to prioritise the preparation of an SZA. Specifically, all high priority speed zone changes shall be completed prior to medium priority changes, and all medium priority changes shall be completed prior to low priority changes.

Step 7 involves completing the following requirements:

- Speed zone design. Practitioners shall use the design guidance provided in Section 13 to design the speed zone. In most cases, speed zone design will involve determining the location of speed limit signs along the length of road or area, as well as any supporting advisory signs or pavement markings or both. Subsequent changes shall also be taken into account as part of a speed zone change. In some cases, it may involve designing other aspects of the road environment such as infrastructure treatments. The design guidance in Section 13 has been reviewed to support guidance found in Australian standards, Austroads guides, and TfNSW supplements.
- Consultation with relevant stakeholders on aspects of supporting design and implementation. Local councils are responsible for the preparation of all civil engineering and facilities design for local and regional roads. Practitioners shall consult with the TfNSW team responsible for operation of traffic control signals prior to the proposed change in speed limit. This is to ensure that SCATS traffic coordinating algorithms can be designed or adjusted. Relevant stakeholders have been identified within the *Ancillary document NSW Speed Zoning Standard*. Practitioners shall also consult with relevant stakeholders if changes are required to be made to speed enforcement cameras.
- Continued implementation of the communications plan in collaboration with the nominated team specified within the *Ancillary document NSW Speed Zoning Standard*. The communications and engagement plan shall be updated to reflect any changes to the engagement type.
- At existing signalised intersections, signal phasing should be reviewed, and opportunities explored to reduce wait times and increase crossing times for pedestrians.

Once complete, the SZA shall be submitted to the delegated authority for authorisation.

10.9 Step 8 – Speed zone authorisation and approval

An SZA shall be used for the removal and installation of speed limit signs. It outlines the proposed location and size of the signs.

In this Step 8, the SZA shall be reviewed and approved only by the delegated authority detailed in the *Road Transport Act 2013*, and specified in TfNSW's Road Network and Operations Delegations

An SZA shall not be needed when replacing existing signs or installing repeater signs. In this case, only the completion of a work instruction is required.

10.10 Step 9 – Implement, monitor and review

Step 9 involves completing the following requirements:

- creating a work instruction to implement a speed zone
- checking whether the signs and treatments were installed correctly
- identifying and responding to any unintended consequences
- monitoring and evaluating, where appropriate, as specified within the *Ancillary document NSW Speed Zoning Standard*.

10.10.1 Create work instruction to implement signage

Practitioners shall create work instructions to implement the new speed zone by removing existing signage and pavement markers and installing new signage and markers. During a speed limit change, all speed limit signage shall be changed on the same day because a speed limit change cannot be conducted over several days without the signs being covered. Existing numerals shall also be removed if pavement marking does not occur on the same day as a speed limit change to prevent confusion for motorists.

At this point a public notification shall be issued regarding the speed change.

10.10.2 Post-installation inspection

Practitioners shall conduct a post-installation inspection to ensure that all signs and supporting treatments, if applicable, were installed or removed as provided by the work instruction.

Separate records shall be retained showing details of the actual installation and removal of signs. Details shall include authorisation, exact sign location, date and time.

10.10.3 Monitoring and evaluation

Monitoring and evaluation of speed zone changes are important to track the performance of speed zone changes and the outcomes of this document. This will support future guidance, tools and updates to the document if required.

The purpose of Step 9 is to identify any unintended consequences. Practitioners should monitor for unintended consequences and respond to them promptly.

Monitoring and evaluating the performance of site-specific speed zone changes is specified within the *Ancillary document NSW Speed Zoning Standard*. This includes operating speed surveys before and after the speed zone change, particularly for low-speed environments to ensure compliance with the new speed zone.

Monitoring and evaluating the performance of the Towards Zero Speed Management Program (TZSMP) for its road safety benefit is specified within the *Ancillary document NSW Speed Zoning Standard*.

Speed zoning measures shall be periodically evaluated to ensure safety outcomes continue to be achieved.

11 Approvals and authorisations

11.1 Delegated authority for speed zone authorisations

Requirements for the appropriate authority to install or display a prescribed traffic control device are set out in the *Road Transport Act 2013*.

TfNSW is the only authorised authority in NSW that can install a speed zone.

The authorised authority within TfNSW is outlined in the TfNSW's Road Network and Operations Delegations.

11.2 Additional approvals

11.2.1 Motorways

The installation of variable speed zones on freeways, motorways or toll roads shall be submitted through the appropriate TfNSW business approval process outlined within the *Ancillary document NSW Speed Zoning Standard*.

11.2.2 Concessions

Approval shall be obtained from TfNSW for any departure from the requirements of this document through the concession process specified in TS 00003.1. Relevant roles and responsibilities for the approval of concessions has been identified within the *Ancillary document NSW Speed Zoning Standard*.

12 Types of speed zones

12.1 General

A speed zone is the length of road where a signposted speed limit applies. The types of speed limits used in NSW roads are set out in the relevant legislation. Requirements for speed limits based on vehicle and licence class are also specified in the legislation.

12.2 Default speed limits

Detail on the default speed limit for urban and rural areas is provided in *Road Rules 2014*.

12.3 Regulatory signposted speed limits

The requirements for obeying the posted speed limits are set out within the NSW *Road Rules 2014*. A signposted speed limit is the number shown on the speed limit sign (see Figure 14) within the red annulus (circle) and defines the maximum legal speed permitted along a specific section of road. This section of road is referred to as a speed zone. All regulatory speed zones are in steps of 10 km/h and always end in zero.

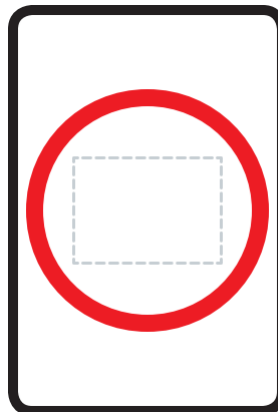


Figure 14 – Speed limit sign (R4-1)

12.4 Speed zones

A speed zone is a length of road over which a particular speed limit applies. Speed zones shall be signposted to clearly identify where the speed limit applies, with signs at the start, reminder signs within the zone (if necessary) and signs at the end showing the speed limit of the next zone.

Speed zones can either apply to a length of road (linear speed zone) or a network of roads (area speed zone).

Linear speed zones used in NSW range from 10 km/h to 110 km/h. Appendix C provides a high-level description of each of the permissible speed limits and includes road and operational characteristics that are typically associated with each speed limit.

Common area-based speed zones used in NSW include shared zones, HPAAAs, and school zones (see Section 12.4.1 to Section 12.4.3).

12.4.1 Shared zones

Shared zones are installed on roads or networks of roads with high levels of pedestrian activity, where the road space is shared safely by vehicles and pedestrians. The maximum speed limit shall be 10 km/h with pedestrians having right of way.

Shared zones are often found in CBDs, tourist, heritage and residential areas and shopping centres where there is either limited, substandard or no formal footpaths or where on-road parking on one or both sides of the road restricts the free movement of vehicles and people along the road. Some residential streets may increasingly be designed as shared zones to improve community safety, amenity and place value.

Additional design guidance can be found in Section 13.3.

12.4.2 High pedestrian activity areas

HPAAAs are installed at changes in the street environment that support increased usage by vulnerable road users (pedestrians, cyclists and so on). HPAAAs create an environment that supports pedestrian activity and urban amenity.

Installing HPAAAs deliver successful places that better support walking, spending time in one place and creating a safer and more enjoyable area for local communities. Outcomes achieved through the installation of HPAAAs include significant reduction in pedestrian and vehicle crashes, reduced noise, reduced pollution, and better outcomes for local businesses. Further information regarding the benefits of HPAAAs can be found in the TfNSW *Evaluation of permanent 40 km/h speed limits: Summary report – October 2018*.

HPAAAs can either be linear or area zones. They can be signposted at either 20 km/h, 30 km/h or 40 km/h. These zones should have a self-explaining speed limit through the use of physical traffic calming devices.

Additional design guidance can be found in Section 13.2.

12.4.3 School zones

School zones shall be provided in areas near schools to protect children, our most vulnerable road users.

Children can be particularly vulnerable because they are often physically small, may not yet have the cognitive skills to make safe decisions, and cannot be fully responsible for their own safety in the traffic environment. For this reason, safety shall be prioritised within NSW school zones by applying a maximum speed limit of 40 km/h during school zone times.

School zones shall be implemented outside schools to reduce vehicle speeds where there is an increased potential for conflict between vehicles and school children. School zones shall operate on government gazetted school days.

If the school zone is partially or completely within a surrounding lower speed environment than 40 km/h, such as a 30 km/h HPAA, then the school zone shall be changed to the lower speed environment.

School zones shall be installed and signposted in accordance with Section 13.4.

12.4.4 Railway level crossing zones

Speed zones shall not exceed 80 km/h at, or on the approaches to level crossings, which are actively controlled by flashing lights or flashing lights and boom gates.

A speed limit of 80 km/h at active level crossings shall be adopted unless any of the following apply:

- a lower speed limit would be more appropriate in accordance with this document
- there are curve warning signs with an advisory speed plate of 45 km/h or less in which case a limit of 60 km/h or less is to be adopted
- the level crossing is within 400m of a road terminating.

On approach to the active level crossing an 80 km/h speed limit shall be installed for a minimum distance of 400 m. The egress minimum distance (after the active level crossing) shall be 200 m.

When proposing to upgrade a level crossing from passive controls to active controls in a speed zone greater than 80 km/h, a road speed zone review shall be initiated during the project's concept design phase.

Additional guidance can be found in Section 13.1.15.

12.4.5 Offset speed zones

In an offset speed zone, there are different speed limits in each direction of the road. Offset speed limits can be difficult to enforce and confusing to some motorists. They are not recommended and should only be adopted after careful consideration of road safety and enforcement implications. Offset speed zones may be used in any of the following situations:

- on divided roads where one direction of a road produces a greater risk than the opposing direction, for example, steep downgrades in combination with poor alignment
- an opposing carriageway or divided road where the roadside development or road geometry on the two sides is markedly different

- at steep descents and ascents with unbroken dividing lines and climbing lanes for buses and trucks. A lower speed limit for descending heavy vehicles may be applied for.

12.4.6 Variable speed zones

A variable speed zone in NSW can be applied where the designed speed limit can be changed based on congestion, movement and place function, reduced visibility weather conditions or seasonal conditions.

Prospective variable speed zones should follow the high engagement level pathway, outlined in the Speed Zoning Engagement guidelines.

Variable speed zones maximum allowable posted speed limit shall align with Appendix A as well as Appendix B.

12.4.6.1 Freeways, motorways and tollways

Guidance on how variable speed zones based on congestion are applied on freeways, motorways and toll roads can be found in Section 13.1.12.

12.4.6.2 Time of day or week

Variable speed zones can be applied in urban environments where traffic conditions and movement and place function changes throughout the day or week.

A speed zone review can have a different outcome if completed at different times of the day or week.

For example, a road may facilitate public transport movements into a CBD environment at peak travel times, while acting as pedestrianised civic space outside of these times.

Another example is a road environment that has a strong place function with a mix of pedestrians and general traffic during daytime hours but reverts to a movement corridor after business hours with limited pedestrian movements and a large increase in through movements.

Variable speed limits due to time of day or week conditions should only be implemented where other means of addressing the road safety problem have been investigated and not deemed currently feasible.

The following factors apply for a time of day or time of week variable speed zone to be considered:

- A permanent speed zone shall be considered in the first instance. If a permanent speed zone is not deemed suitable, justification shall be provided.
- The difference between the lower speed limit and the higher speed limit shall not be greater than 20 km/h. For example, if the lower speed limit is 40 km/h, the maximum higher speed limit shall not be greater than 60 km/h.

- Time of day variable speed zones shall be exempt from pavement markings. Section 12.4.6.2 shall be exempt from Section 13.1.7.
- Variable speed zones shall be signposted electronically, with static signs in place to advise motorists of the speed limit should the electronic signs fail. Asset acceptance shall be approved by Intelligent Transport Systems and Asset Maintenance.
- Roads that have clearways or parking times in the kerbside lane may be considered. A variable speed limit shall be consistent with these operational hours.
- Minimum length criteria shall be applied in accordance with the lower speed limit.

Additional guidance can be found in Section 13.1.13.2.

12.4.6.3 Weather conditions

Variable speed limits due to changes in weather conditions that physically affect the safe speed at which all vehicles can be driven along a particular length of road shall be permitted. Generally, to support the use of wet weather speed zones there should be an increased crash risk or actual crash occurrence when it is raining or while the road is wet. This should be supported by evidence. Variable speed limits due to weather conditions should only be implemented where other means of addressing the road safety problem have been investigated and not deemed currently feasible.

Additional design guidance can be found in Section 13.1.13.3.

12.4.6.4 Seasonal zones

Seasonal speed zones may be used at some locations where the traffic or road conditions vary significantly between seasons. These may occur at:

- coastal or alpine holiday locations where pedestrian, parking and traffic activity increases significantly during holiday seasons
- locations where seasonal weather conditions, such as snow, rain, ice, require a lower than usual speed limit for safe driving.

Seasonal speed limits should only be implemented where other means of addressing a road safety problem are not possible.

12.4.6.5 Rural intersection speed zones

RISZ is a technology based targeted safety intervention treatment applied at priority controlled and uncontrolled intersections. This treatment utilises variable speed limits on the major road on the approach to an intersection where potential conflict is present between a major and minor road. RISZ is intended to minimise harm from side impact and vehicle merge type crashes at intersections on high-speed roads.

By activating a lower speed limit, the key objectives of the treatment are to:

- Reduce the severity outcome if a crash was to occur – the system design aims to minimise the chance of an impact at speeds higher than 50 km/h, which as shown in Figure 3 corresponds to what is widely considered the survivable impact speed in the event of a side impact crash.
- Reduce the likelihood of a crash occurring – reduced speeds creates a longer reaction time and shorter braking distance, improving the chance of coming to a complete stop and avoiding a collision.

The design parameters of RISZ including the use of variable speed limits, required speed limits to support RISZ, sign placement and type of signs shall be implemented in line with TS 00142.

The procedures and requirements within this document (relating to design parameters such as speed limit, speed limit requirements, speed zone lengths and sign placement) shall not apply to RISZ installations as specified in TS 00142.

RISZ shall complete a speed zone authorisation as the treatment involves a variable regulatory speed limit change on the road.

12.5 Advisory speeds

Advisory speeds are used to inform motorists of changes in horizontal and vertical alignments such as curves, bends, humps and dips. Advisory speed signs are used where the appropriate speed on a section of the roadway may be less than the posted speed limit. Although the sign provides a warning to approaching drivers, it is not legally enforceable. More information can be found in Section 13.1.8.

13 Design and implementation

13.1 Design guidance

Consistency in designing speed zones is essential to:

- ensure uniformity across NSW
- improve drivers' compliance with speed limits
- highlight the presence of specific road environments
- provide the legal framework for enforcement purposes.

This section includes design guidance that shall be taken into account when designing all speed zones. It also includes design guidance for particular speed zones such as shared zones, HPAAAs and school zones.

13.1.1 Supporting infrastructure

Regardless of the speed zone applied at a location or throughout a precinct, supporting infrastructure should be provided to reinforce speed limits and deliver achievable and safer outcomes. For example, areas with low speed limits may require traffic calming measures to ensure that the operating speed of traffic matches the signposted speed limit. Alternatively, higher speed roads with numerous tight curves and other geographical constraints should have a safe speed limit that protects motorists from placing themselves at higher risk of serious injury.

13.1.2 Zone length

To avoid excessive variations in speed limits, a balance should be achieved between changes in the road environment and roadside development and the number of changes of speed limit. The recommended minimum speed zone lengths on any street or road are set out in Table 6.

Table 6 – Speed zone lengths

Speed limit (km/h)	Recommended minimum length (km)
≤30	0.2
40	0.4
50	0.5
50 (default)	Not applicable
60	1.0
70	1.0
80	2.0
90	2.0
100	3.0

Speed limit (km/h)	Recommended minimum length (km)
100 (default)	Not applicable
110	10.0

13.1.3 Location of signs

Location of signs design guidance shall be applicable to all roads. Specific design guidance for special types of speed zones is available for variable speed limits (Section 13.1.13), shared zones (Section 13.3), school zones (Section 13.4), and high pedestrian areas (Section 13.2).

At each change of speed limit, two speed limit signs should be provided, one on each side of the carriageway in a symmetrical position.

Minimum clearances of vertical and horizontal offsets from the ground and carriageway shall be applied. Refer to AS 1742.2 for minimum clearances of vertical and horizontal offsets.

13.1.4 Sign size

Speed limit signs come in four sizes, ranging from A to D. Sign sizes and speed control signage are outlined in Section 3.1.2 of AS 1742.4:2020. Refer to TfNSW website for a complete list of signs approved for use in NSW. Speed limit signs shall be installed at locations that provide for sight distances as shown in Table 7.

Table 7 – Sight distance to speed limit signs

Speed limit sign size	Sight distance (m)
A	Nil (based on space)
B	150
C	240
D	300

13.1.5 Conflict with other signs – recommended separation distances

Speed limit signs shall not be placed on the same post as other signs, or near other road signs.

Where possible, the recommended separation distances between a speed limit sign and another sign should be applied. See Table 8 for separation distances in different speed zones.

Table 8 – Recommended separation distance between signs

Speed limit (km/h)	Recommended separation distance (m)
10, 20, 30, 40	50
50	80
60	80
70	90
80	100
90	110
100	120
110	130

13.1.6 Repeater signs

Repeater speed limit signs are used to remind road users of the speed limit. Repeater speed limit signs shall be used and positioned on the left-hand side of the road where any of the following apply:

- the street environment is categorised as a main road or main street
- the road or street speed limit has changed in advance of supporting infrastructure measures being delivered
- there are frequent changes to the speed limit
- there are speed limits that differ to those of the surrounding road network
- drivers require additional confirmation of the limit that applies at any point
- beyond key intersections.

Repeater speed limit signs are not required for default speed limits.

The spacing of speed limit repeater signs are shown in Table 9.

Table 9 shows the spacing of speed limit repeater signs and distance range for subsequent repeaters signs. The lower end of the subsequent repeater signage spacing is more appropriate for urban environments where the upper limit of the range will be more appropriate for rural environments.

Table 9 – Spacing of speed limit repeater signs

Speed limit (km/h)	First repeater sign	Subsequent repeater signs (guidance only)
10-30	site specific	site specific
School Zones	site specific	100 – 150 m
40	50 m	300 – 600 m
50-60	100 m	1 – 2 km
70	200 m	1.5 – 2.5 km
80-90	0.5 – 1 km	2 – 6 km
100-110	0.5 – 1 km	5 – 15 km

When choosing the location of a repeater sign, the recommended separation distances between speed limit signs and other road signs shall be taken into account (see Section 13.1.5).

13.1.7 Road pavement markings

At the point of change in speed zoned areas, the speed limit shall be indicated on the road surface. This is applicable to all state roads.

For regional and local roads, the decision to provide pavement numerals shall be the responsibility of TfNSW when installing a new speed zone.

When implemented, markings should be located centrally in each lane carrying moving traffic, and adjacent to the speed limit signs. If a speed zone entry location is changed, markings shall be removed if they do not match the new speed zone.

Pavement markings shall be implemented in accordance with AS 1742.2 and meet the skid resistance level given in AS 4049.4. More information around road pavement markings can be found in TS 05462.

Pavement markings may also be introduced in conjunction with repeater signs in exceptional circumstances. This includes roads that have a history of poor compliance with the posted speed limit, multilane roads, and those with a high incidence of speed-related crashes or enforced speed camera locations.

Roads with a 90 km/h and 100 km/h speed limit shall have a full line marking (centreline and edgeline) as well as guideposts, advisory speed signs and curve alignment markers for out-of-context curves.

13.1.8 Advisory speed signs for bends and curves

Advisory speed limit signs (see Figure 15) are not legal speed limits but indicate the maximum speed at which a curve may be comfortably and safely negotiated in good road and weather conditions. Speed limit signs and advisory speed signs showing different speed values from one another should not be placed where drivers can see both signs at the same time.

Advisory speed signs shall be used to advise motorists of the highest safe speed limit to comfortably navigate a bend or curve. Although the sign provides a warning to drivers, it is not legally enforceable. Advisory speed signs should end in the numeral '5' and be at intervals of 10 km/h.

Advisory speed signs should be at least 15 km/h below the posted speed limit.

Determination and signposting of advisory speed limits shall be done in accordance with AS 1742.2. For more information, refer to the *Curve advisory speed assessment practice in NSW* fact sheet within the *Ancillary document NSW Speed Zoning Standard*.

When speed zones are introduced or reviewed, a survey should be made of all advisory speed signs within the zone to ensure that existing signage does not indicate an advisory speed above the new posted speed limit. Existing curve advisory signage shall be at or below 15 km/h below the new posted speed limit.

Advisory tram speed limit signs (see Figure 16) shall be used in light rail corridors and indicate the safe operational speeds for trams along certain sections of track. Advisory tram speed limits shall be exempt from ending in the numeral '5'.

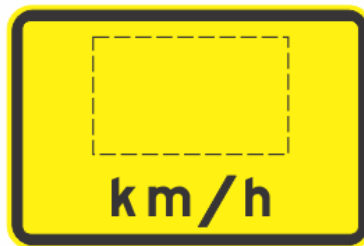


Figure 15– Advisory speed limit sign (W8-2)



Figure 16 – Advisory tram speed limit sign (G9-N390n + W1-10)

The ball bank indicator method or an accelerometer should always be used to determine advisory speeds on horizontal curves. Determining and signposting advisory speed limits shall be reviewed in accordance with AS 1742.2.

13.1.9 Speed restriction ahead signs

'Speed restriction ahead' signs (Figure 17) can be used to provide advance warning of reductions in speed. 'Speed restriction ahead' signs should be installed:

- where there is a speed reduction of 30 km/h or more
- where there is insufficient sight distance
- on a downhill approach
- where the change in speed zone may not be apparent to the motorist under normal driving expectations.

On roads with three or more lanes in each direction, 'speed restriction ahead' signs shall be on both sides of the road.

A buffer zone is a gradual reduction in speed limits, such as an 80 km/h speed limit between a 100 km/h rural limit and a 50 km/h urban limit. Buffer zones should not be installed in NSW.



Figure 17 – Speed restriction ahead sign (G9-79n)

Table 10 provides recommended sign spacing of speed restriction ahead signs in relation to the speed zone change. Table 10 may also be applied to the distance between a curve advisory sign and the curve.

Table 10 – Recommended placement of 'speed restriction ahead' signs

85th% speed (km/h)	Distance of speed restriction ahead sign form start of zone (m)
80	120 – 140
90	140 – 170
100	170 – 210
110	210 – 260

13.1.10 Town entry treatments

Refer to TS 00020 for information around the settings of town entry treatments.

13.1.11 Default signs

13.1.11.1 Default 50 km/h

The requirements for signposting on roads in built-up areas where 50 km/h is the default speed are specified in legislation. However, there are some situations where 50 km/h speed limit signs may be installed, including where there is some uncertainty about whether a road is in a built-up area (see Section 4 for a definition of build-up area).

Pavement numerals should not be installed on roads covered by the default urban speed limit. Existing pavement numerals, other than at the entry to an urban area, should not be removed or replaced.

13.1.11.2 Default 100 km/h

While the default speed limit does not require signposting, 100 km/h speed limit signs may be installed at the start of the default to remind road users that the 100 km/h speed limit applies.

In all other situations, the 'end speed limit' sign (see Figure 18) shall be used at the start point of a section of road covered by the default rural speed limit.

This sign should be supplemented with the 'reduce speed to conditions' sign (see Figure 19).



Figure 18 – End speed limit sign (R4-12)

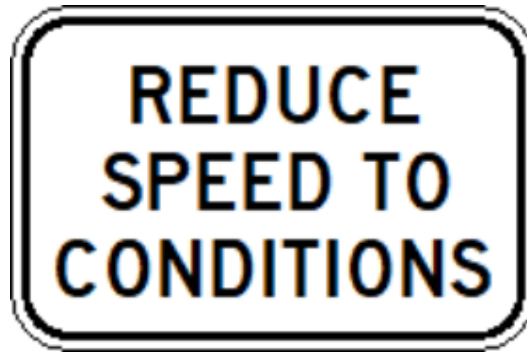


Figure 19 – Reduce speed to conditions sign (G9-318-1)

13.1.11.3 Entering NSW

The 'state limit' sign (see Figure 20) indicates to drivers entering NSW that a 100 km/h rural default speed limit applies. This sign should be applied at an appropriate distance from the State border sign, to avoid a proliferation of signs at the border. The 'state border' sign (see Figure 21) should be applied at the border.

If a speed zone other than 100 km/h has been signposted on crossing the border, the 'state limit' sign should be located at the commencement of whichever comes first: the start of a 100 km/h default speed limit; or the start of a 100 km/h speed zone.



Figure 20 – State limit sign (R4-205N)



Figure 21 – State border sign (G6-3)

13.1.11.4 Unsealed roads

Unsealed road environments shall adopt the default speed limit unless signposted with another speed limit. No sign shall be installed where either of the following conditions apply:

- an unsealed road commences at an intersection

- an unsealed road is a continuation of a sealed section of road to which the default limit applies.

However, the default speed limit can be inappropriate for unsealed roads. Unsealed roads passing through urban areas or areas with poor alignment should be speed zoned in accordance with the principles and characteristics described in this document. The 'reduce speed to conditions' sign (G9-318-1) should be used to remind drivers to drive to prevailing conditions on unsealed roads.

Where an unsealed road is a continuation of a sealed section of road to which a speed limit less than the default limit applies, an 'end speed limit' sign (see Figure 18) supplemented with 'reduce speed to conditions' sign (see Figure 19) shall be installed. In all cases, a 'gravel road reduce speed' sign (see Figure 22) should be used on gravel roads.



Figure 22 – Gravel road reduce speed sign (W2-211-5N)

13.1.12 Motorways

Motorways require larger signs than other road environments. Additional guidance on signage requirements are presented in Table 11.

The following signs shall be used on all motorways:

- On the main carriageway at the start of the length, D-sized speed limit signs with one sign placed on each side of the carriageway where the speed limit is greater than 100 km/h.
- C-sized repeater signs on the main alignment placed in pairs on each side of the carriageway.

13.1.12.1 Signage for on ramps and off ramps

On ramps shall be signposted well in advance of the merge with through traffic to allow drivers to reach the signposted speed. The signposted speed on the on ramp shall be the same as the signposted speed on the motorway at the merge point.

Speed limits on off ramps from motorways should be the same as the roads they join. If there are isolated geometric deficiencies in the off ramps, those locations should be treated with warning signs (see 'speed restriction ahead' signs in Section 13.1.9). In some cases where there is a safety concern, a reduced speed limit may be required.

13.1.13 Variable speed limits

Variable speed limits (VSL) are typically used on motorways and in tunnels to achieve and maintain optimal network traffic conditions and minimise delays and congestion.

There are signage options for implementing VSLs on roads that are not motorways or tunnels:

Recommendations for a particular signage scheme should be made on a case-by-case basis, taking into account the current road environment and proposed hours of operation.

All electronic VSL signs are controlled centrally by the TMC. The TMC shall be responsible for keeping a record of all speed limit changes, times, dates and locations within electronic VSL schemes.

Table 11 – Variable speed limit sign size

Location	Size
Shopping precincts or high pedestrian areas	B
Tunnel	B – where size constraints prohibit the use of size B signs, size A may be used
Expressway type road	C
Other	C – on other high-speed roads (80 km/h or more), B for all other cases

13.1.13.1 Variable speed limits on motorways and in tunnels

When signposting VSLs on motorways or in tunnels, there shall be:

- ‘start variable speed limit zone’ signs (see Figure 23) before the first VSL signs and at any entry point into the VSL scheme
- an ‘if variable speed limit sign is blacked out’ sign (see Figure 24) at all entry points to the VSL scheme and where the posted speed limit changes on motorways
- an ‘if variable speed limit sign is blacked out – (tunnel use only)’ sign (see Figure 25) at all entry points to the VSL scheme, in tunnels
- ‘electronic VSL’ signs (see Figure 26) located symmetrically in pairs, with one sign on each side of the carriageway or, if they are located on a gantry structure, with a sign above each lane
- ‘electronic VSL’ signs (see Figure 26) and ‘if variable speed limit sign is blacked out’ signs (see Figure 24) can be used as repeater signs along the length of the VSL scheme
- ‘end variable speed limit zone’ signs (see Figure 27) after the last VSL sign and before any static speed limit signs.

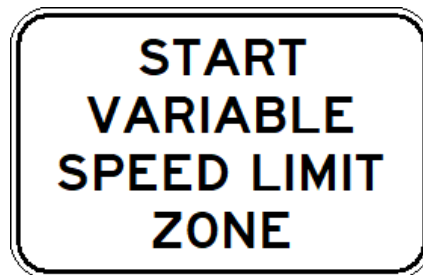


Figure 23 – Start variable speed limit zone sign (G6-315)



Figure 24 – If variable speed limit sign is blacked out sign (G6-317)



Figure 25 – If variable speed limit sign is blacked out sign (tunnel use only) (G6-317-1N)



Figure 26 – Electronic VSL sign

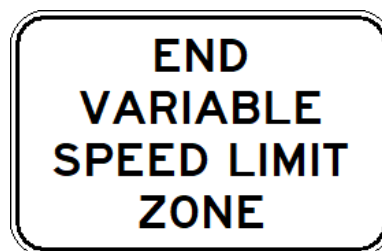


Figure 27 – End variable speed limit zone sign (G6-316)

VSL schemes on motorways and in tunnels shall also comply with requirements provided in:

- TS 06339.1
- TS 06320.

13.1.13.2 Change in movement and place function by time of day or week

VSLs have additional uses outside of motorway settings. VSLs may be used on routes or locations where there is a large shift in the use of the road. A full-time speed limit reduction should be investigated or considered before installation of a variable speed limit. These variable speed limits should be electronically signposted.

When signposting electronic VSLs, there shall be:

- a 'start variable speed limit zone' sign (see Figure 23) before the first 'electronic VSL' sign (see Figure 26)
- an 'electronic VSL' sign (see Figure 26) after each intersection
- an 'end variable speed limit zone' sign (see Figure 27) at the entry to each intersecting side road, accompanied by a speed limit sign, if the default does not apply to the road
- an 'end variable speed limit zone' sign (see Figure 27) after the last electronic VSL sign and before any speed limit signs.

13.1.13.3 Wet weather variable speed limits

Wet weather VSLs are generally only used on roads where there are significantly more crashes and crash risk when it is raining. SCRIM data should be examined prior to the use of wet weather VSL, noting that higher friction pavement may resolve this issue prior to the need of a reduced speed limit.

When signposting a wet weather VSL, there shall be:

- a 'wet weather speed limit ahead' sign (see Figure 28)
- a 'speed restriction – when raining here' sign (see Figure 29) alongside a 'speed restriction unless raining' sign (see Figure 30) at the start of the zone.

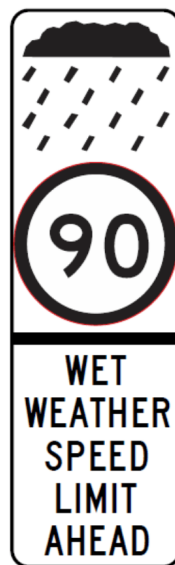


Figure 28 –Wet weather speed limit ahead sign (R6-249)



Figure 29 – Speed restriction when raining here sign (R4-238N)



Figure 30 – Speed restriction unless raining sign (R4-239N)

13.1.14 Heavy vehicle speed zones

There should be speed zoning for heavy vehicles (trucks and buses) where there is a significant risk to this road user group due to steep grades.

Where the prevailing speed limit exceeds the safer speed for heavy vehicles, taking into account road grade and length of a descent, a lower heavy vehicle speed zone should be considered.

When implementing a speed zone for heavy vehicles that is different from the prevailing speed limit, there shall be:

- a 'truck & bus speed limit' sign (see Figure 31) or a '(Speed Zone) trucks and buses (Speed Zone) All Other Vehicles' (see Figure 32) installed at the start of the zone
- an 'end truck & bus speed limit' sign (see Figure 33) at the end of the zone.

Refer to the AS 1742.2 to determine whether supplementary signs are required.



Figure 31 – Truck & bus speed limit sign (R4-229N)

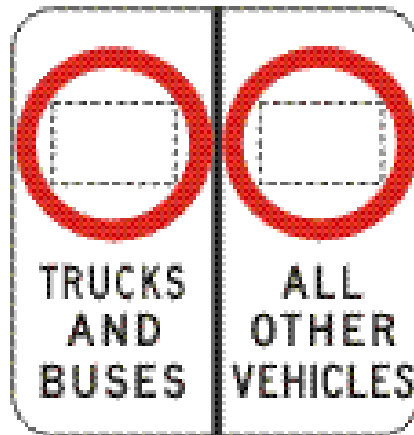


Figure 32 – (Speed Zone) Trucks And Buses (Speed Zone) All Other Vehicles (R4-246N)

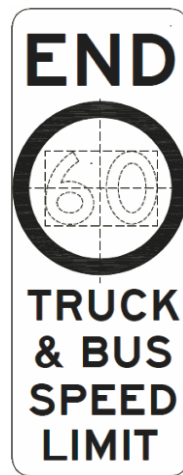


Figure 33 – End truck & bus speed limit sign (R4-220N)

13.1.15 Active level crossings: train

Offset speed limits shall be installed at all active level crossings across NSW. An 80 km/h speed limit shall be installed 400 m on approach to the level crossing as well as continued for an additional 200 m on the egress of the active level crossings.

The approach speed limit ensures that heavy vehicles can comply with the safe stopping distance as well as ensuring adequate sight distance on approach to the active level crossing.

The egress speed limit should be continued for an additional 200 m to ensure that motorists approaching a level crossing cannot see the reduced speed limit sign of 80 km/h as well as seeing an increased speed limit sign for the exit of the offset speed limit.

13.1.16 Supplementary plates

Supplementary plates may be used to highlight particular risks along a speed zone. For a detailed list of supplementary signs refer to AS 1742.4.

'Time of operation' supplementary plate shall not be supported.

When installing an 80 km/h zone ahead of an active railway level crossing, practitioners should install a railway crossing sign (see Figure 34) below the speed limit sign.



Figure 34 – Railway crossing sign (R9-236N)

13.2 High pedestrian activity areas

An HPAA is a road or network of roads with a posted speed limit of 20 km/h, 30 km/h or 40 km/h. They are installed in areas with high numbers of pedestrians on local, regional and some state roads.

HPAAs are appropriate in central business districts (CBD), suburban shopping strips, town centres, areas where land-use generates or facilitates significant pedestrian traffic such as parks, beaches, tourist attractions, local streets and some residential areas with significant presences of pedestrian usage.

As part of the installation of an HPAA, a local area traffic management assessment (in accordance with Austroads *Guide to Traffic Management Part 8: Local Street Management*) shall be undertaken where there are:

- pedestrians frequently crossing the road and people cycling sharing the road corridor with general traffic
- un-separated bicycle lanes (no separation between vehicles and people cycling)
- changes in the surrounding road environment to clearly display that the road corridor is a low-speed road environment, this can be achieved by narrowing the road corridor.

The *Cycleway Design Toolbox – Designing for cycling and micromobility* should be taken into account when installing 20 km/h, 30 km/h and 40 km/h zones.

When installing new low speed environments, such as a 30 km/h HPAA, supporting infrastructure shall be installed to support the operations of lower speeds. Supporting infrastructure should be installed before the installation of the reduced speed limit. More information about supporting infrastructure can be found in Section 13.1.1. At existing signalised intersections where the speed limit is 30 km/h, signal phasing shall be reviewed, and opportunities explored to reduce wait times and increase crossing times for pedestrians.

TfNSW shall review and comment on civil engineering designs before the installation of additional traffic calming devices commences. This process should occur through the local traffic committee process and usual arrangements for the delivery of TfNSW funded work.

13.2.1 Deciding on treatments

Selecting the appropriate treatments to create safe speeds for pedestrians in an HPAA involves consideration of the crash history and evidence-based risk factors as well as the movement and place functions of the route or area. A balance of these considerations shall determine the level of infrastructure required to support the speed limit reduction or consolidation of limits across an area.

The following questions provide context on the decision-making process of deciding on treatments:

- What is the level of crash risk to pedestrians? Classification of the route or area under review as having either a high or low evidence-based crash risk to pedestrians.
- What is the differential between the existing operational speed and the HPAA speed limit? Determine differential between surveyed operational speed and the proposed HPAA speed limit. If the 85th percentile speed based on the current speed zone is more than 10 km/h over the proposed HPAA speed limit, the differential is high.

13.2.1.1 High-risk area

The following examples are considered high-risk areas:

- The road or area has a history of pedestrian and bicycle rider fatal and serious injury crashes and risk modelling which indicates a high risk to pedestrians and bicycle riders.
- There is a high differential between current operational speed and proposed HPAA speed limit.
- The area services a high number of pedestrians who are aged or disabled.

13.2.1.2 Low-risk area

The following examples are considered low-risk areas:

- The road or area has little or no history of pedestrian or bicycle rider fatal and serious injury crashes or has risk modelling that indicates low risk to pedestrians and bicycle riders.
- There is a low differential between current operational speed and the proposed HPAA speed limit.

13.2.2 Treatment options

Traffic calming schemes shall be designed and installed to restrict vehicle travel speeds throughout the whole speed restricted area. For more information about the criteria for 30 km/h and 40 km/h, see Section 12.4.

Typical traffic calming treatments include:

- raised thresholds, including speed humps and wombat crossings (primary Safe System treatment)
- footpath and kerb extensions (supporting treatment)
- continuous footpaths or textured threshold treatments at gateways (supporting treatment)
- channelisation of the roadway (supporting treatment)
- staggered carriageways (supporting treatment)
- managed on-street parking (supporting treatment)
- installation of medians (supporting treatment)
- traffic signal timing (supporting treatment)
- raised safety platforms (supporting treatment).

In areas that service a high number of pedestrians who are elderly or disabled, extra traffic calming measures should be considered, such as:

- tactile and or coloured pavement tiles, considering *Disability Discrimination Act 1992* requirements for vision-impaired pedestrians
- handrails
- lipless transitions (from footway to carriageway).

Pedestrian crossings should be raised (wombat crossings) and installed in association with kerb extensions. The use of specific devices that emphasise the marked foot crossing, such as textured pavement treatments, should be assessed.

Existing research shows that long wait times for pedestrian phases result in pedestrians becoming impatient and non-compliant with signal phasing, this can lead to increases in pedestrian crashes. Wait times of 30 seconds can be considered excessive by pedestrians, particularly where there are no obvious conflicting vehicle movements.

Insufficient crossing time and turning vehicles are also known contributors to increased safety risk for pedestrians at signal phases.

A review of all traffic control signals within the identified HPAA shall be conducted regarding to the following:

- increase crossing times for pedestrians to ensure they have additional time to safely cross the road
- reprioritise signals so they rest in green for the pedestrian phase
- update signals to include pedestrian protection

- decrease pedestrian waiting times
- for existing intersections, ensure there is marked foot crossing on each leg of the intersection or junction in accordance with TS 05384
- investigate the possible use of raised safety platform treatments within the proposed HPAAs.

For more information about the design and implementation of traffic calming schemes, refer to the Austroads *Guide to Traffic Management Part 8: Local Street Management* as well as DORAS.

13.2.3 Treatment matrix

The traffic mix shall be taken into account when designing a traffic calming scheme, including bicycles, buses and other service vehicles.

The following treatment matrix (see Table 12) is provided as a quick reference guide for the additional infrastructure treatments that may be appropriate to support the desired outcome and change in travel speed.

Table 12 – High pedestrian activity area treatment matrix

Risk	High crash risk/low crash risk	Primary Safe System treatments	Supporting Safe System treatments
High risk	High crash risk – high differential	Shall be installed	Shall be installed
High risk	High crash risk – low differential	Installation recommended	Shall be installed
Low risk	Low crash risk – high differential	Installation recommended	Installation recommended
Low risk	Low crash risk – low differential	Installation considered	Installation recommended

Note: Refer to the Austroads *Towards Safe System Infrastructure: A Compendium of Current Knowledge* for more information about primary and secondary Safe System treatments. Austroads *Integrating Safe System with Movement and Place for Vulnerable Road Users* also provides guidance about appropriate and safe supporting infrastructure considerations for different environments from a vulnerable road user perspective.

13.2.4 Road safety audit at design phase

Road safety audits provide a means of managing road safety by identifying risks associated with road and traffic works. Road safety audits help project managers ensure improved road safety outcomes.

On regional and local roads, councils shall be responsible for designing and installing traffic calming schemes. Transport for NSW may provide a grant for these works. The local council shall conduct road safety audits in accordance with the Austroads *Guide to Road Safety Part 6: Road Safety Audit* and RTA *Guidelines for Road Safety Audit Practices*, before endorsement of the scheme by TfNSW.

On state roads, TfNSW shall design and install all treatments. TfNSW shall conduct a road safety audit in accordance with the Austroads *Guide to Road Safety Part 6: Road Safety Audit* and RTA *Guidelines for Road Safety Audit Practices* on all TfNSW works.

13.2.5 Signposting high pedestrian activity areas

When HPAAAs are installed as area speed zones any one of the following shall apply:

- a 'high pedestrian activity 30 area' sign (see Figure 35) or 'high pedestrian activity 40 area' sign (see Figure 36) installed at all entry points to the area
- '30' or '40' in pavement numerals marked on the road at all entry points
- a 'high pedestrian activity 30' (see Figure 35) or 'high pedestrian activity 40' (see Figure 36) repeater signs installed at intervals as specified in Section 13.1.6, with a maximum interval of 500 m on a through road

Note: on roads with limited lateral space (refer to sign R-236-2N).

- an 'end 30 area' (see Figure 37) or an 'end 40 area' (see Figure 38) sign installed at each exit point to the area. Speed limit signs for the adjoining speed limit installed at the nearest practical point unless the default applies.



Figure 35 – High pedestrian activity 30 area sign (R4-236-1N)



Figure 36 – High pedestrian activity 40 area sign (R4-236N)

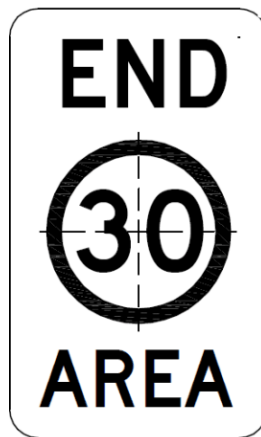


Figure 37 – End 30 area sign (R4-11-1N)



Figure 38 – End 40 area sign (R4-11)

13.2.6 Infrastructure installation review

A post installation road safety audit shall be conducted if the HPAA required additional pedestrian related infrastructure to ensure that potential risks to pedestrians are identified and resolved.

Completion of the speed zone review and SZA shall be completed by TfNSW. Note that this is not a voting matter for local council or the local traffic committee.

If TfNSW has determined that an HPAA is required through completion of the speed zone review then TfNSW has a responsibility and accountability to ensure that the appropriate speed

limit is applied and installed. This is critical in a HPAA noting that pedestrians and people cycling are some of the most vulnerable road users.

Transport for NSW traffic engineering, in collaboration with local council traffic engineering, shall inspect and review the scheme within a month of the speed zone installation. Each of the elements to be inspected are:

- signs and markings:
 - Do the signs adequately inform the motorists of the speed limit?
 - Are there enough signs?
 - Do gateway treatments require textual paving to reinforce the posted speed limit?
- traffic calming schemes:
 - Does the traffic calming scheme adequately restrict vehicle speeds throughout the area or zone?
 - Do service vehicles have satisfactory access to the area?
 - Are there suitable pedestrian crossings installed?
 - Does the traffic calming scheme support pedestrians crossing the roadway?

13.3 Shared zone, including provision for parking

13.3.1 Shared zones

A shared zone is a road or network of roads where pedestrians have priority over vehicles. All shared zones in NSW shall display a speed limit of 10 km/h.

There are two different categories of shared zones.

A category one shared zone is provided on a road or road-related area, has different surface treatments from the surrounding roads, and typically does not have kerbs.

A category two shared zone is provided on a road and can include kerbs and footpath parking. Traffic calming devices and treatments may be installed in a category two shared zone to regulate traffic speeds to 10 km/h.

When designing and installing a shared zone, there shall be:

- a 'shared zone' sign (see Figure 39) in combination with a 'give way to pedestrians' sign (see Figure 40) installed on each entry road into the area. Entry signposting to be duplicated on each side of the road, where possible
- a 'give way to pedestrians' pavement marking installed on the road for category two shared zone

- 'shared zone' signs in combination with 'give way to pedestrians' signs repeated at appropriate intervals
- 'end shared zone' sign (see Figure 41) installed on each exit road from the area. Installation of speed limit signs for the adjoining speed limit at the nearest practical point.

Where parking is provided in a shared zone, there shall be:

- 'park in bays only' signs (see Figure 42) provided under the 'shared zone' signs at each entry into the shared zone
- marked parking bays within the shared zone. The length and width of any parking space shall comply with AS/NZS 2890.1.



Figure 39 – Shared zone sign (R4-4)



Figure 40 – Give way to pedestrians sign (R4-10)



Figure 41 – End shared zone sign (R4-5)



Figure 42 – Park in bays only sign (R5-65)

13.3.2 Deciding on treatments

Selecting the appropriate treatments to create safe speeds for pedestrians in shared zones involves consideration of the particular category of shared zone being implemented.

13.3.3 Road safety audits

Road safety audits provide a means of identifying and managing road safety risks within all road environments.

The features provided in shared zones shall be safe for all road users and pedestrians in particular. The road safety audit shall identify issues pertaining to vehicle speeds, movements and pedestrian safety, and disability use.

Road safety audits shall be conducted at a number of points during a project, including at the design stage. The project manager shall address any identified deficiencies before construction. A road safety audit shall be conducted after implementation.

Road safety audits shall be completed in accordance with the *Austrroads Guide to Road Safety Part 6: Road Safety Audit* and *RTA Guidelines for Road Safety Audit Practices*.

A shared zone should not look like a normal road environment and be self-explaining. Therefore, the design shall clearly highlight to drivers that there is a change in the road environment and traffic conditions. The design shall also inform motorists that pedestrians have priority.

13.3.3.1 Kerb and guttering

All new category one shared zones shall be constructed without kerbs and delineation, other than parking bays if required.

For shared zones on existing roads, kerbs should be removed, except in special circumstances such as where there are, heritage considerations or cost constraints. The retention of kerbs shall have TfNSW approval.

Where existing kerbs are retained, traffic calming devices and a visibly changed road environment may be needed to slow vehicles (see Section 13.3.3.2 for more guidance).

Appropriate drainage grates should be installed to cater for pedestrians and people cycling.

13.3.3.2 Traffic calming treatments

Traffic calming treatments shall be included within shared zones to reduce vehicle speeds where a change in the road environment will not work alone.

Where kerbs and gutters are retained, the following treatments should be considered:

- road narrowing/kerb extensions
- raised thresholds at entry points and midblock
- changes in carriageway surfaces and textures
- landscaping and street furniture such as bollards, architectural decorations, seating and lighting
- pavement markings.

As shared zones are pedestrian priority environments, pedestrian crossings and pedestrian fencing shall not be installed. Where already installed, these treatments shall be removed.

13.3.3.3 Entrance and exit points

Category two shared zones shall include both of the following conditions:

- prominent features to indicate a change in the environment and highlight the start and end of the shared zone such as signage, pavement markings and architectural or landscape features
- 'give way to pedestrians' pavement marking at the entrance points.

When designing any shared zone, continuous footpath treatments or raised thresholds should be considered as entry and exit treatments to assist traffic calming.

13.3.3.4 Signage

For category one and two shared zones:

- regulatory traffic signs shall be installed according to Section 13.3.1
- all entry signs shall be provided on both sides of the road or road related area

Advisory speed plates shall not be required to supplement speed hump advisory signs.

Regulatory speed signage should not be approved through local traffic committee.

13.3.3.5 Pavement surface and markings

For category one and two shared zones, the pavement surface shall be changed to highlight the difference in the shared zone from the surrounding road network. It should be clearly distinguishable by colour, texture or materials.

For category two shared zones, 'give way to pedestrians' pavement markings shall be provided at entry points. Pavement markings such as the pedestrian symbol and the number '10' at regular intervals along the existing road length shall also be installed.

13.3.3.6 Provision for mobility and vision-impaired people

The design for shared zones shall safely accommodate the needs of those who are mobility restricted and vision impaired. Features such as tactile paving, handrails and the careful placement of landscaping and street furniture shall be taken into account during the design process. Refer to AS/NZS 1428.4.1 for detailed design requirements.

13.3.3.7 Forward visibility

To encourage drivers to comply with the 10 km/h speed limit, it is recommended that shared zones have limited forward visibility.

In locations where it is considered necessary to maintain visibility, a minimum stopping sight distance of 12 m shall be applied and traffic calming considered.

13.3.3.8 Bicycles

People cycling shall be able to navigate the traffic calming infrastructure safely. Accordingly, features to lower vehicle speeds shall be bicycle and pedestrian friendly, especially where pedestrians are less agile.

In one-way shared zones, consideration should be given to contra-flow bicycle movements. This provision will increase access for non-motorised transport and, if implemented, shall include 'bicycles excepted' signs (R9-3) below the 'no entry' or 'one way' signs.

13.3.3.9 Vehicle mix and accessibility requirements

Access shall be designed for emergency vehicles and delivery and garbage trucks. Alternative access for large vehicles such as buses shall be considered.

In a shared zone with two-way traffic movement where the available travel width is less than six metres, storage gaps should be provided to allow opposing vehicles to pass each other. A convenient position for storage gaps is adjacent to driveways where the loss of parking spaces is minimised. Storage gaps may not be necessary where the street is short and a driver entering at one end of the shared zone is able to see a vehicle entering at the opposite end.

13.3.3.10 Parking bays: general

The following provides additional information on the installation of parking bays within a shared zone. Where parking is provided, it shall only be permitted in marked bays and have the relevant signage installed.

If parking bays are located on each side of the road the width between them shall not be less than three metres to allow vehicles to travel safely along the road or road related area.

The location of the parking spaces or areas shall not compromise sight distances at a shared zone entry point. The location of parking spaces shall not impinge on emergency and delivery vehicle swept paths.

Car parking bays shall be marked in accordance with the prescribed lengths and widths in AS 2890.5 and AS/NZS 2890.1. Off-street parking for people with disabilities shall be provided in accordance with AS 2890.6.

Angled parking is not considered appropriate in a shared zone as wider carriageway widths are required, and it is undesirable to have vehicles reversing.

13.3.3.11 Parking bays: retained kerb considerations

In category two shared zones, marked parking bays are permitted to straddle existing kerb and gutter, where required and approved.

Retaining barrier kerb (type SA) is acceptable adjacent to parking spaces that have direct access by a driveway from one end. This would limit parking to a maximum of two parallel parking spaces in series between driveways.

Providing roll-top kerb (type RT) is the ideal treatment where parking spaces are not directly accessible from a driveway, or where there are long lengths between driveways. This treatment will facilitate the provision of three or more parallel parking spaces in series. Alternating short lengths of different kerb types along a kerb line should be avoided. This practice may be acceptable if the kerb types are separated by driveways.

Provisions for pedestrian access shall be provided for essential services, including property access and letterboxes.

13.3.3.12 Parking, utilities and access

Utility poles may restrict positioning and access to and from parking bays. The location of parking bays in relation to utility poles shall suit the relevant road authority.

The parking spaces, including vehicle access to and from the spaces, shall not affect access to utilities. Utility covers may not be trafficable, to ensure that car parking does not damage utilities.

Parking bays should not restrict access to property entrances. Parking spaces shall be located so they can be accessed without the driver breaking the law.

Trees and shrubs planted in the shared zone may affect positioning and access to and from parking bays, depending on the location and size of the tree or shrub.

13.4 School zones

A school zone shall be installed wherever there is a point of entry from a public road that is used by school students.

School zones shall be 40 km/h on roads where the prevailing speed limit is 40 km/h or more.

Where a school zone is on a road with a prevailing speed limit less than 40 km/h, the school zone speed limit shall be the same as the lower speed limit. If the prevailing speed limit is less than 40 km/h the school zone should be installed with fluorescent signage (R4-235).

13.4.1 School zone position and length

A school zone should only be installed on a road that has a direct access point to the school or where there are important facilities for the school such as pedestrian crossings and cycling facilities. The school's main direct access point should be the midpoint for measuring the school zone length. In the case of multiple access points on one length of road, the midpoint of these access points should be located to serve as the midpoint of the length of the school zone. School zones should extend at least 100m from the outer most school entry point.

The position and length of each school zone shall be determined on a case-by-case basis, taking into account the following factors:

- approach speed limits
- visibility of school zone signage
- road alignment
- roadside development
- suitable sign installation locations
- location of pedestrian crossing facilities, fixed enforcement devices
- proximity to the intersection of a classified road
- proximity to other schools, such as precincts.

The school zone on the main school frontage should not be less than 200 m where the school zone speed limit is 40 km/h.

The actual lengths of school zones should be determined from the needs of the individual school, having regard for the type of road, traffic volume, traffic speed, visibility and road conditions.

The minimum length that a school zone may extend into a side street is 10 m.

13.4.1.1 Extending minimum lengths of school zones

School zones should be extended beyond the minimum requirements to meet sight distances as determined by deceleration distances for vehicles approaching a school zone. The entry school speed zone signs should be installed at locations that provide for sight distance shown in Table 13.

The length of a school zone shall not be extended if any of the following circumstances eventuate:

- existing traffic facilities are obscured
- major arterial roads with no direct access points to the school are disrupted
- adjacent speed zones do not meet the desired minimum speed zone length.

13.4.1.2 Standard school zone days and times

School zones apply on school days, as outlined in *NSW Road Rules 2014*.

School zone times are:

- 8:00 – 9:30 am
- 2:30 – 4:00 pm

Consistent operation of school zones, including standard operating times, is a key element of ensuring safety around schools. Requests for non-standard school zones are assessed on a case-by-case basis.

13.4.1.3 School zone signage

A school zone may commence at any of the following signs:

- a 'school zone' sign (see Figure 43)
- a 'school zone – non-standard time' sign (see Figure 44)
- a flashing 'school zone' sign or flashing 'school zone – non-standard time' sign.

At the start of a school zone, the sign shall be installed at only one of the following:

- on both sides of the carriageway
- on the side of the road and in the median
- on the side of the road and over the roadway, to form a gateway effect.

Over-the-roadway school zone signage should only be installed if the following elements apply:

- the school zone is on a multi-lane road
- the start of the school zone does not meet sight distance requirements in accordance with Table 13.

- The start of the school zone cannot be relocated in order to improve sight distance in accordance with Table 13.
- There is sufficient width available and there is no conflict with utility services or other sign or traffic controlled signal installations.

At the end of the school zone, at least one 'end school zone' sign (see Figure 45) shall be installed on the left-hand side of the carriageway.

Other speed limit signs shall not be placed within school zones.

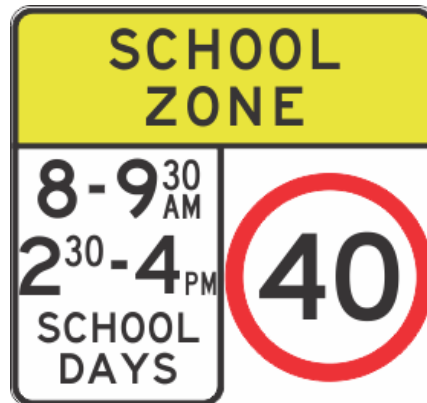


Figure 43 – School zone sign (R4-230N)

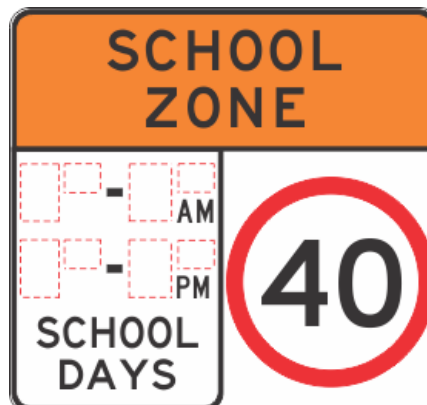


Figure 44 – School zone – non-standard time sign (R4-235-N)

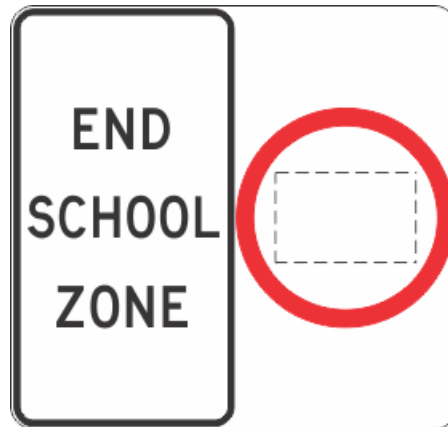


Figure 45 – End school zone sign (R4-231)

Where there is a speed reduction of 20 km/h or more for the school zone, or sight lines are particularly limited on approach to a school zone, a 'school zone speed restriction ahead' sign (see Figure 46) may be installed.



Figure 46 – School zone speed restriction ahead sign (G6-332)

Table 13 outlines the required distance between a 'school zone speed restriction ahead' sign and the start of the school zone based on the posted approach speed.

Table 13 – Placement of school zone speed restriction ahead sign

Posted approach speed to school zone (km/h)	Distance to school speed zone change (m)
50	60 – 80
60	80 – 100
70	100 – 120
80	120 – 140
90	140 – 170
100	170 – 210
110	210 – 260

13.4.2 Flashing light treatments

At least one flashing light treatment should be provided for every school in NSW.

A flashing light treatment may be a set of two flashing lights at either end of a school zone, or one sign at the entry into a one-way school zone.

Schools within a school zone precinct may be treated with a common flashing lights treatment.

School zone entry points should be identified for flashing lights to achieve the greatest road safety benefit.

Figure 47 shows the school flashing light treatment that may be used for school zones on lower-risk roads – those with a speed limit of 50 km/h or less and only one or two lanes.



Figure 47 – Flashing school zone sign

Figure 48 shows the school flashing light treatment that may be used for school zones on higher-risk roads (with a speed limit of 60 km/h and above; high-traffic roads with 3 or more lanes and a speed limit of 50 km/h and above).



Figure 48 – Flashing school zone sign – with annulus

Additional school zone flashing lights may also be installed at locations that TfNSW identifies as higher risk locations. The 'Flashing lights request form' (D.4) includes the program guidelines for the provision of additional school zone flashing lights.

Repeater flashing light treatments should not be used except for particularly long school zones, or to support the operation of school zone red-light and speed cameras.

The existence of a school zone shall be determined by the school zone sign. Flashing lights are high visibility treatments that support the signage.

13.4.3 Delineation treatments

In addition to signage, pavement markings are also required as part of a school zone including:

- 40 (or speed limit appropriate) pavement patches (refer to TS 05462.3 & TS 03294.1).
- dragon's teeth (refer to TS 05411).

13.4.4 Signage and treatment requirements for NSW Government schools in recess or closed

When a NSW Government school is placed in recess or gazetted as closed, the process outlined in Table 14 should be followed.

Table 14 – Treatment requirements for NSW Government schools in recess or closed

School status	School zone treatments
Placed in recess	<ul style="list-style-type: none"> • Cover or bag the 'school zone' signs (including flashing lights), but do not remove them. • Remove the school zone from the Speed Management Portal. • Leave patches and dragon's teeth in place. • If school zone has been placed in recess for more than 24 months remove the school zone signs (including flashing lights) and remove patches and dragons teeth.
Gazetted as closed	<ul style="list-style-type: none"> • Remove the 'school zone' signs (including flashing lights). • Remove the patches and dragon's teeth.

13.4.5 Pre-schools

School zones are not intended for implementation at pre-schools. School zones are not appropriate at pre-schools for a number of reasons:

- The success and compliance with school zones rely heavily on the presence of pedestrian footpath activity. This level of activity does not occur at pre-schools and therefore the necessity to slow down is not always evident to motorists.
- Pre-school children are escorted into the school property by parents. Therefore, the level of risk is significantly reduced in comparison to a primary or infant school where many children are unaccompanied on or near the road.
- Pre-schools are often located in converted residential premises and are therefore not readily identified by motorists.

13.4.6 Other school zone exclusions

On some school frontage roads, the presence of a school zone will add little to overall safety of the school environment. Examples include:

- in rural situations with wide setbacks, greater than 20 m, where no children walk to school and children are picked up or set down near access gates located well clear of the carriageway
- minor dead end road frontages where speeds are likely to be below the school zone speed limit.

In these and other similar circumstances a school zone may not need to be implemented if the agreement of the school principal is obtained. However, this should not preclude reconsideration at a later date. These cases should be documented for future reference.

It is recommended that newly built schools that are built should not have direct school access points onto the state road network. Adding school access to state roads increases student exposure to risks.

Appendix A Speed limit ranges (normative)

The following tables set out the speed limit ranges that apply for each street type and place context combination. Where a singular value is specified, only one speed limit shall apply. For example, civic lanes in urban centres have a speed limit range of 10 km/h, meaning 10 km/h is the only permissible speed limit under this document.

A.1 Main roads

There are six main road types specified in the *Design of Roads and Streets Manual*:

- Motorways – Enable people to travel longer distances quickly, reliably and without stopping. They are high-speed environments. Motorways carry high volumes of through-movement of people and goods travelling in freight or private vehicles or using rapid bus services.
- Principal arterials – Major movement corridors for travel within metropolitan areas at a lower speed than motorways.
- Secondary arterials – Roads with major movement functions that connect principal arterial roads, urban centres or enterprise areas.
- Rural highways – Primary connections between cities and towns in regional areas and are often complemented by significant green and blue infrastructure.
- Rural links – Secondary connections between cities and towns in regional areas, often complemented by significant green and blue infrastructure.
- Transit-only corridors – Dedicated for the exclusive use of public and active transport and can be complemented by blue and green infrastructure within or adjacent to the corridor.

Table 15 sets out the relevant speed limit ranges for each street type and place type for main roads. Main Roads are typically only found in suburban, enterprise, peri-urban and rural place contexts. Where found in urban centre and urban place contexts, these main roads tend to provide limited or no access to adjacent land.

Table 15 – Speed limit ranges (km/h) for main roads

Place context	Street type: Motorway	Street type: Principal arterial	Street type: Secondary arterial	Street type: Rural highway	Street type: Rural link	Street type: Transit only corridor
Urban centre	80-100					
Urban	80-100					60-70
Suburban	80-110	50-80	50-80			60-70

Place context	Street type: Motorway	Street type: Principal arterial	Street type: Secondary arterial	Street type: Rural highway	Street type: Rural link	Street type: Transit only corridor
Enterprise	80-110	50-80	50-80			70-80
Peri-urban	80-110	60-80	60-80	60-100	60-100	70-80
Rural				60-110	60-110	

A selection of road design attributes that influence safety outcomes and road user perceptions of the road environment shall be used to inform the speed limit range. The road design attributes included in the definition of speed limit ranges for main roads are listed in Table 16.

Table 16 – Road design attributes that inform speed limit ranges for main roads

Attribute	Description
Road stereotype (see Note)	<p>Four road stereotypes are defined:</p> <ul style="list-style-type: none"> Divided (non-traversable) – includes one-way roads and roads with a safety barrier between opposing directions of travel Divided (traversable) – includes roads with raised islands and grass/planted medians Undivided – includes roads with no physical barrier between opposing directions of travel and includes roads with flush median and wide centreline treatments Unsealed
Horizontal alignment (see Note)	<p>Alignment is categorised based on the degrees of turn per kilometre. Alignment, or degrees of turn per kilometre, can be estimated by summing the deviation angles of the horizontal curves from plans or aerial photography and dividing by the length of road or by using a geospatial process. Four horizontal alignment categories are defined:</p> <ul style="list-style-type: none"> Straight – roads that are straight or gently curved; occasional isolated curves that require drivers to slow (advisory speed ≥ 75 km/h) may be present Definition: < 50 degrees of turn/km. Curved – roads with moderate curves (typical radii of 500 m to 1,500 m) or a road with mainly straight sections with isolated sharp curves (advisory speed 55 km/h to 65 km/h). Definition: 50 degrees to < 150 degrees of turn/km. Winding – roads with many consecutive curves including sharp curves (radii of 350 m to 500 m). Definition: 150 degrees to < 300 degrees of turn/km. Tortuous – roads with numerous consecutive curves (radii of 350 m to 500 m) and very sharp curves (radii of < 350 m or advisory speed < 55 km/h). Definition: ≥ 300 degrees of turn/km.

Attribute	Description
Nature of intersections	The following intersection types are referred to: <ul style="list-style-type: none"> • grade separated • left-in/left-out (LILO) • roundabouts • traffic signals • priority T-intersection • priority crossroads.
Property access (see Note)	The following property access definitions are referred to: <ul style="list-style-type: none"> • no direct access – no property can be accessed from the road except through an intersection • controlled access – property access is provided but access points are consolidated (multiple properties are accessed by a single access point) • direct access – property access is provided directly to the road for each property

Note: More information on these attributes can be obtained from Austroads *Infrastructure Risk Rating Manual for Australian Roads*.

Practitioners shall select the attribute description that most closely represents the road being reviewed. If more than one attribute description applies, then the practitioner should consider further segmentation of the roads to create more homogeneous corridors (corridors with uniform characteristics).

The application of road design attributes in informing the speed limit range for street type and place context combinations in the main roads category is shown in Appendix A.1.

A.1.1 Motorways

If any intersections are configured with traffic signals, as a roundabout, or permit right turn or direct crossing movements across motorway lanes, the maximum permissible speed limit shall be 80 km/h.

A.1.1.1 Urban centre and urban place contexts

The speed limit range shall be:

- 80 km/h to 100 km/h where there are no intersections, or all intersections are configured as grade separated interchanges
- 80 km/h to 90 km/h where any of the intersections are configured as left-in/left-out (LILO)

Further context and requirements for this range are located within Appendix B.1.1.1.

A.1.1.1.1 Suburban, enterprise and peri-urban place contexts

The speed limit range shall be:

- 100 km/h to 110 km/h where there are no intersections, or all intersections are configured as grade separated interchanges; 110 km/h shall not be applied to undivided roads
- 90 km/h to 100 km/h where any of the intersections are configured as left-in/left-out (LILO).

Further context and requirements for this range are located within Appendix B.1.1.2.

A.1.1.2 Principal and secondary arterials

A.1.1.2.1 Suburban and enterprise place contexts

For roads that are undivided, or have a flush median or wide centreline treatment, the speed limit range shall be 50 km/h to 60 km/h.

For roads that are median divided (with either a traversable or non-traversable barrier), the speed limit range shall be:

- 60 km/h to 80 km/h where there is direct property access to the corridor
- 70 km/h to 80 km/h where there is no direct access to the corridor, or there are controlled access arrangements.

Further context and requirements for this range are located within Appendix B.1.1.2.1.

A.1.1.2.2 Peri-urban place contexts

The speed limit range shall be 60 km/h to 80 km/h.

Further context and requirements for this range are located within Appendix B.1.1.2.2.

A.1.1.3 Rural highway and rural links

For roads that are unsealed or have tortuous alignment, the speed limit range shall be 60 km/h to 80 km/h.

For roads where intersections are configured with traffic signals or as a roundabout, the maximum permissible speed limit shall be 80 km/h.

For undivided roads (including divided roads that have a traversable median) with winding alignment, the speed limit range shall be 80 km/h to 90 km/h.

For undivided roads (including divided roads that have a traversable median) with straight or curved alignment, the speed limit range shall be 80 km/h to 100 km/h.

For roads that are median divided (non-traversable barrier only), the speed limit range or maximum speed limit shall be:

- 80 km/h for any road that has priority-controlled crossroads (for example to permit direct crossing movements)
- 80 km/h to 100 km/h in peri-urban place contexts

- 80 km/h to 90 km/h in rural place contexts where intersections are configured as priority-controlled T-junctions that permit right turn movements either into or out of the side road.
- 100 km/h to 110 km/h where there are no intersections, or all intersections are configured as grade separated interchanges, 110 km/h shall not be applied to undivided roads
- 90 km/h to 100 km/h where any of the intersections are configured as LILLO.

A speed zone of 70 km/h shall not be used in rural highways and rural links.

Further context and requirements for this range are located within Appendix B.1.1.3.

A.1.2 Main streets

There are five main street types specified in the *Design of Roads and Streets Manual*:

- Transit arterials are lively streets for efficient movement of people and goods to support place activities, commonly serving as public transport corridors in an urban context.
- Connector avenues are streets with moderate place intensity and movement function that connect neighbourhoods, urban centres or enterprise areas.
- Arterial high streets are lively and support high place intensity and a high level of multi-modal movement.
- Destination high streets are vibrant with an intense sense of place, supported by multi-modal movement at low speeds and volumes.
- Transit streets prioritise active and public transport mobility and restrict private vehicle use in a lively and high amenity places.

Table 17 sets out the relevant speed limit ranges for each street type and place type for only main streets.

Table 17 – Speed limit ranges (km/h) for main streets

Place type	Street type: Transit arterial	Street type: Connector avenue	Street type: Arterial high street	Street type: Destination high street	Street type: Transit street
Urban centre	40-50	40-50	40-50	30-40	30-40
Urban	40-50	40-50	40-50	30-40	30-40
Suburban	50-60	50-60			30-40

A.1.3 Local streets

There are seven local street types specified in the *Design of Roads and Streets Manual*:

- Enterprise streets are streets serving industrial and commercial areas, catering to people who work in the areas as well as those who deliver freight and servicing.
- Urban centre streets are in the centre of towns and cities with destinations of local or regional significance, but they are not the high street.
- Connector streets are local streets that connect neighbourhoods, linking residential areas with local destinations such as centres, schools and transport hubs.
- Neighbourhood streets are quiet residential streets for people to spend time in an environment with a low speed and volume of movement. Neighbourhood streets are the most widely used and adaptable street type, forming the basis of connected street patterns. They are resilient to changes in network, volumes and land uses.
- Yield streets are very quiet residential streets for living activities and movement at low speeds and volumes, with carriageways that requires people driving vehicles to yield to one another to pass.
- Residential ways are very quiet residential streets that are inviting for people to spend time in, often with an informal layout and a sharing of spaces, with a low speed and volume of movement.
- Residential lanes are quiet, narrow streets aligned to the rear of residential properties for service access, paired with parallel residential streets that can be designed for safer and more continuous links for walking and people cycling.

Table 18 sets out the relevant speed limit ranges for each street type and place type for only local streets.

Table 18 – Speed limit ranges (km/h) for local streets

Place type	Street type: Enterprise street	Street type: Urban centre street	Street type: Connector street	Street type: Neighbourhood street	Street type: Yield street / Residential way	Street type: Residential lane
Urban centre		30-40				
Urban		40-50	40-50	30-50	30-40	10-30
Suburban	40-50		40-50	30-50	30-40	10-30
Enterprise	40-50					
Peri-urban			50-80	50-80		
Rural			60-80			

A.1.4 Civic spaces

There are four civic space types specified in the *Design of Roads and Streets Manual*:

- Civic high streets are vibrant streets maximising space for civic enjoyment at the heart of a community's social and cultural life.
- Transit malls are vibrant high amenity streets shared with on-street transit where people can easily interchange between modes and enjoy civic activities.
- Civic lanes are vibrant and informal narrow streets for spending time, often featuring local art and culture, and with shared or restricted access to motor vehicles.
- Service lanes are narrow streets aligned to the rear of mixed-use properties to provide service access and facilitate continuous active frontages on parallel streets.

Table 19 sets out the relevant speed limit ranges for each street type and place type for only civic spaces.

Table 19 – Speed limit ranges (km/h) for civic spaces

Place type	Street type Civic high streets	Street type: Transit lanes	Street type: Service lanes	Street type: Civic lanes
Urban centre	10	10-20	10-20	10
Urban	10	10-20	10-20	10

Appendix B Moderating factors (normative)

Appendix B details the moderating factors for each street type and place context combination and sets out the requirements that shall be satisfied for the selection of speed limits within the speed limit range.

Where roadside hazards are to be assessed, refer to the Austroads *Infrastructure Risk Rating Manual* for further guidance.

B.1 Main roads

B.1.1 Motorways

As noted in Appendix A.1.1, the maximum permissible speed limit on a motorway shall be 80 km/h if any intersections are configured with traffic signals, as a roundabout or a priority-controlled crossroads.

B.1.1.1 Urban and urban centre place context

Where the speed limit range is 80 km/h to 100 km/h, the speed limit shall be 80 km/h unless the conditions for 90 km/h or 100 km/h speed limits are met.

A 100 km/h speed limit is permitted where each of the following conditions are met:

- roadside hazards are assessed as low or minor
- there is no direct access to corridor.

A 90 km/h speed limit is permitted where each of the following conditions are met:

- roadside hazards are assessed as low, minor or moderate
- there is limited or no direct access to corridor.

Where the speed limit range is 80 km/h to 90 km/h, the speed limit shall be 80 km/h unless the conditions for a 90 km/h speed limit are met.

A 90 km/h speed limit is permitted where each of the following conditions are met:

- roadside hazards are assessed as low, minor or moderate
- there is limited or no direct access to corridor.

B.1.1.1.1 Suburban, enterprise or peri-urban place context

Where the speed limit range is 100 km/h to 110 km/h, the speed limit shall be 100 km/h unless the conditions for a 110 km/h speed limit are met.

A 110 km/h speed limit is permitted where each of the following conditions are met:

- roadside hazards are assessed as low or minor
- there is no direct access to corridor
- the road complies with all current design guidance, including having a design speed of 120 km/h.

Where the speed limit range is 90 km/h to 100 km/h, the speed limit shall be 90 km/h unless the conditions for a 100 km/h speed limit are met.

A 100 km/h speed limit is permitted where each of the following conditions are met:

- roadside hazards are assessed as low, minor or moderate
- there is limited or no direct access to the corridor.

B.1.1.2 Principal and secondary arterials

B.1.1.2.1 Suburban and enterprise place contexts

Where the speed limit range is 70 km/h to 80 km/h, the speed limit shall be 70 km/h unless the conditions for 80 km/h are met.

An 80 km/h speed limit is permitted where each of the following conditions are met:

- kerbside parking is prohibited
- one of the following cycling statements applies:
 - cycling demand is low and there is a sealed shoulder of ≥ 2.5 m
 - cycling demand is moderate to high and there is a separated cycling facility.

Where the speed limit range is 60 km/h to 80 km/h, the speed limit shall be 60 km/h unless the conditions for 70 km/h or 80 km/h speed limits are met.

An 80 km/h speed limit is permitted where each of the following conditions are met:

- kerbside parking is prohibited
- the number of accesses, including intersections, is less than six per side per kilometre, and one of the following cycling statements applies:
 - cycling demand is low and there is a sealed shoulder of ≥ 2.5 m
 - cycling demand is moderate to high and there is a separated cycling facility.

A 70 km/h speed limit is permitted where either of the following conditions are met:

- the number of accesses, including intersections, is less than six per side per kilometre
- the number of accesses, including intersections, is less than 10 per side per kilometre, and one of the following cycling statements applies:
 - cycling demand is low and there is a sealed shoulder of ≥ 2.5 m

- cycling demand is moderate to high and there is a separated cycling facility.

Where the speed limit range is 50 km/h to 60 km/h, the speed limit shall be 50 km/h unless the conditions for 60 km/h speed limits are met.

A 60 km/h speed limit is permitted where each of the following conditions applies:

- kerbside parking is prohibited
- one of the following cycling statements applies:
 - cycling demand is low and there is a sealed shoulder ≥ 2.5 m
 - cycling demand is moderate to high and there is a separated cycling facility.

B.1.1.2.2 Peri-urban place contexts

The speed limit be 80 km/h unless the conditions for a 60 km/h speed limit are met.

A 60 km/h speed limit is permitted where one of the following conditions applies:

- the horizontal alignment is tortuous
- the road includes urban features, such as kerb and channel, street lighting or a footpath

A 70 km/h speed limit shall not be applied in a peri-urban context.

B.1.1.3 Rural highway and rural links

B.1.1.3.1 Median divided (non-traversable barrier) road stereotype

Rural Place context only

Where the speed limit range is 100 km/h to 110 km/h, the speed limit shall be 100 km/h unless the conditions for a 110 km/h speed limit are met.

A 110 km/h speed limit is permitted where each of the following conditions are met:

- roadside hazards are assessed as low or minor
- there is no direct access to the corridor
- the road complies with all current design guidance, including having a design speed of 120 km/h.

For all other speed limit ranges in rural place contexts, the upper limit in range shall be permissible if the roadside hazards are assessed as low, minor or moderate. Otherwise, the lower limit of range shall apply.

Peri-urban place context

Where the speed limit range is 80 km/h to 100 km/h, the speed limit shall be 80 km/h unless the conditions for 90 km/h or 100 km/h are met.

A 100 km/h speed limit is permitted where each of the following conditions are met:

- roadside hazards are assessed as low, minor or moderate
- there is no direct access to corridor.

A 90 km/h speed limit is permitted where either of the following conditions are met:

- roadside hazards are assessed as low, minor or moderate
- there is limited or no direct access to corridor.

B.1.1.3.2 Undivided, wide centreline or divided (traversable) road stereotypes

Where the speed limit range is 80 km/h to 100 km/h, the speed limit shall be 80 km/h unless the conditions for 90 km/h or 100 km/h speed limits are met.

A 100 km/h speed limit is permitted where each of the following criteria are met:

- roadside hazards are assessed as low, minor or moderate
- there is limited direct property access
- either:
 - the traffic volume is $\geq 6,000$ vehicles per day and the carriageway width is ≥ 9.0 m, with ≥ 3.5 m lanes and ≥ 1.0 m sealed shoulders, or similar combination of lane and shoulder widths provided the overall carriageway width is satisfied
 - the traffic volume is $< 6,000$ vehicles per day and the carriageway width is ≥ 8.0 m, with ≥ 3.5 m lanes, ≥ 0.5 m sealed shoulders, or similar combination of lane and shoulder widths provided the overall carriageway width is satisfied.

The carriageway width specified for both road environments above, is only applicable to two-way, two-lane roads. For roads with more than one lane in each direction the carriageway width shall be increased by 3.5 m for each extra lane added.

A 90 km/h is permitted where each of the following conditions are met:

- roadside hazards are assessed as low, minor or moderate
- one of the following applies:
 - traffic volume $\geq 6,000$ vehicles per day and carriageway width is ≥ 8.0 m with ≥ 3.5 m lanes and ≥ 0.5 m sealed shoulders or similar combination of lane and shoulder widths provided the overall carriageway width is satisfied
 - traffic volume $< 6,000$ vehicles per day and carriageway width is ≥ 7.0 m carriageway with ≥ 3.0 m lanes, ≥ 0.5 m sealed shoulders.

The carriageway width specified for both road environments above, is only applicable to two-way, two-lane roads. For roads with more than one lane in each direction the carriageway width shall be increased by 3.5 m for each extra lane added.

Winding alignment

Where the speed limit range is 80 km/h to 90 km/h due to winding alignment, the speed limit shall be 80 km/h unless the conditions for a 90 km/h speed limit are met.

A 90 km/h speed limit is permitted where both of the following conditions are met:

- roadside hazards are assessed as low, minor or moderate
- the carriageway width is ≥ 8.0 m with ≥ 3.5 m lanes, ≥ 0.5 m sealed shoulders or similar combination of lane and shoulder widths provided the overall carriageway width is satisfied.

The carriageway width specified, is only applicable to two-way, two-lane roads. For roads with more than one lane in each direction the carriageway width shall be increased by 3.5 m for each extra lane added.

Tortuous alignment

Where the speed limit range is 60 km/h to 80 km/h due to tortuous alignment, the speed limit shall be 60 km/h unless the conditions for an 80 km/h are met.

An 80 km/h speed limit is permitted where both of the following conditions are met:

- roadside hazards are assessed as low, minor or moderate
- terrain is flat or undulating.

A 70 km/h speed limit shall not be applied in a rural context.

Unsealed roads

Where the speed limit range is 60 km/h to 80 km/h on unsealed roads, the speed limit shall be 60 km/h unless the conditions for an 80 km/h speed limit are met.

An 80 km/h speed limit is permitted where both of the following conditions are met:

- formed carriageway width ≥ 8.0 m
- terrain is flat.

A 70 km/h speed limit shall not be applied to unsealed roads.

B.1.1.4 Transit only corridors

B.1.1.4.1 Suburban and urban place context

The speed limit range is 60 km/h to 70 km/h. The speed limit shall be 60 km/h unless the conditions for 70 km/h speed limits are met.

A 70 km/h speed limit is permitted where any footpath provided is setback from the kerb.

B.1.1.4.2 Peri-urban and enterprise place context

The speed limit range is 70 km/h to 80 km/h. The speed limit shall be 70 km/h unless the conditions for 80 km/h speed limits are met.

An 80 km/h speed limit is permitted where any footpath provided is setback from the kerb.

B.1.2 Main streets

B.1.2.1 Transit arterials and connector avenues

B.1.2.1.1 Urban and urban centre place contexts

The speed limit range is 40 km/h to 50 km/h. The speed limit shall be 40 km/h unless the conditions for a 50 km/h speed limit are met.

A 50 km/h speed limit is permitted where each of the following conditions applies:

- the road stereotype is median divided (traversable or non-traversable), flush median or wide centreline
- there is no direct access to the corridor or access controls are in place
- the street is not designated as a HPAA
- there is an on-street cycle lane or separated cycling facility.

B.1.2.1.2 Suburban place context

The speed limit range is 50 km/h to 60 km/h. The speed limit shall be 50 km/h unless the conditions for a 60 km/h speed limit are met.

A 60 km/h speed limit is permitted where each of the following conditions applies:

- the road stereotype is median divided (traversable or non-traversable), flush median or wide centreline
- there is no direct access to corridor or access controls are in place
- there are no pedestrian zebra crossings on the corridor
- there is more than one lane in each direction, including transit lanes (for transit arterials)
- the street has a separated cycling facility or a separated cycling facility is provided on a parallel corridor.

B.1.2.2 Arterial high street

The speed limit range is 40 km/h to 50 km/h. The speed limit shall be 40 km/h unless the conditions for a 50 km/h speed limit are met.

A 50 km/h speed limit is permitted where each of the following conditions is met:

- the street is not designated as a HPAA
- pedestrian crossing points are on raised platforms
- the street has an on-street cycle lane or separated cycling facility, or a separated cycling facility is provided on a parallel corridor.

B.1.2.3 Destination high street and transit streets

The speed limit range is 30 km/h to 40 km/h.

The speed limit shall be 30 km/h unless there is more than one lane in each direction or the conditions for 40 km/h speed limits are met. If a road has more than one lane in each direction, the speed limit shall be 40 km/h. This condition does not apply to one-way roads.

A 40 km/h speed limit is permitted where pedestrian crossing points are on raised platforms.

B.1.3 Local streets

B.1.3.1 Enterprise street

The speed limit range is 40 km/h to 50 km/h for enterprise or suburban place contexts.

The speed limit shall be 40 km/h unless the conditions for 50 km/h speed limits are met.

A 50 km/h speed limit is permitted where one of the following conditions is met:

- the carriageway is median divided
- there is more than one lane in either direction
- the corridor width is ≥ 24 m.

B.1.3.2 Urban centre street

B.1.3.2.1 Urban centre place context only

The speed limit range is 30 km/h to 40 km/h.

The speed limit shall be 30 km/h unless there is more than one lane in each direction or the conditions for 40 km/h speed limits are met. If a road has more than one lane in each direction, the speed limit shall be 40 km/h. This condition does not apply to one-way roads.

A 40 km/h speed limit is permitted where pedestrian crossing points are on raised platforms.

B.1.3.2.2 Urban place context only

The speed limit range is 40 km/h to 50 km/h. The speed limit shall be 40 km/h unless the conditions for a 50 km/h speed limit are met.

A 50 km/h speed limit is permitted where each of the following conditions is met:

- the street is not designated as a HPAA
- pedestrian crossing points are on raised platforms
- the street has an on-street cycle lane or separated cycling facility, or a separated cycling facility is provided on a parallel corridor.

B.1.3.3 Connector streets

B.1.3.3.1 Suburban or urban place contexts

The speed limit range is 40 km/h to 50 km/h within suburban or urban place contexts.

The speed limit shall be 40 km/h unless the criteria for 50 km/h are met.

A 50 km/h speed limit is permitted where each of the following conditions are met:

- the street is not designated as a HPAA
- lane widths are ≥ 3.3 m
- kerbside parking is offset from the adjacent traffic lane so that lane widths are not reduced by the presence of kerbside parking
- the street is not part of a local area traffic management scheme
- pedestrian crossing points are on raised platforms (urban place context only)
- the street has an on-street cycle lane or separated cycling facility, or a separated cycling facility is provided on a parallel corridor.

B.1.3.3.2 Peri-urban place context only

The speed limit range is 50 km/h to 80 km/h within a peri-urban place context.

The speed limit shall be 50 km/h unless the conditions for 60 km/h or 80 km/h are met.

A 60 km/h speed limit is permitted where each of the following conditions are met:

- the carriageway width, sealed or unsealed, is ≥ 6.0 m
- pedestrian activity is very low or a footpath is provided.

An 80 km/h speed limit is permitted where each of the following conditions are met:

- the carriageway is sealed
- the carriageway width is ≥ 6.0 m and has a marked centreline
- walking and cycling activity are very low.

A 70 km/h speed limit shall not be applied in a peri-urban context.

B.1.3.3.3 Rural place contexts only

The speed limit range is 60 km/h to 80 km/h within rural place contexts.

The speed limit shall be 60 km/h unless the conditions for an 80 km/h speed limit are met.

An 80 km/h speed limit is permitted where both of the following conditions are met:

- the carriageway is sealed
- the carriageway width is ≥ 6.0 m and has a marked centreline.

A 70 km/h speed limit shall not be applied in a rural context.

B.1.3.4 Neighbourhood streets

B.1.3.4.1 Suburban or urban place context

The speed limit range is 30 km/h to 50 km/h within a suburban or urban place context.

The speed limit shall be 40 km/h unless the criteria for 30 km/h or 50 km/h are met.

A 30 km/h speed limit is permitted on local roads where one of the following conditions are met:

- opposing directions of travel are required to yield to each other when parked vehicles are present
- the street is part of a local area traffic management scheme
- the street has vertical traffic calming devices
- the street is designed as a quietway.

A 50 km/h speed limit is permitted where each of the following conditions are met:

- the street is not designated as an HPAA
- lane widths are ≥ 3.3 m
- kerbside parking is offset from the adjacent traffic lane so that lane widths are not reduced by the presence of kerbside parking
- the street is not part of a local area traffic management scheme
- pedestrian crossing points are on raised platforms (urban place context only)
- the street has an on-street cycle lane or separated cycling facility, or a separated cycling facility is provided on a parallel corridor.

B.1.3.4.2 Peri-urban place context only

The speed limit range is 50 km/h to 80 km/h within a peri-urban place context.

The speed limit shall be 50 km/h unless the conditions for 60 km/h or 80 km/h are met.

A 60 km/h speed limit is permitted where each of the following conditions are met:

- the carriageway width, sealed or unsealed, is ≥ 6.0 m
- pedestrian activity is very low or a footpath is provided.

An 80 km/h speed limit is permitted where each of the following conditions are met:

- the carriageway is sealed
- the carriageway width is ≥ 6.0 m and has a marked centreline
- walking and cycling activity are very low

A 70 km/h speed limit shall not be applied in a peri-urban context.

B.1.3.5 Yield streets and residential ways

B.1.3.5.1 Suburban or urban place context

The speed limit range is 30 km/h to 40 km/h within a suburban or urban place context.

The speed limit shall be 30 km/h unless the conditions for 40 km/h are met.

A 40 km/h speed limit is permitted where one of the following conditions is met:

- lane widths are ≥ 3.0 m
- kerbside parking does not result in a yield situation.

B.1.3.6 Residential lanes

B.1.3.6.1 Suburban or urban place context

The speed limit range is 10 km/h to 30 km/h within a suburban or urban place context.

The speed limit shall be 20 km/h unless the conditions for 30 km/h or 10 km/h are met.

If the residential lane is officially designated as a shared zone, where pedestrians have legal priority over motor vehicles, the speed limit shall be 10 km/h.

A 30 km/h speed limit is permitted where each of the following conditions are met:

- the kerb-to-kerb width is ≥ 6.0 m
- a footpath is provided on at least one side of the lane.

A 20 km/h speed limit may be suitable in other situations to reflect the informal shared use of the space by all road users.

B.1.4 Civic spaces

B.1.4.1 Civic high street and civic lane

A 10 km/h speed limit shall be applied to civic high street and civic lanes to reflect the shared zone nature of these street types.

B.1.4.2 Transit malls and service lanes

The speed limit range is 10 km/h to 20 km/h within an urban or urban centre place context.

The speed limit shall be 10 km/h if the street is officially designated as a shared zone, where pedestrians have legal priority over motor vehicles

In all other instances, a speed limit of 20 km/h is permitted.

Appendix C Speed limit descriptions

Appendix C provides a high-level description of each of the permissible speed limits (10 km/h to 110 km/h) and includes road and operational characteristics that are typically associated with each speed limit. The descriptions are intended to help confirm the speed limit recommendation, including the supporting measures recommended to accompany any speed limit change. These descriptions do not supersede the requirements for the selection of speed limits within the speed limit range (see Appendix B).

C.1.1 10 km/h

A speed zone of 10 km/h is used in urban centre and urban place contexts where pedestrians and vulnerable road users share the road with motor vehicles.

10 km/h zones are generally formal shared zones (see Figure 49) as set out in the *Road Rules 2014*. Shared zones are also present in residential lanes in suburban and urban place contexts.



**Figure 49 Example of 10 km/h environment – civic lane
(Source: DORAS)**

The most common uses of shared zones are in laneways and alleyways. However, this does not preclude other appropriate locations.

A 10 km/h speed zone should:

- have limited private vehicle movements

- have a self-explaining road environment using engineering treatments appropriate for a 10 km/h speed zone, to slow vehicles to that speed
- have a high place function for pedestrians and people cycling
- cover the full extent of pedestrian desire lines coinciding with public transport facilities, meaning there are no minimum lengths for these zones.

More information about the setting of shared zones can be found in Section 13.3.

C.1.2 20 km/h

A speed zone of 20 km/h is used in urban centre and urban place contexts where pedestrians and vulnerable road users share the road with motor vehicles, but do not have legal priority like a shared zone.

The most common use of 20 km/h speed limits are in locations with high place function and low traffic volumes, where traffic is typically generated from public transport needs (see Figure 50). These include public transport interchange locations where pedestrians shall give way to traffic such as light rail and buses.



**Figure 50 Example of a 20 km/h environment – transit mall
(Source: DORAS)**

A 20 km/h speed zone should:

- have limited private vehicle use
- be a self-explaining road environment, using engineering treatments appropriate for a 20 km/h speed zone, to slow vehicles to that speed

- have an at grade footpath and travel lane. Planter boxers or bollards should be used for pedestrian protection instead of using separation from the kerb, such as pedestrian fencing
- be designed to limit confusion over pedestrian or motorist priority
- cover the full extent of pedestrian desire lines coinciding with public transport facilities, meaning there are no minimum lengths for these zones
- include carparks, with kerbs and gutters, and reserves or parks if considered appropriate by the review.

C.1.3 30 km/h

A speed zone of 30 km/h is used in an increasingly wide range of situations. They are commonly used on streets with a high place function, where there are high levels of vulnerable road user activity, on quietways where cyclists are encouraged ride in the centre of the lane, and on streets with a low movement function, including some street types in the local street category. The 30 km/h zone can be used in urban centre, urban and suburban place contexts (see Figure 51).



**Figure 51 Example of a 30 km/h environment – yield street
(Source: DORAS)**

Speed zones of 30 km/h should be designed to convey the speed environment to motorists without reliance on speed limit signs. The self-explaining road environment should be created using engineering treatments appropriate for a 30 km/h speed zone to slow vehicles to that

speed. Treatments include gateway traffic calming, lane narrowing, the use of vertical and horizontal deflection devices and additional tree planting or street furniture. At existing signalised intersections, signal phasing should be reviewed, and opportunities explored to reduce wait times and increase crossing times for pedestrians. Signal phasing should prioritise pedestrian movements over vehicle movements in 30 km/h speed zones.

C.1.4 40 km/h

A speed zone of 40 km/h can be the speed limit for nearly all street types in the main streets and local street environments (see Figure 52). The 40 km/h zone are be used in urban centre, urban, suburban and enterprise place contexts.



**Figure 52 Example of a 40 km/h environment – destination high street
(Source: DORAS)**

A 40 km/h zone differs from a 30 km/h zone in that it typically provides for a mix of functions, including vulnerable road user movements along and across corridors, and vehicle movements along corridors. In some circumstances, there are times of the day where a movement function or a place function is the priority, such as on Oxford Street in Paddington and King Street in Newtown. In many cases, the movement function also facilitates public transport movements.

A 40 km/h zone only has design requirements for some street types (where the range is 30 km/h to 40 km/h). In other instances, this may include design features that support an operating speed of 40 km/h such as raised crossings, that reduce operating speeds to ≤ 30 km/h where vulnerable road user and vehicle conflict is possible.

It may be appropriate for existing 40 km/h HPAAs to be converted to 30 km/h HPAAs if they meet the requirements for a 30 km/h zone. In these scenarios additional works and traffic

calming features should be considered in the existing 40 km/h HPAA to achieve operational speeds of 30 km/h.

C.1.5 50 km/h

The NSW default urban speed limit is 50 km/h and applies in all built-up areas in the absence of other speed limit signs.

This document includes requirements and guidance for determining a 50 km/h speed zone.



**Figure 53 Example of a 50 km/h environment – transit arterial
(Source: DORAS)**

On streets with a high place function, such as urban centre and urban place contexts, 50 km/h zones often require specific design features to facilitate the safety of vulnerable road users (see Figure 53).

C.1.6 60 km/h

A speed zone of 60 km/h may be used in a variety of situations (main roads, main streets and local streets) and place contexts (all apart from urban centre).

For main roads, a 60 km/h may be the speed zone for all street types apart from motorways (see Figure 54). On rural highways and rural links, a 60 km/h speed zone is commonly associated with roads that have sub-standard design features, such as an unsealed surface or tortuous horizontal alignment. Speed zones of 60 km/h often reflect how road users currently travel on roads with these design features. For principal and secondary arterials, a 60 km/h speed zone is towards the lower range of permitted speed limits and should be implemented on roads that do not provide suitable features for accommodating higher speeds.



**Figure 54 Example of a 60 km/h environment – secondary arterial
(Source: DORAS)**

Speed zones of 60 km/h may be applied in urbanised settings, including transit corridors, transit arterials and connective avenues for some, but not all, place contexts. It is also used for connector and neighbourhood streets in rural and peri-urban place contexts where pedestrian activity is very low or pedestrian facilities provide a safe place for people to walk.

C.1.7 70 km/h

A speed zone of 70 km/h should only be used in limited situations. The only street types where a speed zone of 70 km/h should be implemented are on principal arterials, secondary arterials and transit only corridors with signalised intersections. A 70 km/h speed zone is towards the upper range of permitted speed limits and is often recommended where these roads provide some, but not all the features required to support the highest speed in the range (see Figure 55).



**Figure 55 Example of a 70 km/h environment – secondary arterial
(Source: DORAS)**

Rural roads with an existing speed limit of 70 km/h should undertake a speed zone review with the aim of progressively phasing out rural 70 km/h speed limits. Speed limits on rural roads with existing speed limit of 70 km/h may be increased to 80 km/h or reduced to 60 km/h where the requirements in this document for 80 km/h or 60 km/h zones are met.

C.1.8 80 km/h

A speed zone of 80 km/h can be used for all street types in the main roads street environment category and local streets in a peri-urban and rural place context (see Figure 56).



**Figure 56 Example of an 80 km/h environment – rural link
(Source: DORAS)**

For main roads, a speed limit of 80 km/h speed limit includes the following:

- the lowest permanent speed limit for motorways
- the highest speed limit for principal arterials, secondary arterials and transit only corridors
- a mid-range limit for rural highways and rural links.

Motorways can have a speed zone of 80 km/h where the road has intersections configured with traffic signals, as a roundabout or priority-controlled crossroads. The speed limit should be 80 km/h if the motorway has a high-risk roadside environment.

For rural highways and rural links, 80 km/h may be the speed limit where the carriageway width is narrow for the volume of traffic carried, and there is a high-risk roadside environment. Some roads in this speed zone have painted centrelines and edgelines, and others may not have any roads markings.

C.1.9 90 km/h

90 km/h speed zones are commonly used on motorways, rural highways and rural links (see Figure 57).

Outside of urban and urban centre place contexts, 90 km/h should be the lowest speed zone for motorways, except where traffic signals, roundabouts or active railway level crossings are present. In urban settings, 90 km/h should be used where the nature of the roadside environment contains moderate risk hazards, whereas 100 km/h may be applied where those hazards have a lower risk rating.

On rural highways and rural links, 90 km/h can be the speed limit where the corridor has straight or curved alignment and provides either adequate carriageway width or a forgiving roadside environment, but typically not both (unless the alignment is winding).



**Figure 57 Example of a 90 km/h environment – rural highway
(Source: DORAS)**

C.1.10 100 km/h

100 km/h is the NSW default rural speed limit that applies outside of built-up areas in the absence of other speed limit signs (see Figure 58).

This document includes requirements and guidance for determining when a 100 km/h speed zone is appropriate.

Motorways are commonly designed to accommodate speed limits ≥ 100 km/h because they are median divided and typically have little or no direct access, forgiving roadside environments, good alignment, and interchanges or intersections that minimise the potential for high-energy conflicts.



**Figure 58 Example of a 100 km/h environment – rural highway
(Source: DORAS)**

For rural highways and rural links, a speed limit of 100 km/h is:

- a common speed limit on corridors that are median divided with a non-traversable barrier
- the highest permitted speed limit on corridors that are undivided, have a wide centreline treatment or are divided but have a traversable median treatment.

Roads without a non-traversable median are outside of Safe System boundary conditions, which is why they are subject to stringent requirements designed to minimise risk.

Roads with a 100 km/h speed limit require full line marking (centreline and edge line) as well as guideposts, advisory speed signs and curve alignment markers for out-of-context curves.

C.1.11 110 km/h

A speed zone of 110 km/h is the highest permitted speed limit in NSW. These speed zones are only permitted on motorways in non-built-up areas, and high-quality divided rural highways and rural links (see Figure 59).

Roads subject to a speed limit of 110 km/h will have:

- a non-traversable median treatment
- no intersections, or all intersections are configured as grade separated interchanges
- no direct property access to the corridor
- a forgiving roadside environment
- a design speed of 120 km/h in accordance with Austroads *Guide to Road Safety Part 3: Safe Speed*.

110 km/h shall not be applied to undivided roads. Any undivided roads with an existing speed limit of 110 km/h that are subject to a speed zone review should not retain that speed limit.



**Figure 59 Example of a 110 km/h environment – motorway
(Source: DORAS)**

Appendix D Estimating travel time and safety benefits

D.1.1 Travel times

On most roads, the mean vehicle speed is usually less than the speed limit. Drivers cannot travel at the speed limit for the full journey due to interactions with other traffic, road width, curvature and terrain, surface conditions, and activity around intersections.

Studies shows that when a speed limit is reduced, the change in mean vehicle speed is typically much less than the change in the speed limit when introduced without supporting measures. Changes tend to be greatest on roads where operating speeds are high (> 90 km/h) and lowest on roads where operating speed are lower (< 60 km/h).

To determine the change in travel time associated with a proposed speed limit change, practitioners should first estimate the change in operating speed. The following guidance is recommended:

- Where operating speeds are high (> 90 km/h) the change in mean operating speed is estimated as 4 km/h for every 10 km/h change in speed limit.
- Where operating speeds are moderate (60 km/h to 90 km/h) the change in mean operating speed is estimated as 3 km/h for every 10 km/h change in speed limit.
- Where operating speeds are low (< 60 km/h) the change in mean operating speed is estimated as 2 km/h for every 10 km/h change in speed limit.

The change in average travel time can be calculated as the difference between the existing average travel time and the projected average travel time using the following equations:

$$\text{Existing Travel Time (seconds)} = \frac{\text{Corridor Length (km)}}{\left(\frac{\text{Existing Mean Operating Speed (km/h)}}{3600}\right)}$$

$$\text{Projected Travel Time (seconds)} = \frac{\text{Corridor Length (km)}}{\left(\frac{\text{Projected Mean Operating Speed (km/h)}}{3600}\right)}$$

$$\text{Travel Time Change (seconds)} = \text{Projected Travel Time} - \text{Existing Travel Time}$$

Equation 3 Change in travel time

A positive value indicates an increase in travel time.

Note: one hour is equivalent to 3600 seconds in the above formulas.

Worked Example

A 10-kilometre road has a 100 km/h speed limit and an operating speed of 95 km/h. The speed zone review recommends a reduction of the speed limit to 90 km/h. The projected operating speed after the speed limit change is estimated to be 91 km/h (4 km/h less than the current operating speed).

The change in average travel time is calculated to be 17 seconds, as follows:

$$\text{Existing Travel Time (379 seconds)} = \frac{10 \text{ (km)}}{\left(\frac{95 \text{ (km/h)}}{3600}\right)}$$

$$\text{Projected Travel Time (396 seconds)} = \frac{10 \text{ (km)}}{\left(\frac{91 \text{ (km/h)}}{3600}\right)}$$

$$\text{Travel Time Change (17 seconds)} = 396 \text{ (seconds)} - 379 \text{ (seconds)}$$

Equation 4: Worked example – Change in average travel time

D.1.2 Safety benefits

The preferred method for estimating safety benefits is the use of Elvik's Exponential Model. The Global Road Safety Facility (managed by the World Bank Group) have developed a speed impact tool based on Elvik's model. The tool can be downloaded from the Speed Management Hub on the Global Road Safety Facility's website as seen in Figure 60.

Existing and projected operating speeds are primary inputs to the estimation of how a speed limit change proposal is expected to impact road trauma. The other inputs (optional) are the number of fatalities and serious injuries on the road(s) subject to the speed zone review.

Figure 60 shows the estimated safety benefits associated with lowering the operating speed from 95 km/h to 91 km/h, according to the travel time calculation example.

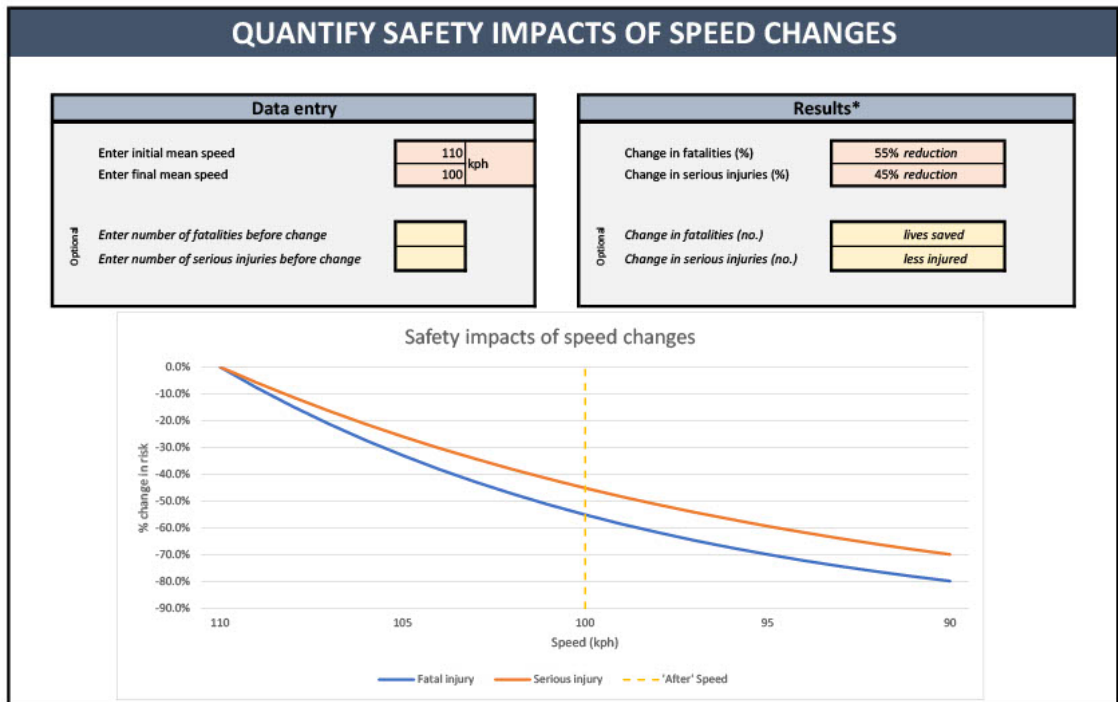


Figure 60 – Global Road Safety Facility Speed Impact Tool (Source: Global Road Safety Facility)

Figure 60 shows an operating speed change of 4 km/h could be expected to reduce fatalities by 27% and serious injuries by 21%.

Appendix E Informative references

The following documents and sources have not been directly referred to in this document; they are included here as suggested reading. They may assist with providing important background information:

Austrroads, *Guide to Road Design* (all parts), AGRD.