



NSW Centre for
Road Safety



Transport
Roads & Traffic
Authority



NSW speed zoning guidelines



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SECTION I:

Introduction

Scope, references and definitions

1.1 General

The Roads and Traffic Authority (RTA) is the lead agency for the delivery of road safety in New South Wales. The NSW Centre for Road Safety is the road safety research, policy and technology directorate of the RTA and is committed to reducing the number of deaths and serious injuries on NSW roads by being at the forefront of road safety engineering, technological and behavioural research and practices.

The Safe System approach (see *Section 2.1.2*) is adopted by the RTA as the model to develop and implement road safety programs. Safer speeds and speed limits are an essential component of the Safe System approach. The setting of speed limits is based on this approach so that avoiding death and serious injuries becomes a priority.

1.2 Aim

The *NSW Speed Zoning Guidelines* have been developed to provide a statewide point of reference to ensure consistent application of speed limits throughout NSW and make the roads and the roadside environment safer for all road users. The purpose of this document is to guide the review and installation of speed limits to:

- ensure that speed limits and speed zones are set to balance road safety with mobility needs.

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

1.3 Scope of the document

These guidelines conform to the specific interpretation of Australian Standards and Austroads guides and should be used in conjunction with relevant Australian Standards and Austroads documents.

These guidelines must be used in determining permanent speed limits. They shall not be used in determining variable speed limits (VSLs), speed zones at work sites, school zones or 40 km/h speed limits in high-volume pedestrian areas. Although the principles are the same, separate documents are available to cover those situations (*refer to Section 1.6.3*).

These guidelines contain material that may constitute mandatory guidelines. If the word 'must' or 'shall' is used, then the matter forms part of mandatory guidelines. Where other terms, such as 'may', 'should' or 'desirable' are used, they do not form part of the mandatory guidelines (*refer to Section 1.8 for definitions*).

1.4 Approvals

The *Road Transport (Safety and Traffic Management) Act 1999* enables the RTA to set speed limits for vehicles through traffic regulations. The RTA is the only agency authorised to administer the speed zones on all roads (State, regional and local) in NSW. However, there is scope for stakeholders (eg local council, members of the public and road safety experts) to make requests to the RTA for changes in speed zones.

The speed limit changes are to be appropriately authorised. Speed limit changes on State-managed roads are to be approved by the Chief Executive and by the relevant regional manager for all other roads. However, all 70 km/h and 90 km/h speed zones, regardless of the type of road, require the approval of the Chief Executive.

Approval is required from the Director, NSW Centre for Road Safety for any departure from the guidelines contained in this document.

1.5 Application

This document contains guidelines for use by RTA road safety personnel who are experienced in assessing speed zones. It provides extensive technical information needed to understand the principles of speed zoning and procedures for reviewing and implementing speed zones.

This document supersedes *Speed Zoning Guidelines, version 3.0* April 2009.

1.6 Reference documents

1.6.1 Government plans

- *NSW State Plan*
(This document is accessible through www.stateplan.nsw.gov.au)
- *National Road Safety Strategy 2011-20*
(This document is accessible through www.infrastructure.gov.au)
- *Australia's Safe System approach*
(This document is accessible through www.atcouncil.gov.au)

- *Transport NSW Corporate Plan*
(This document is accessible through www.transport.nsw.gov.au)
- *RTA Corporate Plan Blue Print 2011*
(This document is accessible through www.rta.nsw.gov.au)

1.6.2 Acts and Regulations

- *NSW Road Rules 2008.*
- *Road Transport (Safety and Traffic Management) (Road Rules) Regulation 1999.*
- *Transport Administration Act 1988*

(These documents are accessible through www.legislation.nsw.gov.au)

1.6.3 RTA documents

- *40 km/h speed limits in high volume pedestrian areas: a guide to identifying and implementing 40 km/h speed limits in high volume pedestrian areas.*
- *Variable Speed Limits (VSL) Guidelines.*
- *50 km/h Urban Speed Limit Evaluation Summary Report.*
- *Regulatory Signs Version 1.2 and Traffic Signs Register.*
- *Road Design Guide.*
- *Traffic Control at Work Sites, Version 4.0.*
- *TD 2000/6 Shared Zone Signs.*
- *TD 2002/11 Use of VMS Signs.*
- *TD School Bus Blackspots.*
- *RTA Delegation Manual.*
- *RTA Community Involvement and Communications: A Resource Manual for Staff.*

These documents are accessible through the RTA website (www.rta.nsw.gov.au).

1.6.4 Australian standards

- *Australian Standard AS 1742.1, Manual of uniform traffic control devices, Part 1: General introduction and index of signs.*
- *Australian Standard AS 1742.2, Manual of uniform traffic control devices, Part 2: Traffic control devices for general use.*

- Australian Standard AS 1742.4, *Manual of uniform traffic control devices – Speed controls*.
- Australian Standard AS 2890.1, *Parking facilities – Off street car parking*.

1.6.5 Austroads documents

- *Guide to Road Safety – Part 3: Speed Limits and Speed Management*.
- *Guide to Traffic Management – Part 5: Road Management*.
- *Austroads Report AP-118/96 – Urban Speed Management in Australia*.

1.6.6 Research reports

- Bhatnagar Y et al, 2010, Changes to speed limits and crash outcome – Great Western Highway case study, 2010 Road Safety Research, Education and Policing Conference, Canberra, Australia.
- Elvik, Rune et al, 2005, *Speed and Road Accidents: an evaluation of the Power Model*, *Nordic Road and Transport Research No.1*.
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- Roads and Traffic Authority, 2000, *50 km/h Urban Speed Limit Evaluation, Summary Report, September 2000 (version 2)*, RTA/Pub. 00.0061 ISBN: 0 7313 0102 1.

- Scharping, F K, 1994, *Experience Report. 30 km/h Speed Limit Zones in Hamburg, Speed Reduction Measures on Major Inner City Roads*, Transportation Research Institute, Technion-Israel Institute, Haifa, Israel.
- Sliogeris, J, 1992, *110 kilometre per hour speed limit – evaluation of road safety effects*, VicRoads report GR 92-8.
- Tziotis, M, 2001, *Lower general speed limits – Learning from the NSW experience* AITPM National Conference, Melbourne, Victoria.
- Walker, E et al, 2009, 'Quantitative study of attitudes, motivations and beliefs related to speeding and speed enforcement', Proceedings of the Australasian Road Safety Research Policing Education Conference, Sydney, 2009.
- Woolley J, 2005, 'Recent advantages of lower speed limits in Australia', *Journal of the Eastern Asia Society for Transportation Studies*, vol. 6, pp. 3562–3573.
- World Health Organization (WHO), 2008, *Speed management: a road safety manual for decision-makers and practitioners*, Global Road Safety Partnership, WHO, Geneva.

1.7 Specifications

Speed management devices (eg signs and markings), in relation to which the methods, standards and procedures are prescribed in this document, shall meet RTA specifications. For detailed specifications for the materials and manufacture of these devices reference should be made to the relevant document listed in *Section 1.6*.

1.8 Definitions and abbreviations

AADT – Annual average daily traffic; the total yearly traffic volume in both directions at a road location, divided by the number of days in the year. In NSW, AADT is measured as either the number of vehicles or the number of axle pair passes during a 24 hour period averaged over a year.

Adjacent development – Commercial or residential development near the road, requiring regularly used driveways/access points (*also refer to Regularly used driveways/access points*).

Advisory speed signs – Signs used to inform motorists of changes in alignments (ie curves, bends, humps, dips) and of the appropriate speed to negotiate these road features. 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.

Area wide speed limit – The road network within a defined area on which a blanket speed limit is applied.

Arterial road – Roads that provide for traffic movement across and between regional areas.

At-risk location – a location along the road network where there are road geometry constraints, hazards in the roadside, non-conformance with design standards for the proposed speed zone, or a perceived or identified risk. The location may not have a crash history.

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 metres or, if the length of road is shorter than 500 metres, for the whole road:

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

Classified road – A road declared under the *Roads Act 1993*, Part 5. (also refer to *State roads*).

Clear zone – The roadside area adjacent to the road which is required to be clear of any non-frangible roadside hazards (ie trees, poles, drains, culverts, steep embankments).

Default rural speed limit – Statutory speed limits that apply in the absence of a signposted speed limit in non-built-up areas. The default rural speed limit in non-built-up areas is 100 km/h.

Default urban speed limit – Statutory speed limits that apply in the absence of a signposted speed limit in a built-up area. The default speed limit in a built-up area is 50 km/h.

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.

Freeway – A motorway, for the use of which no toll is be paid (also refer to 'Motorway' and 'Tollway').

Limited access – In urban areas, relates to sections of road where some frontage access is via side streets and traffic management is generally via front-in front-out access to and from properties.

Local area (or local traffic area) – Network of local and collector roads bounded by arterial roads.

Local precinct – Network of local roads bounded by collector and arterial roads.

Local roads – All public roads for which a council is the roads authority other than State or regional roads. They comprise the local access and circulation roads which are managed and funded by councils. These roads have a primary function of providing direct access to abutting properties. See also 'State roads' and 'Regional roads'.

May – Indicates the existence of an option, which is not mandatory. Mandatory requirements may, however, apply to a particular option once it is selected.

Motorway – A divided highway for through traffic with no access for traffic between interchanges and with grade separation at some interchanges. Certain activities or uses may be restricted or prohibited by legislative provision (also refer to 'Freeway' and 'Tollway').

Must – Indicates that the statement is mandatory.

Prescribed traffic control device – A sign, signal, marking, structure or other device to direct, warn or guide traffic on a road or road-related area (or part of a road or road-related area) that is prescribed by the regulations for the purposes of this definition (also refer to 'Traffic control device').

Regional roads – Category of roads agreed with councils for administrative purposes. They comprise the lesser trafficked classified roads which are not State roads and some of the more important unclassified roads. They are managed by councils, with the RTA providing significant funding assistance. See also 'State roads' and 'Local roads'.

Regularly used driveways – Driveways in urban areas used at least two or three times per week over a substantial period of time to establish a pattern.

Regularly used private accesses – Private accesses in rural areas used two or three times per week over a substantial period of time to establish a pattern.

Regularly used intersections – In semi-urban and rural fringe areas, regularly used intersections with a traffic generation potential of greater than 100 vehicles per day.

Residential precinct – See 'Local precinct'.

Route-based approach – a holistic approach to reviewing the impact of speed limit changes along a route or across an area or precinct to ensure that speed limits along the route balance road safety and mobility whilst reducing the number of changes in speed limits where possible.

Road user – A driver, rider, passenger, pedal cyclist or pedestrian.

Safe system approach – This approach recognises that, even with a focus on prevention, road crashes will occur. Therefore, the road system must be designed to be more forgiving of human error and to ensure that any crash that does occur minimises death and serious injury. It holds those who design and manage the road system to be specifically accountable for the safety performance of the network, and that the design of vehicles and road environments must be undertaken on the basis of human limitations.

Seal width – The width of sealed pavement. This includes lane widths and sealed shoulder.

Shall – Indicates that the statement is mandatory.

Should – Indicates a recommendation.

Shared zone – An area or length of road that is shared by vehicles and pedestrians, in which pedestrians have priority.

Sight distance – The distance measured along the road over which visibility occurs between a driver and an object or between two drivers at specific heights above the carriageway in their lane of travel (also refer to 'Stopping sight distance').

Speed control – The practice of controlling speed by way of speed limits or speed management so that safe maximum speeds are clearly indicated. Compliance with the speed limit is promoted and uniform travel speed is encouraged and enforced.

Speed limit – The maximum legally permissible driving speed along a specific section of road, as defined by the NSW Road Rules and the Road Transport (Safety and Traffic Management) Act 1999.

Speed management – A process by which vehicle speeds are influenced in order to improve road safety and residential amenity. Speed management is generally achieved through the combination of engineering, education and enforcement strategies.

Speed zone – A length or an area of road along which a signposted regulatory speed limit applies.

State roads – Category of roads agreed with councils for administrative purposes. They form the primary arterial network of classified roads in the State and some special purpose classified roads. The RTA manages State roads and accepts responsibility for funding, priorities and outcomes (see also 'Regional roads' and 'Local roads').

Stopping sight distance – the distance required by an average driver (of a car or truck, depending on design requirements), travelling at a given speed, to react and stop before striking an object on the road (also refer to 'Sight distance').

Time-based speed limit – Regulatory speed limit which applies during specified times of the day. These speed limits are applied on roads at times when the level of road and roadside activity varies markedly from other times (eg school zones).

Tollway – A motorway, for the use of which a toll has to be paid (also refer to 'Freeway' and 'Motorway').

Traffic control device – Any sign, signal, pavement marking or other installation placed or erected by a public authority or official body having the necessary jurisdiction, for the purpose of regulating, warning or guiding road users (also refer to 'Prescribed traffic control device').

Traffic route – A road the prime function of which is to move traffic between locations. These roads are typically primary arterials or secondary/sub-arterial roads.

Transition zone – A short length of speed zone used to provide a stepped change between adjacent sections of road that have different speed limits. Transition zones, also known as buffer zones, are not used in NSW.

Urban – Refer to 'Built-up area'.

Urban fringe – An area usually adjoining an urban built-up area characterised by dispersed access and lower population density.

Variable speed limits (VSLs) – Regulatory speed limits that are applied, using electronic signs, at different times of the day to reflect differing driving conditions

1.9 Structure of the document

This document is structured to provide guidance in reviewing and installing speed limits. The guidelines are written in three sections.

Section 1 gives the scope, aim, reference documents, definitions, abbreviations and structure of the document. *Section 2* describes the general framework for defining speed limits and includes the process required to review a speed zone, while *Section 3* provides detailed reference material.

A quick guide on how to use the document is given in *Table 1.1*.

TABLE 1.1 STRUCTURE OF THE DOCUMENT

SECTION	TITLE	DESCRIPTION
Section 1	Introduction	Gives the scope, aim, reference documents, definitions, abbreviations and structure of the document
Section 2	Speed zoning	Gives speed limit and speed zone principles, and speed zoning review procedures
Section 3	Reference information	Gives reference information on speed limits, speed zoning and signposting and authorisation of speed zones

SECTION 2:

Speed zoning

Principles and procedures

2.1 Introduction

Speeding 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 oldest and most proven strategies around the world for controlling driving speeds and are regulated for many reasons, including:

- The actual and potential risks on the road not always being obvious or recognisable.
- Driver decisions about speed being made without adequately considering their effect on the safety of other road users.
- A driver's inability to judge vehicle capabilities (eg stopping) and to adequately anticipate roadway geometry and roadside conditions to determine appropriate driving speeds.
- Driver misjudgement of the effects of speed on crash probability and severity.
- The wide range of attitudes to risk within the community, including many drivers engaging in high risk behaviours, regardless of the consequences.
- The safety benefits of more uniform travel speeds.

Speed limits may also be set in an attempt to reduce the environmental impact of road traffic (eg vehicle noise, vibration and emissions).

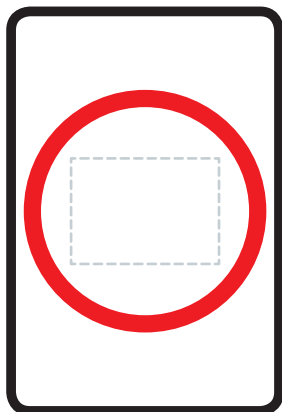
2.1.1 Speed limits and speed zones

A speed limit is the number shown on the regulatory speed limit sign (Figure 2.1) within the red circle (annulus) and defines the maximum legal speed permitted along a specific section of road under good road and travel conditions. The *Road Transport (Safety and Traffic Management) Act 1999* authorises the RTA to set the speed limits on NSW roads through traffic regulations. The RTA has not delegated this authority to any other agency and is therefore responsible for setting speed limits on all roads – State, regional and local.

A speed limit, displayed by the regulatory speed limit sign, is legally enforceable under the NSW Road Rules. According to NSW Road Rule 20, a driver must not drive at a speed over the speed limit applying to the driver for the length of road.

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

FIGURE 2.1 REGULATORY SPEED LIMIT SIGN (R4-1)



Other types of speed limit signs are Advisory Speed Limits (W8-2 on yellow background) and Speed Restriction Ahead sign (G9-79 with black circle); see *Figure 2.2* and *Figure 2.3*. They are not legal speed limits and are used to inform motorists of forthcoming changes in alignment and speed limits. For more information, see *Section 2.2.7* and *3.3.3 (b)*, respectively.

All regulatory speed limits are in steps of 10 km/h, always ending in 0. All advisory speed limits are in steps of 10, always ending in 5.

FIGURE 2.2 ADVISORY SPEED LIMIT SIGN (G9-79)

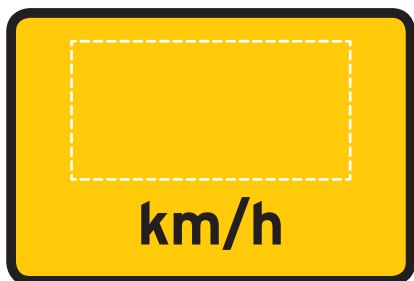
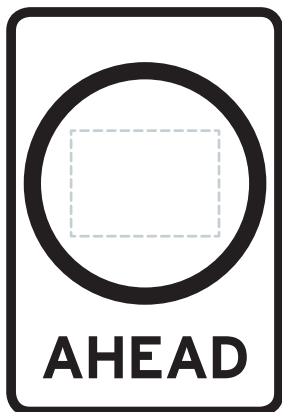


FIGURE 2.3 SPEED RESTRICTION AHEAD SIGN (R4-202)



2.1.2 Safe system

The fundamental principle in setting speed limits for a particular length of road is that the established speed limit should reflect the road safety risk to the road users while maintaining mobility and amenity. In setting speed limits, the principles of the Safe System are taken into account.

The Safe System approach advocates for a safe road system, better adapted to the physical tolerance of its users. The Safe System was officially endorsed by the Australian Transport Council in 2004 and adopted by all Australian state and territory road authorities, including NSW. It has guided the development of subsequent National Road Safety Action Plans and underpinned the development of the *National Road Safety Strategy* for 2011 to 2020.

While the Safe System approach to road safety recognises the need for responsible road user behaviour, it also accepts that human error is inevitable. It therefore aims to create a road transport system that makes allowance for errors and minimises the consequences – in particular, the risk of death or serious injury. By taking a total view of the combined factors involved in road safety, the Safe System encourages a better understanding of the interaction between the key elements of the road system: road users, roads and roadsides, vehicles and travel speeds.

The main objective of the Safe System is to ensure that, in the event of a crash, the impact forces released are within the bounds of human tolerance, no fatalities occur, and serious injuries are reduced. The chances of surviving a crash decrease rapidly above certain impact speeds, depending on the nature of the collision.

The speed zoning guidelines are important in determining speed limits that assist drivers to recognise the speed limit for the road environment being encountered. The setting of speed limits is now based on this approach so that avoiding death and serious injuries becomes a priority.

2.1.3 Speed versus risk and severity of crash

The relationship between vehicle speed and crash severity is unequivocal and is based on the laws of physics. Current and past research in Australia and internationally provides compelling evidence that increased travel speeds – even at low levels – are directly related to both the likelihood of a crash occurring and to the severity of crash outcomes.

Research demonstrates that travel speeds and death tolls usually decrease when speed limits are lowered, and that higher travel speeds and death tolls follow increases in speed limits. The evidence is clear that lower speed limits result in irrefutable road safety benefits (Nilsson 1990, Sliogeris 1992, Scharping 1994, Woolley 2005, Bhatnagar et al 2010).

2.1.4 Relationship between speed limit and mean speeds

Review and analysis of the available literature suggests that a 10 km/h reduction in speed limit will on average cause a 3–4 km/h change in mean speeds (Kloeden et al 2007). Analysis of speed limit evaluation studies shows that a higher mean speed reduction can be expected on a high speed limit road than on a low speed limit road. Even small reductions in mean speeds result in substantial safety benefits to all road users on the affected roads. The greatest gains are observed in reductions in fatalities and fatal crashes. Pedestrians and other vulnerable road users particularly benefit from reduced mean speeds and speed limits.

In aggregate terms, minor speeding is found to be more dangerous to the community than excessive speeding. The cumulative effect of a small additional risk multiplied by a high number of drivers results in more casualty crashes than the cumulative effect of a few drivers who speed by a large margin.

2.1.5 Route based approach

While reviewing and setting the speed limits, route-based approach to speed zoning should be applied. This approach will ensure that speed limit changes along a route or across an area or precinct address road safety, facilitating mobility whilst reducing the number of changes in speed limits where possible.

2.1.6 Improved road safety

The setting of safe speed limits is an integral part of safety on NSW roads. Almost 40% of all road related fatal crashes and 16% of injury crashes in NSW have speed as a factor.

Crashes have significant costs to individuals, families and communities:

- There were 207 fatalities and 4,089 injuries from speed-related crashes in 2009.
- The cost to the community from speed-related crashes in 2009 was around \$1,700 million (expressed in December 2009 dollars).

Lower speeds deliver significant road safety benefits, reducing both the number and severity of crashes. A major study (Tziotis 2001) that evaluated the introduction of the 50 km/h urban speed limit in NSW has found that a 23% reduction in road crashes was achieved on residential streets where the lower speed limit was introduced. The study also found that the proportion of motorists travelling at excessive speed also fell dramatically on streets rezoned to 50 km/h.

As well as the benefits for safer speeds, appropriately set speed limits may provide a more uniform speed environment in which drivers can more safely undertake difficult manoeuvres, such as stopping, overtaking and turning.

2.1.7 Engineering measures

If safety issues are identified along a particular length of road, engineering measures should initially be considered. They may include realignment, delineation or local-area traffic management schemes.

When long-term engineering measures are implemented, the speed limit should be re-evaluated. This particularly applies to at-risk locations where a lower speed limit has been applied.

Due to site considerations and financial constraints, engineering measures may not be feasible. Therefore, speed zoning may also be considered a long-term solution.

2.1.8 Economic development

Speed zoning needs to be considered in the context of economic activity. Although there is a cost to the community associated with increased travel time when a lower speed limit is set, the effect on the overall travel time for an individual vehicle is usually small. However the economic cost can be high when a significant traffic flow is involved, particularly when there are high volumes of freight vehicles. This needs to be considered when setting speed limits.

For example, a 3- kilometre trip with no interruptions will take only 36 seconds longer if the speed limit is reduced from 60 km/h to 50 km/h. In most urban environments with high volumes of traffic and frequent intersections, the change in travel time is even less.

Depending on the traffic volumes the potential reduction in costs associated with crashes will outweigh the penalty in travel times.

Benefits for the community arise from lower speed limits when the severity and number of crashes are reduced. Research has shown that there is a causal relationship between speed and road safety outcomes. If mean speeds are reduced by 10%, fatalities can reduce by approximately 38% (Elvik et al, 2005).

Furthermore, lower speed limits contribute to improved network efficiency on key travel routes by reducing the number of crashes and associated delays. This is to be balanced against slower mean speeds.

2.1.9 Public expectations

A 2009 attitudinal survey (Walker et al. 2010) of NSW drivers showed that the majority thought speed limits were set 'about right'. This indicates strong support for the use of speed limits.

Drivers were also asked how they thought speed limits are selected for different stretches of road. Drivers most frequently mentioned that the criteria for setting speed limits are related to how built up the area is, such as being an urban or residential area, or the presence of schoolchildren or pedestrian activity. Drivers also commonly mentioned factors such as the condition of the road and traffic volume. Crash history was also mentioned as a criterion, but not as commonly as the above factors.

Drivers expect that speed limits will be consistently applied and recognisable. The speed limit for some roads will, however, be set lower than for similar roads for reasons such as an adverse crash history, which may not necessarily be apparent to motorists. Where this is the case, additional signposting and other engineering work should be considered to manage the factors underlying the crash history.

2.2 Speed limits in NSW

2.2.1 Introduction

Speed limits in NSW are based on a system of:

- **Default speed limits**, which are statutory speed limits that apply in the absence of speed limit signage and do not require signposting. There are two types of default speed limits: 50 km/h in urban (built-up) areas and 100 km/h in rural (non-built-up areas).
- Speed restrictions based on vehicle class (eg some heavy vehicles) or licence class (eg learner drivers).
- **Speed zoning** – areas requiring speed limits to be signposted. These include 60, 70, 80, 90 and 110 km/h speed zones on road lengths where those speeds have been assessed to be safe and 40 km/h speed zones and 10 km/h shared zones in high pedestrian areas. 40 km/h school zones are established on a section of one or more roads adjacent to a school with a part-time speed limit. *Refer to Section 3.2 for details.*

2.2.2 Speed limits – types and ranges

Table 2.1 and Table 2.2 show the range and types of speed limits used in NSW. Factors such as crash history, cross-sections, alignment, roadside development and traffic volume will influence the selection of a posted speed limit. These tables must be used in conjunction with detailed descriptions found in Section 3.2.

Speed limits may also be applied for specific on-road or roadside conditions, or for particular classes of vehicles. Typical special speed limits are shown in *Table 2.3.*

TABLE 2.1 OVERVIEW OF SPEED LIMITS IN NSW

SPEED LIMIT	TYPE OF SPEED LIMIT	TYPICAL APPLICATION <i>(refer to Section 3.2.2 for more details)</i>
50 km/h	Default urban speed limit	<ul style="list-style-type: none"> Default urban speed limit in built-up areas. May be signposted if unclear.
60 km/h	Length	<ul style="list-style-type: none"> Significant urban undivided arterial roads (with direct driveway accesses). Divided road with high volume where the lanes are narrow (less than 3.0 metres). Rural residential roads in villages with minimal development.
80 km/h	Length	Urban high standard divided roads (generally without driveway access): <ul style="list-style-type: none"> Undivided arterial and sub-arterial roads on the fringes of urban areas. Lower quality rural roads. Undivided rural roads with less than 5.6 metres wide sealed pavement or no marked dividing line <i>(refer to note below)</i> .
100 km/h	Default rural speed limit Length	Default speed limits for non-built-up areas: <ul style="list-style-type: none"> Urban motorways (freeways/tollways). Rural undivided road with sealed pavement wider than 5.6 metres. Rural divided roads.
110 km/h	Length	Maximum allowable speed limit in NSW. Motorways (freeways/tollways) in non-built-up areas: <ul style="list-style-type: none"> High-quality rural divided roads. Undivided rural road with low traffic volume west of the Newell Highway.

NOTE:

Excluding some higher quality arterial roads in remote areas which are constructed in a geo-textile base and may have edgelines without a corresponding dividing line.

TABLE 2.2 RESTRICTED SPEED LIMITS AND APPLICABILITY IN NSW

RESTRICTED SPEED LIMIT	TYPE OF SPEED LIMIT	TYPICAL APPLICATION
70 km/h	Length	Locations that do not meet the standard of 80 km/h speed limit.
90 km/h	Length	Locations that do not meet the standard of 100 km/h speed limit.

NOTE:

* These speed limits require the prior approval of the Chief Executive.

TABLE 2.3 SPEED LIMIT BY VEHICLE/LICENCE CLASS

VEHICLE/LICENCE CLASS	Learner	PI	P2	Road trains	Other heavy vehicles
SPEED LIMIT	80	90	100	90	100

NOTE:

- For or further details, refer to Section 3.2: Types of speed limits.
- Lower speed limits are to be used on lengths with adverse crash histories or geometric limitations, such as steep and/or winding roads.

TABLE 2.4 SPECIAL SPEED LIMITS AND APPLICABILITY IN NSW

OTHER SPEED LIMIT	TYPE OF SPEED LIMIT	TYPICAL APPLICATION
10 km/h	Length or area	Shared zones including: <ul style="list-style-type: none"> • carparks. • reserves. Refer to Section 3.2.3 for more details.
40 km/h	Length or area	<ul style="list-style-type: none"> • High pedestrian activity areas. • Local traffic areas. • School zones (prescribed times). • School bus blackspot zones. Refer to Section 3.2.3 for more details.
40, 60 and 80 km/h	Length	<ul style="list-style-type: none"> • roadwork speed limits. Refer to Section 3.2.4 for more details.

2.2.3 Zone length

To avoid excessive variations in speed limits, a balance needs to be achieved between:

- Roadside development.
- Road environment.
- The number of changes of speed limit.

The desirable minimum typical speed zone lengths have been developed with these needs in mind. However, at-risk locations along the road network (refer to Section 2.3.6 for details), shall have shorter desirable minimum lengths to reduce impacts on mobility. See Table 2.5 for details.

TABLE 2.5 LENGTH OF SPEED ZONES

SPEED LIMIT (KM/H)	DESIRABLE MINIMUM LENGTH OF ZONE (KM)	
	Normal	At-risk location*
40	0.2	Not applicable
50 Default urban limit	Not applicable	Not applicable
50, 60	0.5	Not applicable
70	2.0	0.7
80	2.0	0.8
90	2.0	0.9
100	3.0	2.0
110	10.0	Not applicable

NOTE:

Speed limits at at-risk locations shall have additional supplementary plate displaying the risk (see Section 2.3.6).

2.2.4 Unsealed roads

The default speed limit is often inappropriate for unsealed roads. Allowances have been made to reduce speed limits on rural undivided roads with sealed pavement less than 5.6 metres wide and unsealed roads may be considered in a similar manner.

Unsealed roads in a rural environment can be speed limited to 80 km/h. Unsealed roads passing through urban areas or areas with poor alignment should be speed zoned in accordance with the principles described in these guidelines.

Nevertheless, in some locations the default speed limit may be the preferred option, and in such cases, the *Reduce Speed To Conditions sign (G9-318-1)* can be used to remind drivers to drive to prevailing conditions on unsealed roads.

2.2.5 Seasonal zones

Seasonal speed zones may be used at some locations where the traffic and/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 require a lower than usual speed limit for safe driving (eg prevalent snow/wet weather and ice).

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

2.2.6 Offset speed zones

In an offset speed zone, there are different speed limits in each direction of a road. Offset speed limits are often 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. It may be appropriate to use offset speed zones in the following situations:

- On divided roads where one direction of a road produces a greater risk than the opposing direction (eg 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.
- Construction sites.

At steep descents/ascent with unbroken dividing lines and climbing lanes for buses and trucks, it may also be desirable to apply for a lower speed limit for descending heavy vehicles.

2.2.7 Advisory speed limit

Advisory speed signs (*Figure 2.2*) are used to inform motorists of changes in alignments (ie curves, bends, humps, dips) and of the appropriate speed to negotiate these road features. Advisory speed signs are used where the appropriate speed on a section of the roadway may be less than the posted speed limit. Refer to *Section 3.3.5* for detailed information.

2.3 Key factors in setting of speed limits

2.3.1 Introduction

The fundamental principle in setting speed limits for a particular length of road is that the established speed limit should reflect the road safety risk to the road users while maintaining mobility and amenity. The following principles shall be followed when setting or reviewing speed limits:

- The speed limit for a particular length of road must reflect the road safety risk to the road users while maintaining mobility and amenity.
- The default 50 km/h general urban speed limit and practice in speed zoning of other speed limits in the urban environment should be the initial consideration for speed limits in urban areas.
- The need for a non-default speed limit should be obvious to drivers.
- The speed limit must not exceed the maximum assessed speed for the road, taking into account key factors such as crash profile, road function, road use, roadside development, road characteristics, traffic mix, crash history, the presence of vulnerable road users, and the number, type and frequency of driveways and intersections which indicate potential conflict points.
- Speed zone changes should be kept to a minimum, balancing the need for a new speed zone with the possible confusion caused by frequent changes.
- Lower speed limits may be considered for application to at-risk locations.
- The setting and review of speed limits should be part of a route-based approach.
- Restricted use of 70 km/h and 90 km/h speed limits.

2.3.2 Road function

The road network spans a wide range of road types with different transport functions and mixtures of traffic. Roads also have widely differing crash patterns and speed behaviour. Roads often have more than one function and it is important to identify the key function of the length of road under review.

2.3.3 Roadside development

The level of roadside development can influence the speed at which drivers travel. Drivers usually accept reduced speed limits when the speed limit is appropriate for the level and nature of adjacent roadside development.

2.3.4 Road characteristics

A variety of road characteristics, such as horizontal and vertical alignment, clear zones, medians, lane widths, sight distance etc, are able to influence the choice of a safe speed limit for a length of road. These factors need to be considered when reviewing the speed limit.

2.3.4.1 Alignment

The geometric features of a road may influence the speed at which motorists choose to travel. Speed zoning should consider the overall standard of road alignment (*refer to Section 2.2.7*).

Isolated sections of road with adverse alignments should be treated with advisory warning signs. The use of advisory signs is covered in *Section 3.3.5*. In critical locations, such as approaches to tunnels or bridges, it may be necessary to reduce speed limits and use enforcement measures to get the desired results.

The speed limit for a section of road that is characterised by closely spaced curves should be set according to the recommended safe speed of the curves rather than straight sections of road. This guideline applies if the section of winding road is more than 2 kilometres long.

2.3.4.2 Road access

Consider the number and type of access points along a length of road and the adequacy of the sight distance (as described in AS/NZ 2890.1 – *Section 3.2.4: Sight distance at access driveway exits*).

2.3.4.3 Lane width

Lane width and the road surface condition have a substantial influence on the safety and comfort of road users. Depending on the lane configuration and road alignment, a reduction in lane width reduces the lateral clearance between vehicles, which will reduce the traffic travel speed and lane capacity. A reduction of lane width requires consideration of reduced speed limits.

2.3.4.4 Adjacent speed zones

Take into account the limits on adjacent sections of road and the length of the road section that is to be zoned. Speed limit changes should meet the minimum length criterion shown in *Table 2.4*.

2.3.5 Traffic characteristics

The following traffic characteristics need to be considered before introducing a speed limit.

2.3.5.1 Traffic patterns

Lower speed limits should not normally be applied solely in response to conditions that arise for short periods each day. This includes peak traffic activity outside a factory or near a sportsground.

Exceptions can be made for specific traffic management plans, including temporary speed limits (eg for community bike rides). Other exceptions are school zones, work sites and variable speed limits (eg M5 East Motorway).

2.3.5.2 Pedestrians and cyclists

The presence of vulnerable road users, such as pedestrians and cyclists, should be taken into consideration when determining the speed limit for a length of road.

The speed limit shall be compatible with the pedestrian and cyclist activity and facilities on that length of road. When assessing the speed limit for a length of road, factors such as roadside development and road environment should be considered in terms of pedestrians and cyclists.

Factors to consider include:

- Nearby pedestrian attractors and generators.
- Pedestrian characteristics (eg young children, elderly, mobility and vision impaired).
- Pedestrian crossing facilities.
- On-road bicycle facilities.
- Bicycle crossing facilities.
- Public transport links.

The amount of pedestrian and cyclist activity is related to the level of roadside development and type of road environment. If these factors are considered, a reduced speed limit may be appropriate.

Reduced speed limits should be considered where certain selection criteria are met. This includes shared zones, 40 km/h high pedestrian activity areas and school zones (*refer to Section 3.2.2 for more information*).

2.3.5.3 85th percentile speed of vehicles

Speed surveys are used to determine overall traffic speed and volume on a road. This speed is usually determined by a survey of vehicles travelling under free-flow conditions. One of the measures used is the 85th percentile speed, which is the speed at or below which 85% of drivers travel.

This measure is useful for designing, implementing and evaluating speed management initiatives to address a speeding problem on a length of road. The 85th percentile speed does not indicate the safe speed limit.

If the 85th percentile is higher than the reviewed speed limit of a road it may be necessary to implement a broad speed management program in order to reduce speeding. Typical measures may include a combination of the elements shown below, noting that a reduction in speed limit should be undertaken after a speed zone review, considering all relevant factors:

- Speed signs.
- Enforcement.
- Public education.
- Reduced speed limit.

2.3.6 At-risk locations

Speed limits should not generally be reduced for isolated road hazards except for at-risk locations.

An at-risk location is defined as a location along the road network where there are road geometry constraints, hazards in the roadside, non-conformance with design standards for the proposed speed zone, or a perceived or identified risk. The location may not have a crash history.

Speed zoning of at-risk locations must be undertaken as part of a route-based approach to ensure the consistency of road environments with speed limits. At risk speed zones must minimise the impact of the reduced speed limit on motorists without compromising safety.

Key factors considered in identifying at-risk locations include road geometry, intersections which indicate potential conflict points, road alignment and crash history.

Speed limit signs for at-risk locations must have additional supplementary plates displaying the risk. Refer to Section 3.3.2(b) for details.

A change in the speed limit to 70 km/h or 90 km/h will require the authorisation of the Chief Executive.

2.4 Speed review procedures

2.4.1 Introduction

The RTA has responsibility for reviewing and setting speed limits in NSW. All requests for an assessment or a review of a speed limit must be directed to the RTA regional office for the area with that road section.

A review of the speed limit seeks to enhance road safety by applying speed management policies and practices to:

- Evaluate the appropriateness of current speed limits.
- Determine the need for a change in the current speed limit taking into account the need to:
 - Respond to community views and concerns related to speed zoning policies and practices.
 - Identify and correct speed zoning anomalies.

- Ensure that speed limits reflect changes in road use and the level of roadside activity.
- Keep the number of speed zone changes along a section of road to a practical minimum.

- Respond to increasing or identified crash concerns along a length of road.

The use of a standard procedure to determine speed limits provides:

- Consistent methodologies between regions and practitioners.
- Guidance for data collection and analysis, and the relative importance of the various criteria used in determining speed limits.
- Consistent correlation of road environments with speed limits.
- Preservation of the integrity and credibility of speed limits.
- Standardised documentation, which assists in satisfying accountability and quality management requirements.

2.4.2 Main procedures for installing speed zones

A ten-step process has been created to guide practitioners through the process of reviewing and setting speed limits. The implementation process for each step is described in *Section 2.5*.

This process should be followed in completing a speed zone review; related documentation should be filed.

2.5 10-step process: speed zone review

Speed limits and speed zones are set to balance road safety with the mobility needs of the community in NSW. An appropriate balance of speed zones which are sensitive to changes in conditions along the length of a road without excessive numbers of changes in speed zones. Community views shall be considered in the setting of speed limits, and the local council shall be invited to participate in the data collection, analysis and site inspection procedures as appropriate. *Refer to the steps below for more details.*

The key 10 steps to be considered when reviewing and setting a speed limit are outlined in *Figure 2.4*.

FIGURE 2.4 SPEED ZONE REVIEW PROCEDURE



Step 1: Receive request or identify the need for speed review

Typical circumstances that lead to a review of speed limits include:

- A default speed limit is thought to no longer be applicable to a particular road.
- The speed limit no longer aligns with the speed environment (changes in conditions or need for rationalisation).
- Community requests or other inquiries have prompted a review of a particular speed limit.
- Existing speed zone lengths are less than the minimum length specified in *Table 2.4*.

Typically requests to review the speed limit come from:

- Police.
- Members of the public.
- The RTA.
- Politicians.
- Local councils.
- Advocacy groups.

Step 2: Conduct crash analysis

Conduct a statistical crash analysis of the length of the road under review, as follows:

- Assemble a minimum of three years of crash data for the selected road; plot data if required.
- Establish whether physical works that have been undertaken could render crash data unreliable.
- Identify key crash types and clusters (such as day, time of day, conditions, pedestrian and alcohol involvement, heavy vehicle, single or multiple vehicle crashes).
- Determine the scale of the problem. Prepare crash rate calculations and compare with established benchmark rates (*refer to Section 3.1 for further details*).
- Speed can be a determinant in the severity or outcome of all crash types.
- Notify the council, in writing, that a speed zone review is being conducted and provide it with a copy of the crash analysis report.
- Invite council officer(s) to participate in first site inspection (Step 3).

Step 3: Conduct first site inspection

Coordinate the first site inspection with council officer(s) if they have agreed to participate. Information about the roadway and its characteristics needs to be collected by inspecting the road. Define the length of road under consideration, drive or walk the route and prepare a site sketch using running chainage to describe features. Use this technique to collect the following information about the relevant elements along the route:

- Signage (GPS locations of regulatory, advisory, warning and guide signs).
- Adjoining speed limits.
- Vertical and horizontal alignment (flat, rolling, undulating etc), delineation, advisory speeds (other geometric constraints).
- Number and type of intersections (traffic control signal (TCS) number and configuration).
- Number of driveways, type (residential, commercial, industrial etc) and utilisation.
- Pedestrian facilities and controls, such as fences.
- On-street parking.
- Cyclists' facilities.
- Roadside hazards and clear zones.
- Road cross-section (shoulders, number of lanes including turning lanes, medians, merges, lane widths, transit lanes, bus lanes, cycleways and pedestrian facilities).
- Adjoining developments including pedestrian and traffic generators (such as fast food outlets, stations, bus stops, shopping centres, car parks).
- Traffic mix (estimate percentages of heavy vehicles and vulnerable road users).
- The sight distance available to motorists.
- Fixed speed camera, safety camera and appropriate mobile enforcement sites.

From the above information identify uniform lengths along the road that would be suitable for a single speed limit, taking into account minimum lengths of speed limit zones.

This step should also be undertaken in line with the route/area/precinct-based approach (refer to Section 2.1.4).

Step 4: Conduct speed survey

Determine whether a speed survey exists for the road in question. Ideally, the data used should not be more than two years old. Prior to using pre-existing data, consider whether the road or adjacent development has altered significantly.

Consider conducting speed surveys using one of the following three methods.

- (i) Limited speed surveys. For minor roads, conduct limited sample speed checks (typically a sample of 100 cars) using a speed detection device, such as radar or laser.
- (ii) Floating car surveys. Use 'floating car' speed checks by following another vehicle to determine travelling speed (typically 10 cars in each direction).
- (iii) Seven-day, 24-hour speed survey.

Data must be collected from free-flowing traffic and it must be possible to isolate speed profiles based on direction and lane choice. Review the mean speed and the percentage exceeding the speed limit (by both 10 km/h and 20 km/h exceedances).

Except in floating car surveys:

Measurements (except floating car surveys) should be taken:

- Measurements should be taken no closer than 80 metres and preferably 100 metres from the start of a curve that would require a heavy vehicle to slow down, or at the mid-point between curves after the fastest curve in the section.
- Where possible, record light and heavy vehicle classifications.
- On longer lengths of road speed surveys should be conducted at approximately 3-kilometres intervals or as required.
- Surveys should be undertaken on typical days (eg not on public holidays or during school holidays).

Traffic patterns on newly constructed or reconstructed roads do not stabilise for 6–12 months. This should be taken into consideration when planning a survey.

Advise council of the preliminary results

Step 5: Review data from analysis, inspection and surveys, and consider minimum lengths

Develop a preferred speed limit considering steps 1 to 4 and referring to *Section 3.2*.

Define start and end points as well as any other changes (such as advisory speed signs) that need to be implemented if the speed limit is changed. Consider also the minimum zone lengths as shown in *Table 2.4* (refer to *Section 2.2.3*).

If no speed limit change is recommended, advise the council in writing of the outcome.

This step should also be undertaken in line with the route/area/precinct-based approach (refer to *Section 2.1.4*).

Step 6: Discuss with RTA business units

This step involves internal RTA information gathering. Internal discussions with business units should focus on the following aspects of the speed limit review process:

- Knowledge of crashes or other road safety issues.
- Reporting the outcome of the review process.

It may be appropriate to discuss the proposed speed zoning with all or some of the following stakeholders and to seek comments from them:

- Network Management, including where appropriate:
 - Traffic Management.
 - Network Operations (SCATS).
 - Infrastructure Maintenance.
- NSW Centre for Road Safety.

Make a decision giving consideration to the comments received.

Step 7: Conduct second site inspection, identify location of new signs

Review information gathered from the initial inspection detailed in Step 3:

- Review proposed sign locations by standing on the spot where the sign is to be installed, check sight distances and ensure that there are no conflicting signs or obstacles, if safe to do so.
- Consider future vegetation growth.
- Mark all new sign locations on the road with paint and record the xy location of new signs as well as references to running chainage and to fixed objects in field notes.
- Note exact locations of all signs to be removed with running chainage and reference to fixed objects.
- Request maintenance work such as trimming foliage, if necessary.
- Check all curves and existing curve advisory signs using the ball-bank indicator or electronic ball-bank indicator (refer to *Section 3.5*).
- Identify the need to install new curve alignment markers (CAMs) as required. The speed reviewer should advise the council regarding the appropriate curve warning signs on council, local and regional roads.
- Review line marking.

NOTE: For types and placements of signs refer to *Section 3.3*.

Step 8: Speed zone authorisation

Under Section 51 of the *Road Transport (Safety & Traffic Management) Act 1999*, the installation, modification or removal of traffic control devices (such as speed restriction signs) must be approved by the RTA. Table 2.6 gives the delegated authority to authorise speed limit changes within the RTA.

TABLE 2.6 DELEGATED AUTHORITY TO AUTHORISE SPEED LIMIT CHANGES

Authorise a speed limit (permanent) under Section 51 of the <i>Road Transport (Safety & Traffic Management) Act 1999</i>	
Type of road	Delegated authority
State road	Chief Executive
Regional or local road	Regional Manager
70 km/h and 90 km/h speed zones on all roads	Chief Executive

A Speed Zone Authorisation (SZA) must be used to authorise the installation and removal of all speed limit signs (signs which define speed zones). However, an SZA is not needed for replacements of existing signs or installations of repeater signs. Repeater signs are authorised by the completion of a 'Works Instruction'. Records of these authorisations must be retained by the relevant RTA office (refer to Section 3.4 for an example of an SZA).

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

A database (Speedlink) incorporating a Geographical Information System (GIS) output has been developed and shall be maintained, indicating the location of all authorised speed limit signs and the zones that those signs create. Also, a record system must be maintained to retain SZA information. A unique numerical identifier shall be assigned to each SZA to assist with filing and identification of records in the relevant regional office. Future versions of Speedlink that will automate these administrative processes are proposed.

Step 9: Advise community and stakeholders

This step embodies the communication. It may be necessary to inform the public and RTA stakeholders of any proposed change to a speed zone. The following levels of notification must be used:

- Council(s) must be advised of *all* speed zone reviews.
- Speed zoning practitioner must advise the Communication Branch to develop a communication strategy. This will often include:
 - Media advertising.
 - Flyers to the local community.
 - Community displays (if required).
 - Speed limit fact sheet to be used in discussions.
- RTA stakeholders:
 - Network Operation Section.
 - RTA Traffic Asset Management Section (update TAIMS database) – State roads only.
 - Rail Level Crossing Manager.
 - Camera Enforcement branch (where a safety, fixed speed or mobile enforcement site exists).
- For state-managed roads:
 - Advise the NSW Police.
 - Advise rail authority where a railway level crossing is incorporated in the change.
 - Organise variable message or 'changed traffic conditions' signs where appropriate to inform passing motorists of proposed and current changed speed limit (RTA policy for VMS signs is covered in TD2002/11 refer to Section 1.6.3 for reference details).
 - Prepare a minute of communications activity to the Regional Manager and send a copy to the Director; NSW Centre for Road Safety.
 - Prepare a press release describing the reasons for the proposed change or place an advertisement in local newspapers through the RTA media unit to describe the reasons for the change.
 - A letterbox drop for local residents who live along the road should be considered.
- For council-managed roads:
 - Inform council of proposed changes (including sign types and locations for maintenance).
 - Advise the Police.

Step 10: Post-installation check

Conduct a post-installation check to ensure that all signs were installed and removed as per the work instruction. Document any additional work required.

All new sign locations should have xy coordinates taken at this time. Dates of installation shall be recorded.

SECTION 3:

Reference information

Types and signposting of speed limits

3.1 Casualty concentrations and rates

A thorough crash analysis must be undertaken before adjusting the speed limit for any road length, including an examination of possible factors associated with road crashes. High casualty rates or concentrations of crashes along a length of road are indicators of safety deficiencies. Speed limits that are too high may exacerbate crash rates and injury severity.

By examining the causes of crashes, it is possible to develop appropriate measures to improve safety. Speed is a predictor of the severity of the outcome of all crashes regardless of identified contributing factors.

When conducting a statistical crash analysis, it is important to note clusters of crashes which may affect the crash rate. Clusters of crashes may indicate localised problems that are best addressed through engineering treatments.

The casualty rate for a section of road should be reviewed and compared to the values in *Table 3.1*. If this calculated rate is substantially greater than average for that type of road, additional safety measures including a lower speed zone, may be warranted.

TABLE 3.1 CASUALTY RATES AND ROAD ENVIRONMENT (URBAN)

URBAN TYPICAL CASUALTY RATE (<i>casualties per km per year</i>)							
Road category	Speed zones						
	50	60	70	80	90	100	110
Motorway / freeway	–	–	0.049	0.039	0.463	0.148	1.219
State highway	0.014	0.450	0.827	0.217	0.177	0.101	0.177
Other classified road	0.102	1.351	1.361	0.360	0.253	0.111	0.007
Unclassified road	0.446	0.874	0.376	0.154	0.077	0.064	0.008

NOTE:

- Discretion is needed in comparing these rates to the rate on a particular section of road. A specific road section may not fall comfortably into any single category.
- The values do not suggest an acceptable level.

TABLE 3.2 CASUALTY RATES AND ROAD ENVIRONMENT (RURAL)

RURAL TYPICAL CASUALTY RATE (casualties per km per year)							
Road category	Speed zones						
	50	60	70	80	90	100	110
Motorway / freeway	–	–	–	–	–	–	–
State highway	0.024	0.190	0.139	0.061	0.092	0.018	0.100
Other classified road	0.037	0.137	0.108	0.095	0.081	0.018	0.002
Unclassified road	0.148	0.240	0.120	0.115	0.050	0.018	0.002

NOTE

- Discretion is needed in comparing these rates to the rate on a particular section of road. A specific road section may not fall comfortably into any single category.
- The values do not suggest an acceptable level.

3.2 Types of speed limits

Three types of speed limits are used in NSW:

- Default speed limits.
- Signposted speed limits.
- Speed limits based on vehicle and licence class.

Signposted speed limits override the default speed limit that would otherwise apply, but not special speed limits that apply to certain classes of vehicles and licences.

A speed zone is the length of road where a sign-posted speed limit applies.

3.2.1 Definitions of types of speed zoning

(a) Default speed limits

Default speed limits are statutory limits imposed by NSW Government road transport law, specifically the *NSW Road Rules and Road Transport (Safety and Traffic Management) (Road Rules) Regulation 1999* – Schedule Clause 19.

In NSW, two default speed limits apply: a default speed limit for built-up areas and a default speed limit for non-built-up areas. Both limits are set by regulations under the *Road Transport (Safety and Traffic Management) Act 1999*. The default limit for a built-up area is 50 km/h, while the default limit for non-built-up areas is 100 km/h.

Default speed limits are legally enforceable even though there may be no speed limit signs. That is, motorists are required to know that the default limit applies in the absence of signs.

(b) Signposted limits

A speed limit is the number of kilometres per hour indicated within the red circle (annulus) on the R4-1 sign (*Figure 2.1*). Signposted speed limits override the default speed limit that would otherwise apply, but not special speed limits that apply to certain classes of vehicles (ie trucks and buses) and licences (ie learner and provisional drivers).

(c) Lengths

A speed-limited length of road begins at a speed limit sign and ends at the first of the following:

- A speed-limit sign on the road showing a different speed limit.
- An end speed-limit sign on the road.
- The end of the road if the road is the terminating leg of a T-intersection or terminates such as in a cul-de-sac.

(d) Areas

A speed-limited area is the network of roads in an area with:

- An area speed-limit sign on each road into the area, indicating the same speed.
- An end area speed-limit sign on each road out of the area.

Areas include 40 km/h high pedestrian activity areas and local traffic areas. Areas are not to be used for 50 km/h zones. However, due to the staged change to a 50 km/h general urban speed limit, a number of such zones still exist and are legally enforceable.

3.2.2 Typical types of speed zones, areas and lengths

(a) 50 km/h (default urban speed limit)

A default urban speed limit of 50 km/h applies in all built-up areas, in the absence of other speed limit signs.

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

- Buildings, not over 100 metres apart, on land next to the road.
- Street lights not over 100 metres apart.

The 50 km/h area sign (R4-10(50)) and end 50 km/h area sign (R4-11(50)) are no longer to be installed.

FIGURE 3.1 50 KM/H DEFAULT URBAN SPEED LIMIT



(b) 60 km/h

This speed limit applies to roads in built-up areas. These roads are generally major arterial roads that are designed for travel between localities. Roads can be divided or undivided, have closely spaced access to abutting development and, in larger areas, are usually multi-lane roads.

The 60 km/h speed limit may also be suitable in some rural residential areas which do not meet the legal definition for the urban default speed limit but have more than 15 regularly used driveways per kilometre.

FIGURE 3.2 SIGNIFICANT URBAN DIVIDED ARTERIAL ROAD (WITH DIRECT DRIVEWAY ACCESS)



FIGURE 3.3 SIGNIFICANT URBAN UNDIVIDED ARTERIAL ROAD (WITH DIRECT DRIVEWAY ACCESS)



(c) 70 km/h (use only by exception with Chief Executive approval)

Urban 70 km/h speed limits may be applied to divided arterial roads with full or partial urban development with limited access to the main carriageway. Roads signposted at 70 km/h in urban areas should also have a high standard of alignment and signalled intersections at regular intervals.

A 70 km/h speed limit should not be applied where there are high levels of traffic conflict, or side friction resulting from adjacent pedestrian activity and vehicle parking.

Typically 70 km/h speed limits include:

- Significant urban divided roads with limited driveway access (typically six to 15 regularly used driveways per kilometre).

- Significant two-lane roads with limited driveway access (typically six to 15 regularly used driveways per kilometre) and low pedestrian activity.

FIGURE 3.4 URBAN 70 KM/H DIVIDED ROAD WITH LIMITED ACCESS



(d) 80 km/h

This speed limit is applied to divided carriageway urban arterial roads with little or no direct abutting access.

It is also applied to undivided roads in rural areas where a lower standard of vertical and/or horizontal alignment exists, the sealed pavement width is less than 5.6 metres or no dividing line exists.

The 80 km/h speed limit also applies to rural roads in semi-urban/rural fringe areas (with pavement width greater than 5.6 metres) with limited adjacent development or undivided arterial roads passing through fringe urban areas. Semi-urban/rural fringe areas can be defined as having one to two intersections per kilometre and five to six regularly used driveways or private accesses per kilometre.

80 km/h speed limit roads typically include:

- Urban high-standard divided arterial roads (without driveway access).
- Undivided arterial and sub-arterial roads on the fringes of urban areas.
- Undivided rural roads with less than 5.6 metres sealed pavement or no dividing line.

FIGURE 3.5 URBAN HIGH STANDARD DIVIDED ROAD (WITHOUT DRIVEWAY ACCESS)



FIGURE 3.6 URBAN FRINGE UNDIVIDED ROAD



FIGURE 3.7 UNDIVIDED RURAL ROAD WITH LESS THAN 5.6 METRES SEALED PAVEMENT



(e) 90 km/h (use only by exception with Chief Executive approval)

This speed limit is suitable for busy urban motorways and some rural roads.

Roads with traffic lights are not suitable for 90 km/h speed limits.

90 km/h speed limit roads typically include:

- High-volume urban motorways.
- Rural roads not suitable for 100 km/h.

FIGURE 3.8 HIGH VOLUME URBAN MOTORWAY



(f) 100 km/h (default rural speed limit)

All rural roads in NSW are 100 km/h unless signposted with another speed limit. It is also appropriate to install 100 km/h speed limits on urban and rural motorways and rural divided roads, as well as rural roads with sealed pavement widths greater than 5.6 metres and a marked dividing line (refer to Section 3.2.2(d) for semi-urban/rural fringe areas).

Default speed limits apply in non-built-up areas, including:

- Motorways.
- Rural divided roads.
- Rural undivided roads with at least 5.6 metres sealed pavement and rural roads with a marked centreline.

FIGURE 3.9 RURAL DIVIDED ROAD



FIGURE 3.10 RURAL UNDIVIDED ROAD WITH SEALED PAVEMENT GREATER THAN 5.6 METRES



(g) 110 km/h – divided roads

Speed zones of 110 km/h may be appropriate for key transport routes. This speed limit is often appropriate for motorways and the continuation of divided carriageways beyond motorway sections.

Consider the following aspects when implementing 110 km/h zoning:

- Access is restricted to no more than two regularly used private accesses per kilometre on each side of the carriageway.
- Interchanges and intersections are well spaced to allow safe operational movements, with a typical length between important intersections of 10 kilometres.
- Low-volume side road intersections are more than 1 kilometre apart.

- The general nature of the roadside is conducive to safe recovery of errant vehicles – sealed shoulders are provided.

Typically 110 km/h speed limit roads include:

- Motorways in non-built up areas.
- High-quality divided rural roads.

FIGURE 3.11 MOTORWAY IN NON-BUILT-UP AREA



(h) 110 km/h – undivided roads

On undivided roads in rural NSW, a speed zone of 110 km/h may be suitable if the following conditions are met:

- Rural route used mainly for interstate and inter-regional transport with relatively longer trip lengths (these will generally be highways).
- Roadways of higher alignment standard (generally high design speeds, with adequate sight distance available).
- Undeveloped roadside or isolated dwellings are set well back from the road and are not overly affected by noise.
- There are fewer than two regularly used accesses per kilometre on both sides of carriageway, all with adequate sight distance.
- Interchanges and intersections are well spaced to allow safe operational movements with a typical length between important intersections of 10 kilometres.
- Interchanges and intersections are well spaced to allow safe operational movements, with a typical length between important intersections of 10 kilometres.

- Crash rates are not to exceed 25 crashes/100 Million Vehicle Kilometers (MVK), generally calculated over a period of at least three years.
- Roadside terrain provides a good opportunity for drivers to regain control of their vehicles, and sealed shoulders are provided. A clear zone of between 5 metres and 15 metres is required depending on the grade of batter or embankment (refer to Section 3.74 of the RTA's Road Design Guide).

An appropriate sealed width of roadway is available as shown in Table 3.3.

TABLE 3.3 MINIMUM SEAL WIDTH

AADT	MINIMUM SEAL WIDTH (M) FOR 110 KM/H
0 to 300	6.2
301 to 1000	6.8
1001 to 4000	7.4

AADT = annual average daily traffic.

3.2.3 Other speed limits

(a) 10 km/h speed limits

A shared zone is a road or a network of roads in an area where pedestrians and motor vehicles share the road space. Drivers must not exceed 10 km/h, must give way to pedestrians at all times and must park only in marked bays.

10 km/h urban shared zones including:

- Carparks.
- Reserves/parks.

The most common uses of shared zones are in commercial, tourist and heritage areas. However, this facility may also be used in other appropriate situations, such as some shopping malls.

Shared traffic zones must:

- Clearly indicate pedestrian priority.
- Be a self-enforcing speed environment.
- Have low traffic volumes.

For detailed guidelines for the implementation of shared traffic zones, refer to TD 2000/6 Shared Zone Signs.

(b) 40 km/h speed limits

40 km/h speed limits are used in areas where vulnerable road users are present, such as:

- School zones (at prescribed times).
- High pedestrian activity areas.
- Local traffic areas.
- Toll plazas in pedestrian access areas.
- School bus blackspot zones.

(c) School zones speed limits

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

School zones are installed and signposted in accordance with the RTA Technical Direction, *40 km/h School Zones*.

(d) High pedestrian activity areas

Vehicle speed is a key factor in pedestrian injuries and fatalities.

40 km/h high pedestrian activity speed limits are installed where there are relatively large numbers of pedestrians and/or other vulnerable road users.

These areas should be established in conjunction with a suitable local area traffic management scheme. The area will need to contain physical devices or treatments to create a self-enforcing 40 km/h speed environment.

For further details on how to identify and install 40 km/h high pedestrian speed limits in high volume pedestrian areas refer to the RTA's 40 km/h speed limits in high volume pedestrian areas (*refer to Section 1.6 for reference details*).

(e) Local traffic areas

Local traffic areas that are primarily self-contained, residential precincts with networks of local streets used mainly for local access may be suitable for 40 km/h speed limits.

Typically, these areas have physical devices or treatments to create a self-enforcing 40 km/h speed environment.

(f) Toll plazas

A 40 km/h speed limit is to be applied in toll plazas where toll operators require pedestrian access, as there will be staff working in that area. The speed limit is reduced on approach to the cash tollbooths, with the appropriate speed restriction ahead speed sign (R4-225) as an advance warning. At electronic toll collection points, the speed limit is to be set to suit the prevailing configuration.

3.2.4 40, 60 and 80 km/h road work speed limit

Reduced speed limits are implemented when roadworks are on or adjacent to the road.

Speed limits must be authorised by the delegated authorising officer and a temporary Speed Zone Authorisation (SZA) issued. In addition, a seven-year record must be kept of the locations, dates and times road work speed limits are in operation. Records must be supplied to the regional RTA office by the construction authority. The construction authority must notify the Police of roadwork speed limits as part of the RTA's *Delegation to Councils Regulation of Traffic*.

All non-applicable speed limits signs must be securely covered or removed (not turned around) during any period for which the roadwork speed limit applies. At the end of roadwork speed limit zone, which should be established as close to the worksite as is reasonable, the regular speed limit must be clearly signposted. Roadwork speed limits should not be implemented during periods when the lack of activity or the available road conditions do not justify the request.

Section 8 of the RTA's Traffic Control at Work Sites Guidelines details the procedure for speed zoning a worksite. All speed zoning at worksites must be carried out using those guidelines.

3.2.5 Variable speed limits (VSL)

Electronic variable speed limits (VSLs) are currently used in NSW for any of the following reasons:

- Traffic management and incident responses.
- Changes in weather conditions that physically affect the safe speeds at which all vehicles can be driven on a particular length of road.
- To ease traffic congestion as part of an adaptive speed control system.
- Roadworks.

The SZA for variable speed limits is to be approved by the Director, NSW Centre for Road Safety and the General Manager, Transport Management Centre (refer to Section 3.3.10 for details).

The design and use of variable speed limits should be assessed in accordance with the *Variable Speed Limit Guidelines*.

3.2.6 Truck and bus speed limits

The section on 'truck and bus speed limits' has not been included in these guidelines as that section is currently under review. Guidelines on truck and bus speed limits will be released separately.

3.2.7 Speed limits on structures

In some circumstances, it is necessary to limit speed on structures such as bridges to avoid damage. The limit may be temporary or semi-permanent. The speed limit needs to be set after consultation with relevant structural engineering staff. Consideration should also be given to supplementary signposting and transitioning speed zones, especially on higher speed roads.

3.3 Signposting of speed zones

3.3.1 Sign type

Signs used to prescribe speed limits are defined in the *NSW Road Rules*, Part 3, Sections 20–21.

Signs used in this guide comply with the design practice of *Australian Standard AS 1742.4: Speed controls*, and associated standards (refer to Section 1.6 for reference details).

Electronic signs are to be used in tunnels.

A complete list of signs approved for use in NSW is given in the RTA Traffic Signs Register on the RTA website.

3.3.2 Determining sign sizes

R4-1 speed limit signs come in four sizes, ranging from A (the smallest, which is rarely used) to D (which is typically seen in high-speed environments, such as motorways and multilane roads).

The approach speed is the main determinant of sign size. The size of signs should also take into account the road type, surrounding road environments and distraction caused by other signs and advertising.

Table 3.4 should be used to determine appropriate sign size.

TABLE 3.4 RECOMMENDED SIGNAGE SIZES FOR VARIOUS ENVIRONMENTS

ROAD TYPE	A SIZE	B SIZE	C SIZE	D SIZE
Local, low-speed environments (<50 km/h)	Repeater signs	Change of speed limit		
Local road environment (50 km/h)		Change of speed limit and repeater signs		
Arterial urban		Repeater signs	Change of speed limit	
Non-arterial urban		Change of speed limit and repeater signs		
Arterial rural <100 km/h		Repeater signs	Change of speed limit	
Arterial rural 100/110 km/h			Change of speed limit and repeater signs	
Non-arterial rural		Change of speed limit and repeater signs		
Motorways on and off ramps and motorways <100 km/h			Change of speed limits and repeater signs	
High-speed roads ≥100 km/h motorways			Repeater signs	Change of speed limit
Variable speed limit (VSL) zones				All
Tunnels (backlit or VSL signs)		Repeater sign	Change of speed limit	On motorways

NOTES:

- Pavement markers (numerical displays of the speed limit painted onto each lane) are generally installed with changes of speed limit on roads that carry substantial volumes of traffic (refer to Section 3.3.6).
- Where the lateral placement of these signs exceeds 4 metres from the edgeline of a travelled lane, increase by one size.
- If there are competing signs, the size may be increased by one size.

(a) Location of signs

At each change of speed limit, two speed restriction signs (R4-1) are to be provided. A sign is positioned on each side of the carriageway in a symmetrical position (refer to Figure 3.13 – Typical signs and markings at change of speed limits).

The signs should be positioned so drivers have a timely view of them and should not be distracted by other signs or roadside development.

Minimum clearances of vertical and horizontal offsets from the ground and carriageway are to be observed. All speed limit signs are to be placed as close to the minimum clearances as possible to give motorists a clear and timely view of the signs. If signs are to be located closer than the minimum or further than the maximum distances, approval must be sought from the Regional Manager (Refer to ASI742.2 for details of clearances.)

The preferred minimum clearances between the ground and the bases of the signs are:

- Urban (where there are pedestrians and cyclists) = 2.5 metres.
- Rural (no pedestrians and cyclists) = 1.5 metres.

The minimum and maximum distance between the sign and passing traffic is shown below.

The minimum lateral clearance between the edgeline of the travel lane and the edge of the sign is 0.6 metres.

The maximum lateral clearance between the centre of the left travel lane and the edge of the sign should not exceed 6.6 metres.

Larger lateral clearances may require larger signs, special structures or other means of enhancing the signs/information.

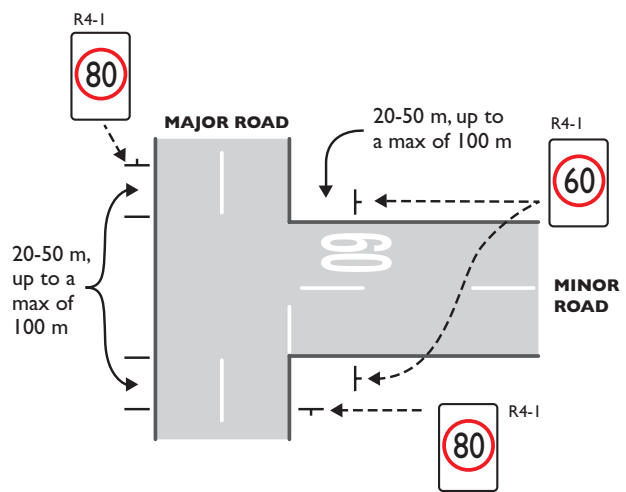
Speed limit signs should be installed at locations that provide for sight distances as shown in Table 3.5.

TABLE 3.5 SIGHT DISTANCES TO SPEED RESTRICTION SIGNS

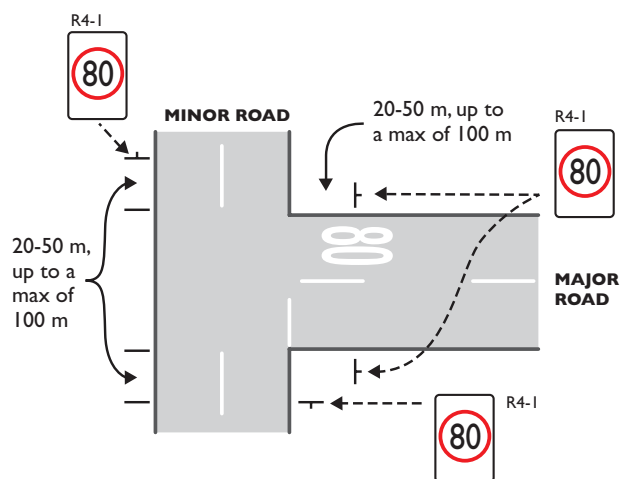
SPEED RESTRICTION (R4-1) SIZE	SIGHT DISTANCE (M)
B	150
C	240
D	300

FIGURE 3.12 TYPICAL SPEED LIMIT SIGNS AT A JUNCTION

Different speed limit on major and minor roads



Same speed limit on major and minor roads



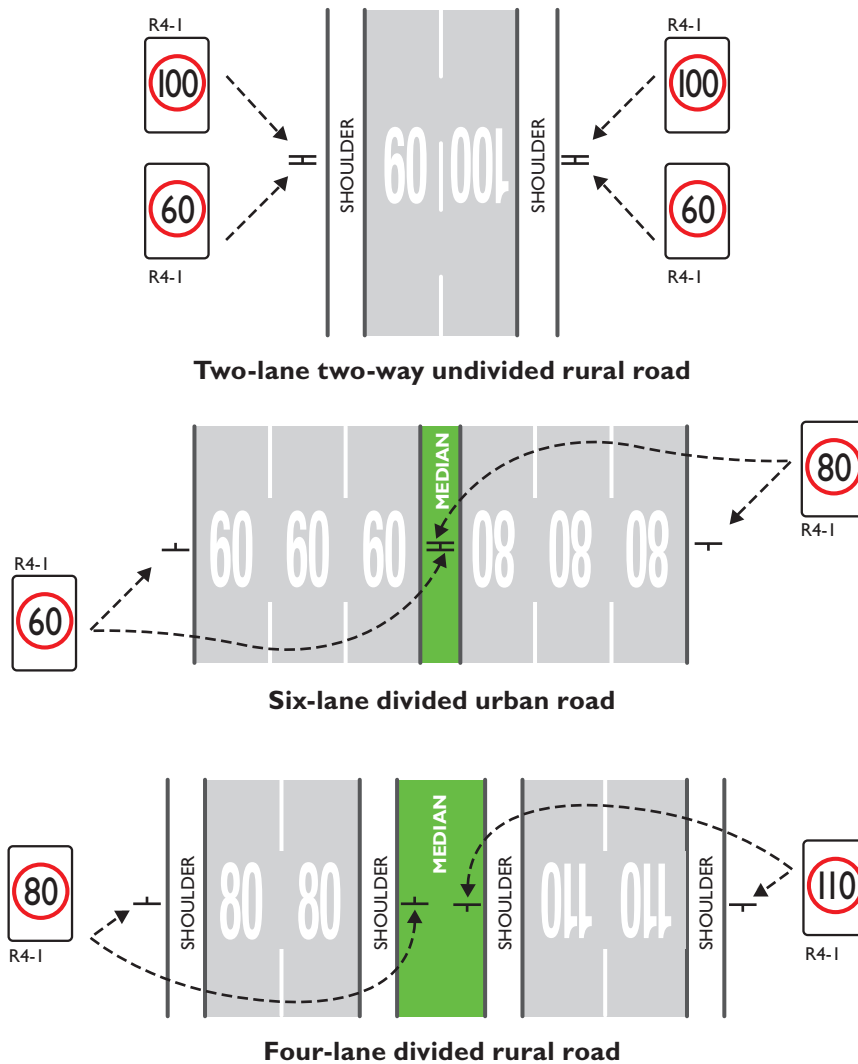
NOTE:

- Signs located up to 100 metres from junction.
- Speed limits are generally not to be reduced on approach to a T-junction. If necessary, warning signs should be installed alerting motorists to the junction or intersection.

(b) Supplementary plates for at-risk locations

Supplementary plates must be used to explain speed limits at-risk locations (refer to Section 2.3.6 for a definition of 'at risk'). The plates shall have black legend on a white background and shall match the width of the R4-1 speed limit signs from size A through to size D.

FIGURE 3.13 TYPICAL SIGNS AND MARKINGS AT CHANGE OF SPEED LIMIT



NOTE:

- Speed signs are usually centred on the pavement markings.
- Signs must be placed on either side of the carriageway on divided carriageway roads.

3.3.3 Repeater signs

Repeater speed limit signs (R4-1) are used to reinforce speed limits. Repeater speed limit signs are typically positioned on the left-hand side of the road:

- On the departure side of the intersection
- On classified roads.
- On other roads with a substantial volume of traffic.
- Where speed limit may not be obvious.

- On roads with three or more lanes (repeater signs should be on both sides of the road).

If repeater signs are considered necessary, subsequent spacings throughout the zone are suggested in Table 3.6.

The distances between repeater signs shown in Table 3.6 are maximum distances which may be reduced according to site conditions. Repeater signs should be placed where the road is straight, or where gradual curves have advisory speed ratings above the speed limit.

Many speed zones will involve curves with advisory speed signs, and in some cases curves with advisory speeds will be very near the start of the speed zone. The minimum separation distances between speed limit signs and other road signs must be considered (refer to Table 3.6).

TABLE 3.6 SUGGESTED SPACING OF SPEED REPEATER SIGNS

SPEED ZONE (KM/H)	DISTANCE OF FIRST REPEATER SIGN FROM START OF ZONE	SPACING OF SUBSEQUENT REPEATER SIGNS
40	Appropriate intervals (300 m) ¹	Maximum of 500 metres
50	300 metres	Generally not needed
60	300 metres	1 km
70	300 metres	1 km
80	300 metres	1 km
90	400 metres	3 km
100, 110	500 metres	5 km – 10 km
100, 110 (far west of State) ²	1 km	10 – 20 km

NOTES:

1. Length of zone is usually too short (eg school zones).
2. Repeater signs may be used less frequently in far-western areas of the State, where the terrain is mostly flat and highways are typified by long straight sections with few intersecting main roads.

(a) Conflict with other signs

Speed limit signs should not generally be placed closer to another road sign than indicated in Table 3.7.

TABLE 3.7 SEPARATION BETWEEN SPEED LIMIT SIGNS AND OTHER SIGNS

SPEED LIMIT (KM/H)	MINIMUM SEPARATION DISTANCE (METRES)
40	50
50	80
60	80
70	90
80	100
90	110
100	120
110	130

(b) Speed restriction ahead signs (SRA)

Advance warning of changes in speed limits should be provided in the following situations by installing a speed restriction ahead sign (G9-79) (Figure 2.3):

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

NOTE: On roads with three or more lanes, speed restriction ahead signs must be on both sides of the road.

Speed restriction ahead signs should generally only be used when it is essential to provide motorists with information not otherwise evident, or where the reduction in speed is significant. Table 3.8 provides recommended sign spacing of speed restriction ahead signs in relation to the speed zone change. This table can also be applied to the distance between a curve advisory sign and the curve.

TABLE 3.8 DISTANCE FOR PLACEMENT OF SPEED RESTRICTION AHEAD SIGNS

85TH % SPEED (KM/H)	DISTANCE TO SPEED ZONE CHANGE (METRES)
80	120 to 140
90	140 to 170
100	170 to 210
110	210 to 260

3.3.4 Buffer zones (transitional zones)

Buffer zones should not be installed in NSW. The speed restriction ahead sign discussed in *Section 3.3.3(b)*, is the preferred method of signposting.

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 are described in Australian Standards, but they are not recommended in NSW as they would increase the number of speed zones across the road network. The speed restriction ahead sign (G9-79) (*Figure 2.3*) is the adopted practice in NSW to provide advance warning of changes in speed limits.

Speed limits must be compatible with the adjacent roadside development. This ensures that motorists are provided with a speed environment that is appropriate and enforceable. The use of an intermediate speed limit may be considered where adjacent roadside development supports such action.

ARRB Research Report 246 (*Reducing Speed for Relative Effectiveness for a Variety of Sign Types*) supports the use of speed restriction ahead signs as the preferred option to limit the number of speed zone changes.

3.3.5 Advisory speed signs

Advisory speed signs (*Figure 2.2*) are used to inform motorists of changes in alignments (ie curves, bends, humps, dips) and of the appropriate speed to negotiate these road features. 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. Determination and signposting of advisory speed limits must be done in accordance with AS 1742.2.

All advisory speed signs should end in the numeral 5 and be at intervals of 10 km/h, such as 75 km/h or 85 km/h.

When speed zones are introduced or reviewed, a survey should be made of all advisory speed signs within the zone to ensure that they do not indicate a speed above the posted speed limit.

Speed limit signs and advisory speed signs showing different speed values from one another should not be placed where drivers can read both at the one time.

3.3.6 Road pavement markings

At the point of change in speed zoned areas, the speed limit should be indicated on the road surface. This is applicable to all sealed roads that carry substantial traffic volumes.

Markings should be located centrally in each lane carrying moving traffic, and adjacent to the speed limit signs. Pavement markings shall be in accordance with *RTA Delineation Guidelines*.

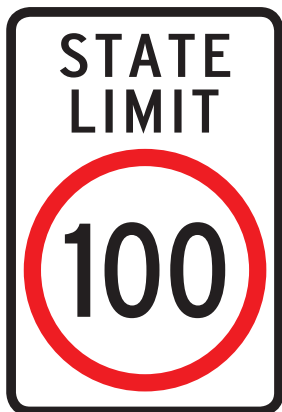
Pavement markings may also be introduced in conjunction with repeater signs in exceptional circumstances. This includes roads that have a history of poor compliance with the posted speed limit, multi-lane roads, and those with a high incidence of speed-related crashes or enforced speed camera locations.

Pavement markings are used as supporting information to enhance speed limit signs. When pavement markings are removed, they should be completely removed so that outlines of numbers are not visible.

3.3.7 Entering New South Wales

Regulatory sign R4-205 (Figure 3.14), indicates to drivers entering NSW that a rural default speed limit of 100 km/h applies in the State unless signposted otherwise.

FIGURE 3.14 STATE SPEED LIMIT SIGN (R4-205)



Regulatory sign R4-205 should be placed at the earliest appropriate location on a road entering NSW:

- Where a speed zone of 100 km/h is signposted or the default limit of 100 km/h applies on crossing the border, the R4-205 sign should be erected immediately beneath the State border sign, G6-3; or
- Where a speed zone other than 100 km/h has been signposted on crossing the border, the R4-205 sign should be located at the commencement of whichever of the following comes first – the start of a 100 km/h default speed limit or the start of a 100 km/h speed zone.

3.3.8 Default 100 km/h speed limit signs

Reversion to the default limit of 100 km/h at the end of a speed zone is signed with a 100 km/h R4-1 speed limit sign (Figure 2.1).

Where road conditions are unsuitable for the use of the 100 km/h R4-1 sign, install the R4-12 'End speed limit' sign (Figure 3.15). This sign should be supplemented with the G9-318-1 'Reduce speed to conditions' sign (Figure 3.16).

FIGURE 3.15 END SPEED LIMIT SIGN (R4-12)



FIGURE 3.16 REDUCE SPEED TO CONDITIONS SIGN (G9-318-1)



NOTE: The R4-2 speed derestriction sign is no longer to be used, and all existing signs are to be removed. It has been replaced with R4-12 and G9-318-1 signs.

3.3.9 Signage for motorways

High-speed road environments such as motorways require larger signs than typical road environments.

The following speed signs should be used on all motorways:

- On the main carriageway all speed limit change signs must be D-sized R4-1 (Figure 2.1), with one sign placed on each side of the carriageway.
- Repeater signs on the main alignment must be C-sized R4-1 (Figure 2.1) and placed in pairs on each side of the carriageway. The maximum distance between speed signs is detailed in Section 3.3.3.
- All variable speed limit signs on motorways must be D-sized signs.
- On-ramps must be signposted well in advance of the merge with the through traffic already on the main alignment to allow motorists to reach the signposted speed. The signposted speed on the on-ramp must be the same as the signposted speed on the main alignment at the merge point.

- Off-ramps must be signposted with an exit speed limit sign (GE9-2) on the left side of the exit lane, adjacent to the gore (or painted) area. The speed on the exit sign is to be the same as the reduced speed limit located further along the off-ramp.

Typically, speed limits on off-ramps from motorways should be the same as the road they intersect. If there are isolated geometric deficiencies in the off-ramps, those locations should be treated with warning signage. In some cases where there is a safety concern, a reduced speed limit may be required on off-ramps.

The speed limit reduction on the off-ramp must be clearly signposted with two C sized signs (R4-1), one on each side of the exit lanes after the ramp has diverged from the main alignment.

Any speed limit change within a motorway environment (with the exception of VSL schemes) should be enhanced by the use of pavement numerals.

3.3.10 Variable speed limits (VSL)

VSL signs are used where there is a need to regularly change the speed limit on a length of road. Reasons include:

- Traffic management – for controlling the speed of traffic typically when there are high volumes.
- Incident management – for reducing the speed of traffic and therefore improving safety in the vicinity of an incident.
- Road safety – reducing speed limits in adverse weather conditions such as wet weather or fog.

(a) Requirements for VSL schemes

- All VSL signs are controlled centrally by the RTA's Traffic Management Centre. The centre is responsible for keeping a record of all speed limit changes (times, dates and locations) within VSL schemes.
- VSL signs must be D size except in tunnels (*refer to Table 3.3*).
- VSL signs must be 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.
- VSL schemes must have 'start variable speed limit' signs (G6-315) before the first VSL signs and at any entry point into the VSL scheme.

- VSL schemes must have 'end variable speed limit' signs (G6-316) after the last VSL scheme and before any static speed limit signs (R4-1).
- At each VSL scheme, motorists must be made aware of the default speed limit in the event of VSL sign failure, through the use of a G6-317 sign. These signs must be displayed on all entry points to the VSL scheme and should also be used as repeater signs along the length of the VSL scheme. The spacing of these signs should be in accordance with spacings for other repeater signs (*refer to Section 3.3.3 for further guidance*).

3.3.11 50 km/h default limit

On roads covered by the 50 km/h default urban speed limit the installation of regulatory speed signage is not required. However, where there is some ambiguity regarding the speed limit on a particular road, regulatory signs (R4-1 (50)) may be installed at suitable spacings.

New 50 km/h area signs (R4-10 and 50 km/h end area signs R4-11) must not be installed. If existing signs are no longer serviceable they should be removed.

It is not necessary to install pavement numerals on roads covered by the default urban speed limit. It is not necessary to replace or remove existing pavement numerals other than at the signed entry to the urban area.

End 50 area signs (R4-11) are to be progressively removed.

3.3.12 Signage for 40 km/h local traffic areas

A local traffic area is designated by R4-240 'Local Traffic Area (40)' regulatory speed limit signs at all precinct entry points or individual streets. At the precinct exit points, the end of the local traffic area is designated by an R4-241 'End Local Traffic Area' sign and a speed limit sign to indicate the speed limit that applies beyond the zone.

3.3.13 Signage for 40 km/h high pedestrian activity areas

At the entrance to a high pedestrian activity area, use:

- A sign that incorporates the standard speed sign R4-236 High Pedestrian Activity 40 Area sign.
- The standard 40 km/h speed sign (R4-236 40 km/h High Pedestrian Activity Area) as a repeater at appropriate intervals.

For details relating to reviewing and installing high pedestrian activity areas, refer to *40 km/h speed limits in high volume pedestrian areas: a guide to identifying and implementing 40 km/h speed limits in high volume pedestrian areas*.

3.3.14 Signage for school zones

At the start of a school zone, a 'School zone' (R3-230) sign must be installed on each side of the road. At the end of the school zone, an 'End school zone' (R3-231) sign must be installed. For non standard school zone times, school zone signs (R4-235) must be installed.

School zones are installed and signposted in accordance with the RTA Technical Direction, *40 km/h School Zones*.

NOTE: Other speed limit signs must not be placed within school zones, as they cancel the school zone speed limit.

3.3.15 Signage for heavy vehicles

For heavy vehicles, the relevant signs are R4-229 (40) Truck and Bus Speed Limit at the start and R4-220 End 40 Truck and Bus Speed Limit at the end of the truck/bus speed limit section.

Where a speed limit other than 40 km/h is required:

- Use the R4-219 Truck and Bus Speed Limit plate with an R4-1 speed limit sign at the start of the truck/bus speed limit section.
- Use an R7-4 End plate with the R4-219 and R4-1 signs at the end of the truck/bus speed limit section.

NOTE: Other speed limit signs must not be placed within this zone as they cancel out the truck and bus speed limit.

3.3.16 Signage for shared zones

A shared traffic zone is designated by a regulatory shared zone sign at the entry to the zone. The 10 km/h speed limit applicable within the zone is shown in the R4-4 regulatory sign. Additional 10 km/h R4-4 speed limit signs within the zone may be necessary.

A R4-5 'End of shared zone' sign designates the end of the zone as well as the end of the 10 km/h speed limit. A speed limit sign (eg 40 km/h) should also be displayed under this sign to indicate the speed limit that applies beyond the shared traffic zone.

NOTE: A Give Way to Pedestrians (R2-10) sign must be installed in combination with (under) a Shared Zone (R4-4) sign on each entry road into the area.

Refer to *TD 2000/6 Shared Zone Signs* for further details.

3.4 Speed zone authorisation

The following is a sample speed zone authorisation form.



Speed Zone Authorisation
(Authorising the Installation / Removal of Speed Limit Signs)

SZA No: _____

Road Transport (Safety and Traffic Management) Act 1999

Under Part 4, Section 51 of the Road Transport (Safety and Traffic Management) Act 1999, this document (Authority) here by gives the person(s) named below the appropriate authority to:

1. Install or display (or to interfere with, alter or remove) a prescribed traffic control device at the following locations, or
2. Direct another person to install or display (or interfere with, alter or remove) a prescribed traffic control device at the following locations:

Name: _____

Organisation: _____

Contact name: _____

Road: _____ At: _____

Suburb/locality: _____ LGA: _____

Distance between signs: _____ Direction: _____

Zone type: _____

Speed limit on signs: _____

Notes:

Signed: _____ Dated: _____

Designation: Manager, Road Safety & Traffic Management

3.5 Tools to assist reviews of speed zones

3.5.1 NLIMITS assessment tool

NLIMITS is to be redeveloped Versions earlier than 2007 should no longer be used.

Roads and Traffic Authority

The information in this brochure is intended as a guide only and is subject to change at any time without notice.

For further enquiries
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