Speed Limit Guideline for South Australia

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Speed Limit Guideline for South Australia

AMENDMENT RECORD

Version	*Date*	*Section/Figure/Table*	*Amendment Description*
1	Aug 2017		Original issue
2	Aug 2023		Update to reflect the 2020 version of AS 1742.4, and address other issues which have been raised since its initial release, including: • Restructuring of the document and providing more examples (links to Google imagery) of different speed limit applications. • Updating references to the current Road Safety Strategy • Capturing current practice in speed limits, including specific situations such as freeway/expressway ramps, traffic signals, roundabouts • Risk based speed limits • Additional guidance of the application of 60 km/h, 70 km/h and 80 km/h limits for rural residential areas, including access density guidance • Changes to buffer zone terminology
3	Oct 2023		Speed limits on beaches amended to reflect new default speed limit as of 1 December 2023

This document has been prepared by Traffic Services. It has been approved and authorised for use by Councils, the Department for Infrastructure and Transport and its authorised agents by:

Stephen Pascale
Manager, Traffic Services
9 Oct 2023

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Feedback from users of this document is encouraged for consideration in the next revision. Comments can be emailed to DIT.TASSAdminSupport@sa.gov.au.

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Section 1: Introduction

The *Speed Limit Guideline for South Australia* was developed to provide a statewide point of reference for applying speed limits (excluding temporary speed limits) throughout South Australia. The purpose of this document is to ensure:

- speed limits meet the principles of a Safe System,
- speed limits are appropriate to the function of the road,
- community views are considered in speed limit selection,
- drivers are not subject to excessive changes in speed limits along a length of road, and
- speed limits and signs are used correctly and consistently.

1.1 Scope

Traffic control devices in South Australia, including speed limits, shall comply with the Department's *Code of Technical Requirements*, which refers to this guideline. This guideline is a South Australian supplement to the Austroads *Guide to Traffic Management*, the Austroads *Guide to Road Safety* and the Australian Standards. The relevant Australian Standards and Austroads guides provide additional information on speed limits and shall be read in conjunction with this document, however the *Code of Technical Requirements* and this guideline take precedence.

The relevant sections of the Austroads Guides and Australian Standards relating to speed zoning are:

- Austroads *Guide to Road Safety, Part 3: Safe Speed*
- Austroads *Guide to Traffic Management, Part 5: Link Management* (Section 7)
- Austroads *Guide to Traffic Management, Part 13: Road Environment Safety*
- Australian Standard *AS 1742.4 Manual of uniform traffic control devices, Part 4: Speed controls* (2020)

This guideline must be used when determining permanent, variable and part time speed limits, and covers speed zoning principles, factors to be considered and sign location and implementation. It is intended for use by traffic management practitioners who are experienced in assessing speed limits.

NOTE: Temporary speed limits, such as those for events or roadworks, and the use of variable speed limits on managed motorways are beyond the scope of this document. Separate documents are available to cover these situations (see Appendix A3).

1.2 Approvals

The *Road Traffic Act 1961* gives the Minister for Transport and Infrastructure the power to approve the posted speed limits on South Australian roads. The Minister has delegated this power and granted approval to the Commissioner of Highways.

The power to approve speed limits has not been delegated to any other agency and therefore **the Department is responsible for approving speed limits on all roads and road-related areas in South Australia**.

The only exception to this is that Councils may install school zones, koala crossings and short sections of 40 km/h speed limit in conjunction with wombat crossings under their *Instrument of General Approval* from the Minister, provided they are used in accordance with the requirements of the *Code of Technical Requirements*, and this guideline.

1.3 Specifications

Sign specification details can be found on the Department's *Standard Road Sign Index* (*http://www.dteiapps.com.au/signindx/*). Signs not included on this index shall not be used. For detailed specifications for the materials and manufacture of these devices reference should be made to the relevant parts of the Department's *Master Specification* (*https://dit.sa.gov.au/contractor_documents/masterspecifications*).

1.4 Definitions and abbreviations

85th percentile speed – The speed at or below which 85% of vehicles are observed to travel under free-flowing conditions past a nominated point.

AADT (Annual Average Daily Traffic) – The total yearly traffic volume in both directions at a road location, divided by the number of days in the year.

Advisory speed sign – Signs used to inform motorists of changes in alignment (i.e. curves, bends, humps, dips) and of the appropriate speed to negotiate these road features under good road and weather conditions. Although the sign provides a warning to approaching drivers, it is not legally enforceable.

ANRAM – Australian National Risk Assessment Model - a tool to implement a nationally consistent risk-based road assessment program which allows jurisdictions to priorities high-risk road sections and develop targeted treatment options and programs.

Arterial road – Roads that provide for traffic movement across and between regional areas. Refer to the Department's Road Features Files for identification of road classification. Austroads *Guide to Road Design Part 1: Objectives of Road Design (2021)* Table 4.1 and Table 4.2 and Austroads *Guide to Traffic Management Part 4: Network Management Strategies* provide detailed descriptions.

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

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

Default rural speed limit – Statutory speed limit that applies in the absence of a signposted speed limit outside of the built-up area. The default rural speed limit is 100 km/h.

Default urban speed limit – Statutory speed limit that applies in the absence of a signposted speed limit in a built-up area. The default urban speed limit is 50 km/h. See to Section 2.2 for further details.

Duplicated signs – Signs placed on both the left and right sides of the carriageway.

iRAP (ViDA) – International Road Assessment Programme's online road safety software platform used to assess Star Ratings for roads

IRR – Infrastructure Risk Rating - a road safety risk assessment methodology calculated by coding 10 attributes of roads and roadside features

LUMS – Lane Use Management System

May – Indicates the existence of an option, which is not mandatory.

Major intersections – intersections of arterial roads with arterial, sub-arterial or collector roads.

Mean speed – measured as either:

- Time mean speed, v_t, the arithmetic mean of the measured speeds of all vehicles passing a given point during a given time interval, or
- Space mean speed, v_s, the arithmetic mean of the measured speeds of all vehicles within a given length of lane or carriageway, at a given instant of time.

Must – Indicated that the statement is mandatory.

MUTCD – Manual of Uniform Traffic Control Devices - the series of Australian Standards which specifies the requirements for traffic control devices such as road signs, pavement marking and signals

Repeater signs – Signs placed along the road to indicate to entering traffic, or remind and reinforce to other traffic, the prevailing speed.

RIAWS / RJAWS – Rural Intersection / Junction Active Warning System

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

Safe System – An internationally recognised holistic view of the interactions and interrelationships between road users, roads, roadsides, travel speeds and vehicles that form the complete road transport system. It is an inclusive approach that caters for all groups using the road system, whether directly, such as drivers, motorcyclists, passengers and pedestrians, or indirectly, such as courier businesses, commercial transport companies and government departments. Each individual or group has a shared responsibility to act, design, manage and encourage safe use of the road transport system. Consistent with the long-term road safety vision, it recognises that people will always make mistakes and may have road crashes but the system should be forgiving and those crashes should not result in death or serious injury based on the limitations of the human body. Refer to Austroads *Guide to Traffic Management Part 13: Safe System Approach to Transport Management* and Austroads *Guide to Road Safety series* for further details.

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

Shall – Indicates that the statement is mandatory.

Should – Indicates a recommendation.

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. Refer to Austroads *Guide to Road Design Part 3: Geometric Design* for further details.

SISD – Safe Intersection Sight Distance - the sight distance required for a driver on the priority road to observe a vehicle from a side road moving into a collision situation, and to decelerate to a stop before reaching the collision point. Refer to Austroads *Guide to Road Design Part 4A: Unsignalised and Signalised Intersections* for further detail.

Speed environment – A basic design parameter for a section of road, representing the uniform desired speed of the 85th percentile driver. It can be measured on existing roads as the 85th percentile speed (i.e. the speed at or below which 85% of vehicles travel under free flowing conditions). It is influenced by the road function, road user interactions and elements of the road and traffic environment which collectively affect a user's perception of an appropriate travel speed.

Speed limit – The maximum legally permissible driving speed.

Speed-limited area – The road network within a defined area on which a speed limit is applied.

Speed zone – A length of road along which a signposted speed limit applies.

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.

Traffic control device – In accordance with the *Road Traffic Act 1961*, a traffic control device is a sign, signal, marking, structure or other device or thing, to direct or warn traffic on, entering or leaving a road, and includes –

a) A traffic cone, barrier, structure or other device or thing to wholly or partially close a road or part of a road; and
b) A parking ticket-vending machine and parking meter.

Variable speed limit – Regulatory speed limits that are applied, using electronic signs, at different times of the day to reflect different driving conditions.

VSLS – Variable speed limit signs

1.5 Further information

For further information about a speed limit at a particular location, contact the relevant road authority. Queries relating to a speed limit on a road under the care, control and management of the Commissioner of Highways may be addressed to the Department's Traffic Investigations Unit. For further information about the contents of this document, contact Department's Traffic Engineering Standards Unit.

Section 2: Speed limit fundamentals

The use of appropriate speed limits forms an integral part of a safe road system. They are a speed management tool used to improve road safety, while maintaining the efficiency of the road network.

Within the context of a safe road system, speed limits need to reflect the varying types of road users, the road environment, types of vehicles driven and the safety, amenity and economic needs of the community.

Speed limits are set with consideration to a comprehensive range of factors, which include the safety record of the road, the road's operating performance, the road and roadside infrastructure, geometry and roadside development.

Multiple factors will influence travel speeds besides the speed limit, including road and traffic conditions, environmental conditions (such as weather and landscape) and driver perceptions and behaviours.

2.1 Safe system approach

The Safe System approach adopts a holistic view of the road transport system and the interactions between people, vehicles and the road environment. There are four overarching pillars under the Safe System approach that influence road safety outcomes. These are safe road infrastructure, safe vehicles, safe speed at which people travel and safe road user behaviour.

South Australia's Road Safety Strategy to 2031 adopts the Safe System approach, and has a strategic focus area of "Road User Behaviour - supporting and enforcing safer road users behaviour". Setting speed limits which take into account the risks to road users, and support safe driver behaviour is a fundamental principle of these guidelines.

2.2 Types of speed limits

Speed limits in South Australia are based on a system of:

- Statutory speed limits, which apply in the absence of speed limit signs and do not require signposting. Under the *Australian Road Rules*, these are referred to as default speed limits. *Australian Road Rule 25* sets out two types of default speed limits: 50 km/h in urban (built-up) areas and 100 km/h in rural (outside of built-up) areas. In addition, from 1 December 2023, *Regulation 8A* of the *Road Traffic (Road Rules – Ancillary and Miscellaneous Provisions) Regulations 2014* sets out a default limit for beaches of 40 km/h, and 25 km/h when travelling within 50 metres of a person, unless otherwise signposted.

  There are also statutory speed limits which only apply in certain circumstances, such as the 25 km/h speed limit which applies while passing a school bus, or when driving through an emergency service speed zone (*Sections 82* and *83* of the *Road Traffic Act 1961*).

- Speed restrictions based on vehicle class (e.g. heavy vehicles - *Australian Road Rule 21(2);* road trains (*Regulation 8* of the *Road Traffic (Road Rules Ancillary and Miscellaneous Provisions) Regulations 2014*) or licence class (e.g. learner or provisional licence drivers - *Motor Vehicles Act 1959*).

- Speed limits on RAVNet, and notices and permits issued by the National Heavy Vehicle Regulator under *Heavy Vehicle National Law (South Australia) Act 2013.*
- Speed limits in National Parks (*National Parks and Wildlife (National Parks) Regulations 2016* under the *National Parks and Wildlife Act 1972*).
- Signposted speed limits, which are based on an assessment of the road against these guidelines.

2.3 Default speed limits

Default speed limits are statutory limits imposed by South Australian law, specifically *Australian Road Rule 25* under the *Road Traffic Act 1961*, and, from 1 December 2023, *Regulation 8A* of the *Road Traffic (Road Rules – Ancillary and Miscellaneous Provisions) Regulations 2014.*

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

Under *Australian Road Rule 25*, there are two types of default speed limits: the default urban speed limit of 50 km/h applies in built-up areas, and the default rural speed limit of 100 km/h which applies elsewhere. The *Australian Road Rules* defines 'built-up', in relation to a length of road, as an area in which either of the following is present for a distance of at least 500 m or, if the length of road is shorter than 500 m, for the whole road:

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

Generally there will be a 50 km/h sign indicating the start of the built-up area, but individual roads within the built-up area where the default limit of 50 km/h applies are not signed unless another speed limit needs to be terminated on a section of road and the 50 km/h default limit continues after it. See Section 7.10 for further details.

From 1 December 2023, under *Regulation 8A* of the *Road Traffic (Road Rules – Ancillary and Miscellaneous Provisions) Regulations 2014* a default limit applies to beaches. The default limit on beaches is 40 km/h, and 25 km/h when travelling within 50 metres of a person, unless otherwise signposted.

2.4 Sign posted speed limits

A posted speed limit is the number shown on the regulatory speed limit sign within the red circle (annulus) and defines the maximum legal speed permitted along a specific section of road under good road and travel conditions.

A speed limit, displayed by the regulatory speed limit sign, is legally enforceable under the *Australian Road Rules*. According to *Australian 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 or a network of roads 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.

Linear speed limits apply to the length of road, starting at the speed limit sign on that length of road and ending at either a speed limit sign of a different number on that length of road, an end speed limit sign on that length of road, or the end of the road (*Australian Road Rule 21*)

Area speed limits, school zones and shared zones apply to a network of roads. These limits begin at the relevant speed limit sign, and end at the "end" sign (*Australian Road Rules 22, 23 and 24*).

All sign posted speed limits are in steps of 10 km/h, ending in 0 (except for 25 km/h speed limits at schools, events and roadworks). Sign posted speed limits may be full time, part time (at specific times) or variable (at specific times, or under specific conditions).

Section 3: Speed zoning principles

The fundamental principle in setting speed limits for a particular length of road is that the 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 must not exceed the maximum assessed speed for the road, taking into account key factors such as road safety risk, 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 limits are determined within the context of the overall route and the adjoining road network. Route and network-based speed limits are encouraged so that consistency of speed limits is achieved for similar road environments and functions.
- Speed limits should be clear, easily understood and the number of speed limit changes should be kept to a minimum. Speed limit changes along a route may be required to reflect a change in road standard and/or environment, however the number of changes should be kept to a minimum. In order to rationalise multiple different speed zones, a speed zone providing the highest safety benefit may be extended to include adjacent sections that may otherwise meet the minimum length requirement for a higher speed. Speed limits should be clearly and regularly signed.
- Signing a speed limit (either the default limit which applies, or other limits) may not be beneficial in all circumstances as drivers may interpret it as a target value rather than a maximum value. Signing may not be required in situations where the road environment provides sufficient cues to the driver and promotes the desired driver behaviour. This may occur in roads such as narrow low volume laneways, roads designed using the shared streets or self-explaining roads approach, roads where signs may detract from the road aesthetics and amenity, or unsealed roads.
- Speed limits are not always the most appropriate tool with which to address safety concerns, as isolated hazards such as specific intersections or tight bends are better addressed with physical works (see Section 6.5) or the installation of warning signs, such as speed advisory signs (see Section 6.4). Lower speed limits may be applied to at-risk locations, see Section 6.1 and Section 6.3 for criteria and treatment details.

South Australia's Road Safety Strategy to 2031 identifies the adoption of the Movement and Place approach to take into account road function when planning road safety treatments and determining operational settings (eg setting speed limits), as this approach delivers improved road safety outcomes by recognizing factors in the local environment. This will be integrated into the speed zoning principles in future versions of this document. For further information on the Movement and Place Framework, refer to *Austroads Guide to Traffic Management Part 4: Network Management Strategies* and *Part 5: Link Management*.

3.1 Key factors

The determination of a maximum safe speed limit for a section of road needs to take into account a multitude of factors, which include:

- Road safety
    - crash risk
    - human tolerances to physical forces in different crash types
- Road classification and its function within the network
- Road characteristics
    - Divided / undivided, number of lanes and lane widths, intersection spacing
    - Presence of service roads
    - Shoulder type and width
    - Presence of footpaths
    - Clearance to hazards
    - Vertical and horizontal alignment
    - Adjoining speed limits, and speed limits on similar roads in the area
    - Pavement condition and width
- Extent and nature of abutting development
    - Number and density of abutting developments
    - Type and extent of trips generated
    - Type of development such as residential, retail, commercial, recreational and schools
- Road users, their movements, modes of travel, number of potential conflicts between users, and the types of facilities for these users along, adjacent to or across the road

3.2 Road safety risk

The road safety risk principle requires consideration of both the impact forces for vehicle occupants and/or vulnerable road users and the likelihood of a crash. The setting of speed limits must take into consideration the standard of the infrastructure and the degree to which road users are exposed to potential serious and life-threatening risks. Speed management should be used to manage impact forces where it is not practical or cost-effective to do so by engineering measures. These guidelines allow the use of a road safety risk tools to assist in determining an appropriate speed limit on high-speed roads. See Section 6.1 for further details.

3.2.1 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 limit, or an identified risk. At-risk locations may have a high crash history or high potential of crash risk.

Speed limits at at-risk locations may be considered where there are no feasible remedial treatments to address the road safety problem. Under this approach, the speed limit may be reduced along a road or section of road which shows a high recent history of crashes, in comparison to roads of a similar nature.

To ensure high levels of compliance by drivers and achieve the maximum road safety benefits, drivers must perceive the speed limit to be credible.

Speed limits specific to tunnels or bridges, or the lower speed limit used in the Rural Intersection Active Warning System (RIAWS) is an example of this approach. See Section 6.3 for further details of the RIAWS treatment.

3.3 Design speed vs posted speed limit

Road design constraints should not govern the posted speed limit for the road where this would result in a speed limit inconsistent with the road function, roadside development and/or road environment. Where an isolated reduction in design speed is required to meet project constraints, the use of appropriate warning signs with advisory speed signs in accordance with Australian Standard *AS 1742.2 MUTCD Part 2: Traffic Control Devices for General Use* may be required and is preferable to posting a reduced speed limit for the section of road (refer to *DIT Master Specification Part RD-GM-D1* and *Austroads Guide to Road Design Part 3* Section 3 for information on design speed, and factors other than posted speed limit which influence the operating speed of the road).

NOTE: The use of advisory speed signs may not be appropriate where the design constraint is not obvious to drivers, for example a stopping sight distance deficiency due to a vertical curve. In these situations, factors which influence the operating speed of the road such as the geometric standard, topography, road function and roadside environment should be taken into account to assess whether signage is required to identify and warn of hazards and further reduce drivers' chosen speed.

3.4 Route-based approach

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

Section 4: Speed limit review process

A review of the speed limit seeks to enhance road safety by applying the speed management principles to:

- Respond to community views and concerns related to speed limit practices,
- Identify and correct speed limit anomalies,
- Ensure that speed limits reflect changes in road use and the level of roadside activity,
- Keep the number of speed limit changes along a section of road to a practical minimum, or
- Respond to increasing or identified crash concerns along a length of road.

4.1 Approval requirements

The *Road Traffic Act 1961* gives the Minister for Transport and Infrastructure the power to approve the posted speed limits on South Australian roads. The Minister has delegated this power and granted approval to the Commissioner of Highways.

The power to approve speed limits has not been delegated to any other agency and therefore **the Department is responsible for approving speed limits on all roads and road-related areas in South Australia**.

The only exception to this is that Councils may install school zones, koala crossings and short sections of 40 km/h speed limit in conjunction with wombat crossings under their *Instrument of General Approval* from the Minister, provided they are used in accordance with the requirements of the Department's *Code of Technical Requirements*, and this guideline.

4.2 Requests for speed limit review and approval

Requests from members of the public for changes to speed limits must first be addressed to the relevant road authority for an initial review and assessment.

4.2.1 Review and approval process for CoH roads

Requests for changes to speed limits on Commissioner of Highways roads must be addressed to the Department's Traffic Services for assessment and approval.

For general speed limit reviews, the Department's Traffic Services is responsible for preparing the traffic impact statement. For project related speed limit changes, the traffic impact statement forms part of the project documentation requirements. Guidelines for preparing a traffic impact statement are included in the *Code of Technical Requirements* and a template is available at http://www.dit.sa.gov.au/standards/tass. The traffic impact statement must be endorsed by one of the Department's Recognised Traffic Engineering Practitioners with experience in speed limit assessments, and attached to the approval documentation.

Details of any consultation (see Section 4.3) associated with the speed limit change, including the process and feedback received shall also be included in the traffic impact statement.

4.2.2 Review and approval process for other roads

Requests from members of the public for changes to speed limits on other roads must first be addressed to the local council (or the relevant road authority), who may conduct an assessment in accordance with these guidelines and formally request a review and approval of the speed limit from the Commissioner of Highways. The Commissioner of Highways has authorised certain positions within the Department to exercise these powers of approval.

This guideline may be used as a resource to conduct an initial assessment and review of a proposed speed limit to determine whether it is suitable. The road authority may contact the Department's Traffic Services to discuss the proposal in this initial stage.

For Council roads, prior to submitting a request for approval of a speed limit, Council should contact the Department's Traffic Services in order to ascertain the supporting documentation that will be required, which may include some (or all) of the following:

- An assessment of the speed limit proposal against the requirements of this guideline,
- A traffic impact statement and any other supporting documentation, such as consultation details, annual average daily traffic volumes, heavy vehicle content, pedestrian volumes, speed surveys,
- Details of an appropriate contact person to liaise with the Department's officers on traffic planning as well as technical design aspects of the proposed speed limit,
- A site plan accurately indicating existing speed limit signs, location of proposed speed limit signs, local roads, distances and any other relevant information, such as details of roadside development, parking controls, traffic signals, and existing and proposed physical speed control treatments or traffic calming devices,
- Resolution from Council endorsing the proposed speed limit change (generally not required for minor or low impact changes in speed limit),
- Indication of support from the local State Member of Parliament (generally required for Area speed limits only).

A traffic impact statement is a report indicating the traffic management and road safety effects for all users. The expected impact of the change in speed limit on adjacent streets and alternative routes shall be included in the traffic impact statement.

Council (or the relevant road authority) is responsible for preparing the traffic impact statement. Guidelines for preparing a traffic impact statement are included in the *Code of Technical Requirements* and a template is available at http://www.dit.sa.gov.au/standards/tass.

Details of any consultation (see Section 4.3) associated with the speed limit change, including the process and feedback received shall also be included in the traffic impact statement.

For Council or other road authorities, a Traffic Impact Statement must be prepared by an experienced traffic engineering practitioner, and for Council roads, endorsed by a person authorised by Council, 'for and on behalf of the Council'.

Requests for assessment and approval of changes to speed limits shall be addressed to the Department's Traffic Services.

4.3 Consultation

Consultation for speed limit changes should be tailored to suit the location of the proposed speed limit change. The relevant road authority is responsible for the consultation process, however the Department may work in collaboration with the local council to consult with stakeholders and the community on speed limit changes which have both a broad and local impact.

For speed limit proposals which will have a broad impact, such as those on major traffic routes, stakeholders may include:

- Councils
- Local residents and businesses
- Local State Member of Parliament
- South Australian Police (SAPOL)
- Emergency services
- South Australian Freight Council
- SA Road Transport Association
- Livestock and Rural Transporters Association SA
- South Australian Public Transit Association (SAPTA)

Consultation with the broader community may be conducted in various ways such as advertising in local media (print and/or online), social media, open days, community forums, as well as seeking feedback through formal surveys (online, phone, mail). Further guidance on community consultation is provided in *Better Together (https://www.bettertogether.sa.gov.au/)*.

For speed limit changes on council roads, the *Instrument of General Approval to Council* requires Council to notify adjoining councils and the Department of any changes which may affect traffic on their roads. Consultation with SAPOL should ascertain the enforcement strategy for the speed limit change.

Consultation of speed limit changes which only affect the local community may be limited to those directly impacted by the change. Councils, as elected representatives of the local community, are responsible for assessing the level of support for the proposal and may decide not to seek specific community feedback on a proposed speed limit change. However, it may be beneficial to the success of the speed limit proposal to ensure a high level of community support before implementing the lower speed limit. Without this high level of initial support, the speed limit may become contentious and unpopular when enforcement occurs. Further guidance on community consultation is provided in Austroads *Guide to Traffic Management Part 8: Local Area Traffic Management* and the Local Government Association of South Australia's *Community Engagement Handbook.*

Where a speed limit change affects a large area, for example multiple suburbs or an entire council area, consultation may be in the form of a survey of a representative sample of that community.

Applications for approval of speed limited areas must identify whether the local State Member of Parliament is supportive of the proposal, except where it is proposed to consolidate existing

30 km/h or 40 km/h linear speed limits and the default urban speed limit within a shack area into a 30 km/h or 40 km/h speed-limited area.

4.4 Implementation

Approval must be granted before a road authority can install, alter or remove a speed limit sign.

Installation, alteration or removal of a speed limit sign without proper authority is an offence under *Section 21* of the *Road Traffic Act 1961*.

New speed limit signs shall be accompanied by the installation of the appropriate temporary supplementary or advance warning sign in accordance with Section 7.4, for a period of up to 2 months. Where the speed limit change occurs on a road subject to high volumes of seasonal or tourist traffic, this period may be extended to cater for these users.

The implementation of new speed limits may also require the following measures to maximise effectiveness:

- Local media campaigns to reinforce/raise awareness of changed speed limits
- Liaison with SAPOL to ensure appropriate enforcement
- Use of variable message trailers for a short period of time (refer to the Department's *Operational Instruction 2.36 Variable Message Signs*).

Section 5: Determining the speed limit

Three types of speed limits are used in South Australia:

(i) Statutory (including default) speed limits.

(ii) Signposted speed limits.

(iii) Speed limits based on vehicle and licence class.

Signposted speed limits override the default speed limit that would otherwise apply (except where special speed limits for certain classes of vehicles and licences apply).

A speed zone is the length of road where a sign-posted speed limit applies. This section provides guidance on determining an appropriate speed limit for a section or network of roads. Guidance on how to sign that speed limit is provided in Section 7: .

The speed limits currently in place on South Australian roads have been established over many years in accordance with the relevant strategies, standards and practices available at that time. Speed limits may be reviewed from time to time in response to factors such as changes in the road environment or community requests (see Section 4:). When a speed limit is subject to review, it will be based on the guidance provided in this document, including the criteria and typical examples provided in this section.

5.1 Default speed limits

The main purpose of the default limits is to minimise the need to sign the thousands of roads that exist across the state. The default limits are a maximum value and drivers have a responsibility to adopt a lower travel speed to suit the conditions where required.

In 2003, the default urban speed limit was reduced from 60 km/h to 50 km/h. At that time, the speed limit on many main roads in built-up areas remained at 60 km/h, and these roads were signed with a 60 km/h speed limit, with repeater signs at regular intervals to remind drivers of the speed limit. A reminder sign was also developed for use of selected roads to remind drivers of the default limit of 50 km/h (see Section 7.10.2).

For details on when to sign roads at the default limits, see Section 7.10.

Speed limits other than the default limits are determined in accordance with the criteria in this section.

5.2 Speed limit length

Speed limits along a route may vary due to roadside development and the road environment. So drivers are not exposed to excessive variations in speed limits, the desirable minimum lengths for a particular speed limit are shown in Table 5.1.

Once these minimum lengths are applied, consideration should be given to consolidating the number of:

- Speed limit changes along the route, or
- Different speed limits applied to individual towns in a geographical area.

Consolidation of speed limits to minimise the number of changes should not involve increasing speed limits.

Table 5.1 Desirable minimum speed limit lengths

Speed limit (km/h)	Desirable minimum length (km)
40	0.4
60	0.6
70	0.7
80	0.8
90	0.9
100	2.0
110	10.0

5.3 Overview of typical speed limits

Table 5.2 shows an overview of the range and types of speed limits used in South Australia. It has been adapted from Austroads *Guide to Traffic Management Part 5: Link Management* to provide details of key applications and features for speed limits in South Australia. The fundamental principles and key factors described in Section 3: such as crash history, road cross-section, alignment, roadside development and traffic volume will also influence the selection of the appropriate speed limit. This table must also be read in conjunction with the detailed descriptions found in Sections 5.4 to 5.26. Examples are provided to assist with interpretation of the descriptions. Where the factors listed in Section 3.1 and Section 6.2 exist but are not typical of the speed limit based on Table 5.2, they may be applied to adjust the assessed speed limit. See the process in Section 6.1 for details on considering road safety risk in speed limit assessments.

Table 5.2 Overview of typical speed limit applications

Speed limit (km/h)	Typical application
10	**Pedestrian malls, shared zones** Confined area where pedestrians, cyclists and vehicles occupy the same space. Shared zones where pedestrians have priority. Very low speed environment where vehicle movement is physically constrained. Some car parks (typically multi-storey car parks or small car parks with limited access at rear of shops or businesses may be suitably physically constrained environments for a 10 km/h speed limit to be appropriate). See Section 5.4.
20	**Off-street areas, car parks, access driveways** Confined area where vehicles, cyclists and pedestrians may mix. Typical car park speed limit (refer to *Australian / New Zealand Standard AS/NZS 2890.1 Parking facilities Part 1: Off-street car parking* for design guidance). See Section 5.5. **NOTE:** Shared spaces (refer to *Streets for People Compendium*) may also be designed as a low speed environment in the order of 20 km/h, without the need for a posted speed limit. The design principles of shared zones in Appendix B may also be adopted in these situations.
25	**School zones, children's crossings, beaches (default within 50 m of a person)** Part-time speed limits at locations where school children may cross or where concentrations of school children may be adjacent to the road. See Section 5.6.
30, 40	**Recreational areas, residential streets or areas, pedestrian precincts, beaches** Open areas where vehicles, cyclists and pedestrians may mix, but some separation between vehicles and pedestrians is provided. Roads in recreational areas such as parks, gardens, or sports fields. Pedestrian activity areas including shopping precincts, town centres, residential areas, retirement villages, holiday house / shack areas. Pedestrians may cross at multiple controlled and uncontrolled locations along the road. Often used in conjunction with local area traffic management scheme. Bicycle boulevards where accompanied by traffic calming devices to achieve the desired speed. See Section 5.7. 40 km/h default limit for beaches (*Regulation 8A* of the *Road Traffic (Road Rules – Ancillary and Miscellaneous Provisions) Regulations 2014*) unless otherwise signed (see Section 5.24).
50	**Default urban limit** Applies to all built-up areas unless otherwise signed. Typical applications of the 50 km/h speed limit are collector roads, or arterial roads with commercial or retail roadside development which generate frequent on-street parking (particularly in rural towns) and moderate levels of pedestrian activity. See Section 5.8 and Section 5.9.

Speed limit (km/h)	Typical application
60	**Urban arterial road** Arterial roads within the fully built-up area. See Section 5.10.
70, 80	**Urban arterial road** Arterial roads in partially developed roadside environment with low levels of direct access. These are typically township fringes. See Section 5.11 and Section 5.12.
80, 90	**Urban or rural arterial road, rural roads** Arterial roads in sparsely developed roadside environment with very low levels of direct access. Rural roads which are not suited to 100 km/h. See Section 5.12 and Section 5.13.
90, 100	**Urban expressway** High standard urban roads with no direct access, appropriate roadside hazard risk mitigation treatments, grade separated interchanges. See Section 5.13 and Section 5.14.
100	**Default rural limit** Applies to all roads outside of the built-up area unless otherwise signed. A 100 km/h speed limit is typically applied to roads in farmland, or undeveloped land, where any houses are isolated and set well back from the road. See Section 5.14.
110	**Rural arterial road or expressway** Maximum allowable speed limit in SA. Typically these roads will be of the highest standard outside of the built-up areas and feature full access control, have divided carriageways, sealed shoulders and be a major traffic and primary freight route. See Section 5.15.

5.4 10 km/h Speed limit

A 10 km/h speed limit must only be used where the road environment assists in physically constraining drivers to this speed, otherwise compliance with this speed limit is likely to be poor.

Where pedestrians, cyclists and vehicles occupy the same space, and the road is predominantly a pedestrian environment such that it is appropriate to give pedestrians priority over vehicles, a 10 km/h shared zone may be applied (see Section 5.4.2). The design requirements for a shared zone are critical to driver compliance with both the speed limit and pedestrian priority rules associated with a shared zone. Design guidance is provided in Appendix B.

5.4.1 10 km/h car park

A 10 km/h speed limit may be applied as a linear speed limit in highly constrained roads or road-related areas such as multi-storey car parks or small car parks with limited access at the rear of

shops or businesses. Car parks designed for User Classes 1 or 1A in accordance with Australia/New Zealand Standard *AS/NZS 2890.1:2004 Parking facilities – Part 1: Off-street car parking* are typically suited to a 10 km/h speed limit due to the relative difficulty in manoeuvring into and out of these parking spaces for these user classes.

For a typical car park speed limit of 20 km/h, see Section 5.5.1.

5.4.2 10 km/h Shared Zone

A shared zone is a special type of 10 km/h speed limit applied to a pedestrian-dominated road, network of roads or a road-related area where pedestrians and vehicular traffic share the road space. Drivers within a shared zone must give way to pedestrians at all times (*Australian Road Rule 83*) and must only park in marked bays or where permitted by parking control signs (*Australian Road Rule 188*).

Shared zone signs are a regulatory sign and must not be installed on a road or road-related area unless approval under *Section 17* of the *Road Traffic Act* has been provided by the Department. Installation without approval is an offence under the *Road Traffic Act*.

The use of a shared zone sign indicating a value other than 10 km/h is not permitted.

Shared zones are generally not suited to car parks as these are predominantly designed for vehicle access and parking capacity rather than pedestrian traffic. The overall design of a typical car park, including the space required to cater for manoeuvring into and out of parking spaces tend to result in straight, wide sections of road which do not sufficiently constrain vehicle speeds to 10 km/h. It may be difficult for drivers to comply with the pedestrian priority rules of a shared zone, particularly when reversing. An appropriate speed limit for the environment (see Section 5.4.1 and Section 5.5.1), and clear pedestrian facilities and crossings are the preferred treatments for car parks.

The image and character of the road in a shared zone is critical to its successful operation. Drivers need to be made aware that they are entering a road environment with different driving conditions. This can be achieved by narrowing the entrances, use of different coloured and textured paving, the use of full width paving between property lines and by the placement of planters and other landscaping.

Because of the unique characteristics of a shared zone, they are normally restricted to areas of high commercial activity, medium to high-density residential areas, tourist or heritage areas, where there is both a high proportion of pedestrians relative to vehicle numbers, and a very low speed environment. Shared zones may also be used in parks, reserves or caravan parks as long as the speed environment is self-enforcing to restrict vehicles to very low speeds.

The length of a shared zone should be minimised to support driver compliance with the 10 km/h speed limit. Shared zones greater than 160 m in length (equivalent to 60 secords of travel at 10 km/h) should be avoided. See Section 5.5.2, Section 5.7.2 or Section 5.7.3 for other speed limits applicable shared spaces in less constrained environments.

Although speeds are expected to be low in shared zones it is desirable to also design a portion or area of the road for pedestrian movement only, where pedestrians will not unreasonably obstruct the path a driver (*Australian Road Rule 236*).

See Appendix B for detailed guidance on the design of shared zones.

Examples: Chesser Street, Adelaide; Coromandel Place, Adelaide; Tavistock Lane, Adelaide; Liberman Close, Adelaide; Gawler Place (Grenfell St to Rundle Mall), Adelaide; Old Post Office Place, Grange; Apricot Lane, Noarlunga Centre; Mistletoe Lane, Noarlunga Centre; Crawford Lane, Hindmarsh;

5.5 20 km/h Speed limit

A 20 km/h speed limit is typically suited to off-street areas, and roads or road-related areas which are specifically designed to create a 20 km/h speed environment.

5.5.1 Car parks

A 20 km/h speed limit is typically suited to car parks. The design of a car park is important in constraining speeds to complement the use speed limit signs. Australia/New Zealand Standard *AS/NZS 2890.1:2004 Parking facilities – Part 1: Off-street car parking* states:

> *As a general rule, it is preferable to design a car park to avoid the need for regulatory signs, as reliance on their efficiency in controlling driver behaviour is doubtful. A typical example is the use of speed limit signs, especially where the posted speed is considerably lower than that adopted by most drivers.*

and

> *As far as practicable a car park layout shall be designed so that it does not encourage excessive speed, and if excessive speeds are a particular problem at any location, traffic management devices such as speed humps shall be used.*
>
> *Speed limit signs may be used to indicate the general speed limit desired in a car park. The limit should not be unrealistically low, and as a guide should approximate the average speed of drivers using the car park. Speed limit signs will not generally be effective in controlling excessive speeds.*

Examples: Bonython Park car park and roads, Adelaide; Plympton Community Centre car park (34 Long Street, Plympton); Churchill Centre car park (380 Churchill Road, Kilburn); WM Hunt Reserve car park (70 River Road, Port Noarlunga); Centennial Park cemetery (Goodwood Road, Pasadena)

5.5.2 Shared spaces / laneways

Shared spaces (refer *Streets for People Compendium*) may also be designed as a low speed environment in the order of 20 km/h, without the need for a posted speed limit. The design principles of shared zones in Appendix B may also be adopted in these situations. Very narrow laneways which provide local rear access to residential properties and typically have narrow footpaths (kerb primarily for drainage purposes) and fences abutting the carriageway may also be suited to a 20 km/h speed environment, and often these are treated with LATM devices (eg road humps) designed to achieve desired speeds. **The use of speed limit signs in these environments is generally discouraged**, however where they may be subject to use by non-local

traffic or rat-running vehicle use, the installation of speed limit signs to supplement the design may be suitable.

Examples:

Bentham Street, Adelaide; John Street, Salisbury;

5.6 25 km/h School zone

South Australian school zones operate as a "25 km/h when children present" speed limit. As drivers need to be able to observe a child within the zone to determine if the 25 km/h speed limit applies, school zones are applied as a short zone (minimum 60 m) to a road or a network of roads to provide a safer environment for children crossing the road. See Appendix C for detailed guidance on the appropriate use of school zones.

A school zone is typically used on a road where there is a concentration of school children directly adjacent to motor vehicle activity on the road, or where school children may cross the road. They are generally used on local roads.

There are instances where the road and traffic conditions mean that a school zone may not provide a reasonable degree of safety to children. School zones **shall not** be used on roads which:

- function as a major traffic route, especially high volume arterial roads. School zones are typically best suited to roads with AADT < 10,000; on higher volume roads particular attention should be paid to the peak hour volumes and crossing movements and the ability to safely cross the road in gaps in traffic;
- are multi-lane;
- have a speed limit in excess of 60 km/h;

5.7 30 km/h and 40 km/h speed limits

A 30 km/h or 40 km/h speed limit may be applied to pedestrian activity areas including shopping precincts, town centres, local residential areas, retirement villages, beachfront esplanades and holiday house / shack areas. Pedestrians may cross at multiple controlled and uncontrolled locations along the road. A 40 km/h speed limit area may be used in conjunction with local area traffic management scheme. A 40 km/h speed limit may also be appropriate to bicycle boulevards where accompanied by traffic calming devices to achieve the desired speed.

These limits may also be applied to road-related areas or roads in recreational areas which cater for traffic specifically accessing the recreational facility or area. These roads or road-related areas typically have a mix of pedestrian and vehicle traffic, but with sufficient space to allow some separation between different users.

Determining whether a 30 km/h or 40 km/h speed limit is most appropriate for these environments depends on a number of factors, for example, the extent to which motor vehicle traffic is physically slowed by features such as road width, road length, design of vehicle travel path, extent of separation of pedestrians and motor vehicles, the use of physical calming devices, and also the relative proportions of pedestrian and motor vehicle traffic. The following sections provide more details on some specific situations.

5.7.1 High pedestrian activity centres

A lower speed limit for a high pedestrian activity centre may be used where there are relatively high numbers of pedestrians or other vulnerable road users on a consistent daily basis throughout the year, such as main roads through major retail centres, commercial areas, tourism areas, areas of multilevel dwellings, or roads identified in the Department's *Functional Hierarchy* as priority pedestrian areas. The high pedestrian activity centre speed limit is not intended for streets with short holiday or tourism peaks.

Publicly accessible road networks of large university or health facilities may also be considered as high pedestrian activity centres.

National Highways, and roads identified in the Department's *Functional Hierarchy* as freight routes or major traffic routes are unsuitable for high pedestrian activity centre speed limits.

Factors such as roadside dining, small shop fronts which access directly from the footpath and diverse development operating over extended hours all contribute to visible levels of pedestrian activity adjacent the road, which in turn provide cues to drivers about the pedestrian environment and the reason for the lower speed limit.

A high pedestrian precinct speed limit is not suited to roads where the development is further set back from the road, is separated from the street by off-street parking, or is a type of development that users typically access by car (eg hardware stores, supermarkets, bulky goods retailers).

Traffic calming devices and other measures may be required to assist in the creation of an environment suitable for the lower speed limit. See Section 6.5, and the *Streets for People Compendium* for further information. Roads with lane widths greater than 4 m are generally unsuitable for a high pedestrian activity area speed limit and may require narrowing or other traffic calming treatments for the lower speed limit to succeed.

Pedestrian safety may also be achieved by the installation of traffic control devices, such as kerb extensions or pedestrian refuges, to provide protection and encourage pedestrians to cross at designated points. These measures should be investigated as an alternative, or in conjunction with, a lowered speed limit.

A **30 km/h speed limit** may be adopted for high pedestrian activity centres where pedestrian volumes are very high, and retail, dining, entertainment, recreation or tourism facilities generates frequent pedestrian movements across the road, at numerous locations along the road.

It is best suited to locations where the road has been specifically designed to create a speed environment of 30 km/h and alternative routes are available to drivers to discourage through traffic.

Examples: Hindley Street, Adelaide; Gresham Street, Adelaide

A **40 km/h speed limit** for a high pedestrian activity centre may be suited to roads where high pedestrian and vehicle movements are generated consistently throughout the day over the year.

The roadside development may consist of retail shops, dining, entertainment or recreation facilities on both sides of the carriageway, mixed with residential development, generating frequent pedestrian movements across the road.

Examples: Mt Barker Road, Hahndorf; Broadway, Glenelg South; Prospect Road, Prospect; Jetty Road, Brighton; Seaview Road, Henley Beach (note that this section of Seaview Road

adjoins a 40 km/h residential area speed limit hence is signed as an area limit); Semaphore Road, Semaphore; Tasman Terrace, Port Lincoln; Mawson Lakes Boulevard, Mawson Lakes;

A **part time 40 km/h speed limit** for a high pedestrian activity centre may be suited to roads where the road environment is not suited to low speeds outside of peak pedestrians times. Consideration should be given to the 'after hours' (for example, 7:00 pm to 7:00 am) traffic and whether it is reasonable to restrict the speeds of drivers during these times.

Where this applies to high volume roads with AADT > 20,000 vehicles per day, these may be suitable for electronic variable speed limits. Hours of operation should be based on a pattern of pedestrian crashes and/or high pedestrian activity, taking into account days when most shops are open or where higher levels of pedestrian activity are generated after hours (e.g. precincts with cafes, restaurants, cinemas etc.).

Minimum time periods for a time based speed limit should be determined to best suit the times of peak pedestrian activity taking into account opening hours, clearway times and operational needs. See Section 7.15 for variable signing. If there is a history of pedestrian crashes outside normal shopping hours, consideration should be given to implementing a full time high pedestrian activity centre speed limit.

5.7.2 Residential areas

A **40 km/h speed-limited area** may be introduced to help create a speed environment appropriate to local streets. The speed limit of 40 km/h is generally appropriate in precincts where existing speeds are not overly high. These may be areas where higher speed streets have been treated with local area traffic management devices, or where speeds are naturally low because of existing road and traffic characteristics. See Appendix D for details.

Examples:

City of Unley; City of Norwood, Payneham and St Peters - various suburbs (Stepney/Maylands/Evandale); Glenside; City of Charles Sturt - various suburbs (Bowden; Seaton; Woodville); City of Prospect

A **30 km/h speed-limited area** may be suitable for shack areas situated on a network of no through roads, or very low volume roads providing access for local residents only e.g. retirement villages.

Examples:

Port Moorowie, Yorke Peninsula; Bowhill shack area, River Murray;

5.7.3 Recreational areas

A 30 km/h or 40 km/h speed limit may be applied to road-related areas or roads in recreational areas such as parks, gardens, reserves, National Parks, sports fields, showgrounds or large car parking areas. These areas typically cater for local traffic accessing the particular facility or area only, and have a mix of pedestrian and vehicle traffic with sufficient space to allow some separation between different users. National Parks have a default speed limit of 40 km/h.

Examples:

Bay Road, Moonta Bay (30 km/h at entry to beachfront esplanade / car park area), Beach Road, Solomontown; Brown Hill Creek;

5.8 50 km/h (Default urban) speed limit

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

It may also be applied to roads or sections of road where the full length of the road does not meet the definition of built-up area under *Australian Road Rules* definition but a 50 km/h speed limit is appropriate for the type and density of development (eg residential development on the outskirts of a town in a rural area, where the length of development on the section of road is less than 500 m in length; or a rural living development where roads cater for local residential traffic only (eg Rivoli Drive, Muggleton near Beachport; Pains Road, Balhannah; Alston Road, Blakiston). In this situation, signs must be installed as the 50 km/h limit does not apply by default (see Section 7.10 on signing).

See Table 5.1 and the relevant sections for determining the speed limits other than 50 km/h on urban roads.

5.9 50 km/h speed limit on main roads

A 50 km/h speed limit provides a level of safety and amenity at locations where there is a high concentration of road user activity generated by roadside development, resulting in concentrations of pedestrians, cyclists, parking and un-parking manoeuvres, vehicles entering or leaving the road, and turning traffic. This may occur in the central business or retail district along main roads, particularly those in the rural towns. In these situations, the 50 km/h (default) speed limit will be applied to that section of road, and will be signed according to Section 7.10 (also see Section 7.4 for additional advisory signs which may be appropriate).

NOTE: The central business or retail district along main roads in rural towns may vary greatly in terms of length, development density and level of activity. The use of 50 km/h speed limit in the central business district needs to be applied in the context of the overall township development i.e. the central business district of a small town may be significantly less developed and generate less activity than that of a larger township. Each situation must be assessed on its own merits. The examples below demonstrate various applications of 50 km/h speed limits on main roads.

Examples:

Goodwood Road, Goodwood; Main Road, Blackwood; Fosters Road, Hillcrest; Smart Road, Modbury; Reservoir Road, Modbury; Grange Road, Henley Beach; Seaview Road, West Beach; Hart Street, Semaphore;

Black Top Road, One Tree Hill; Onkaparinga Valley Road, Woodside; Spencer Highway, Wallaroo; Coffin Bay Road, Coffin Bay; Flinders Ranges Way, Hawker; Wilkins Highway, Jamestown; Princes Highway, Millicent

5.10 60 km/h speed limit

On 1 March 2003, the default speed limit in built-up areas was reduced from 60 km/h to 50 km/h. As a result, the 60 km/h speed limit is now only used where the physical layout of the road and roadside development are conducive to a 60 km/h limit.

Where a short length (less than 1 km) of 60 km/h speed environment exists between two townships with a 50 km/h speed limit on the same route, consideration should be given to continuing the 50 km/h speed limit through this section to avoid an unreasonable number of speed limit changes.

A 60 km/h speed limit may be applied to:

- Main roads in built-up areas. These roads are generally arterial roads designed for travel between localities and function as major traffic routes, freight routes, peak hour routes or public transport routes. They are usually multi-laned or divided roads, with direct access to abutting development.

  Examples:

  Portrush Road, Glenunga; Port Road, West Croydon; Stephen Terrace, St Peters; Brighton Road, Somerton Park; Adelaide Road, Mt Barker; The Golden Way, Golden Grove

- Main roads in rural towns outside of the central business district. Development consists of typical “urban” size blocks of < 40 m frontage, which may be mixed with some larger block sizes with houses set back from the road.

  Examples:

  Onkaparinga Valley Road, Woodside; Horrocks Highway, Laura; Southern Ports Highway, Millicent; Onkaparinga Valley Road, Verdun; Greenhill Road, Summertown

- Roads in rural residential, urban fringe, commercial or retail areas where there is visible urban development (blocks typically < 40 m wide) on land next to the road but access to this development is via another road, e.g. rear fences are adjacent to the road, or access is via service road, and the road caters for primarily through traffic. Road may be divided or undivided, and may contain some sections of larger allotments with direct access. See also similar criteria for 70 km/h speed limit in wider road reserves.

  Examples:

  Black Road, Flagstaff Hill; Chandlers Hill Road, Happy Valley; Paech Road, Mt Barker; Bains Road, Morphett Vale; Grenfell Road, Modbury Heights

- Roads in rural residential, urban fringe, commercial or retail areas which are either not suitable for the urban default limit of 50 km/h, or may not meet the legal definition for the urban default limit. This may be due to short length of development (< 500 m), buildings spaced slightly over 100 m apart, or inconsistent development.
  These roads may have a mix of typical “urban” size blocks of < 40 m frontage with some larger blocks of < 100 m frontage, and short undeveloped sections. Development may consist of typical “urban” size blocks of < 40 m frontage in a rural township on one side of the road only. Kerbing and/or on-street parking provisions may also provide further cues to drivers of the urban environment. Typically > 20 accesses per km.

Examples:

Lobethal Road, Lenswood; Ackland Hill Road, Cherry Gardens; Karoonda Highway, Alawoona; Barrier Highway, Manoora; Cherry Gardens Road, Ironbank; Upper Sturt Road, Belair

- Roads in rural residential or urban fringe areas where a significant proportion of the road alignment consists of closely spaced curves and/or narrow width. See Section 6.1 for assessing road safety risk to support a speed limit based on this criteria and Section 6.2.2 for additional considerations.

  Examples:

  Old Norton Summit Road, Horsnell Gully; Norton Summit Road, Norton Summit; Upper Sturt Road, Belair; Ironbank Road, Ironbank;

- Roads in rural residential areas where the combination of factors (See Sections 6.1 and 6.2.2) such as alignment, width, level of development, prohibition of overtaking (continuous dividing line), consistency with other routes in the region and minimising the number of speed limit changes along a route supports the 60 km/h limit.

  Examples:

  Ironbank Road, Ironbank; Scott Creek Road / Red Hill Road, Scott Creek; Scott Creek Road, Ironbank; Kimbley Road, Onkaparinga Hills

- Roads in rural residential or urban fringe areas which carry little or no through traffic, and generally have residential houses on comparatively large blocks of land set back from the edge of the road. Frontages are typically < 100 m, with typical spacing of 20 accesses per km.

  Examples:

  Kentish Road / Parkers Road / Lange Road, Gawler Belt; Blakiston Road, Blakiston

5.11 70 km/h speed limit

A 70 km/h speed limit may be applied to:

- Urban 70 km/h speed limits are typically applied to divided arterial roads with full or partial urban development with limited access to the main carriageway, low levels of pedestrian activity, a high standard of alignment and signalised intersections at regular intervals. Road reserves may be wide such that the rear fences of adjacent residential development are set back from the road and screened with vegetation, or service roads provide access to properties. For divided arterial roads with predominantly industrial roadside development, properties will typically have wide frontages with buildings set back from the road.

  Examples:

  Montague Road, Cavan; Walkleys Road, Oakden; Cavan Road, Dry Creek; The Golden Way, Wynn Vale; Flagstaff Road, Flagstaff Hill; Golden Grove Road, Modbury Heights

- Undivided urban fringe roads where there is limited direct access, or development is single sided, and the road caters for primarily through traffic. Road reserves may be wide such that the rear fences of adjacent residential development (on blocks typically < 40 m wide) are set

back from the road and screened with vegetation, or service roads provide access to properties.

Examples:

Black Road, Happy Valley; Chandlers Hill Road, Happy Valley; Tatachilla Road, Tatachilla

Commercial Road, Port Noarlunga South; Waterloo Corner Road, Burton; River Road, Noarlunga Downs; Heaslip Road, Waterloo Corner;; Panalatinga Road, Morphett Vale;

- Rural residential or urban fringe roads with narrow width and/or a significant proportion of the road alignment consists of closely spaced curves. See Section 6.1 for assessing road safety risk to support a speed limit based on this criteria and Section 6.2.2 for additional considerations.

  Examples:

  Clarendon Road, Clarendon; Main Road, Chandlers Hill; Gorge Road, Montacute; Cherry Gardens Road, Chandlers Hill; Cherry Gardens Road, Cherry Gardens; Ackland Hill Road, Coromandel Valley;

- Rural residential or urban fringe roads with a generally straight alignment or with some horizontal and/or vertical curves, typically 10 to 20 accesses per km with residential properties set back from the road.

  Examples:

  Ackland Hill Road, Coromandel East; Bains Road, Onkaparinga Hills

NOTE: 70 km/h speed limits may also be applied for roads which meet a combination of these last two criteria, for example 10 or less accesses per km but with a greater proportion of the road alignment consisting of closely spaced curves.

5.12 80 km/h speed limit

NOTE: 80 km/h was previously a buffer speed limit applied on approach to a lower speed limit for a built-up area. See Section 5.26 and Section 7.7 for more information.

An 80 km/h speed limit may be applied to:

- Divided urban arterial roads with little or no direct abutting access.

  Examples:

  McIntyre Road, Modbury; Main North Road, Salisbury East; Tapleys Hill Road, West Beach; Lonsdale Road, Seacliff Park; Panalatinga Road, Happy Valley;

- Undivided roads in rural areas where a lower standard of vertical or horizontal alignment exists. See Section 6.1 for assessing road safety risk to support a speed limit based on this criteria and Section 6.2.2 for additional considerations. See also Note below.

  Examples:

  Bull Creek Road, Ashbourne; Paris Creek Road, Paris Creek; Tippett Road, Millbrook; Gorge Road, Paracombe; Greenhill Road, Greenhill; Lobethal Road, Lobethal; Flaxley Road, Mt Barker

- Roads through small townships or villages in a rural area, consisting of partially built-up areas with limited adjacent development. These developments do not meet the criteria for a lower limit but are still regional centres with some public facilities or small commercial properties.

  Examples:

  Langhorne Creek Road; Belvidere; Marrabel Road, Hamilton; Flinders Highway, Sheringa; Tod Highway, Kyancutta; Princes Highway, Hatherleigh; Playford Highway, Parndarna; Riddoch Highway, Willalooka; Railway Terrace, Wanbi; Southern Ports Highway, Rendelsham;

- Roads through urban / rural fringe areas where houses may be located on larger allotments, often set back from the road with accesses spaced at 200 m or greater (< 10 accesses per km).

  Examples:

  Old Princes Highway, Littlehampton; Junction Road, Littlehampton; Onkaparinga Valley Road, Oakbank; Nairne Road, Woodside; Angaston Road, Angaston; Two Wells Road, Gawler River; Barossa Valley Way, Gawler East; Renmark Irrigation Area, Renmark South

NOTE: 80 km/h speed limits have been applied to many rural roads in the Adelaide Hills (various councils) since the early 2000s under various road safety initiatives in lieu of the rural default of 100 km/h.

5.13 90 km/h speed limit

A 90 km/h speed limit may be applied to:

- Suitably designed urban expressways.

  Examples:

  Port River Expressway, Gillman; SE Freeway, Crafers; North-South Motorway; Wingfield

- Outer urban divided multi-lane arterial roads which are not suitable for 100 km/h due to the spacing of intersections (including signalised intersections) and accesses

  Examples:

  Port Wakefield Road, Waterloo Corner; Main North Road, Evanston Gardens

- Rural roads that are not suitable for 100 km/h due to a combination of the following factors:
  - Frequent horizontal curves, including roads with relatively long straight sections of road between curves, with sight distance less than that for a 100 km/h speed limit (refer Austroads *Guide to Road Design Part 3: Geometric Design*),
  - Frequent vertical curves that limit sight distance to less than that for a 100 km/h speed limit, including when there are relatively long straight sections of road between curves,
  - Undivided two-way carriageway with a width less than 6 m,
  - Narrow unsealed road shoulders,
  - Regular occurrences of roadside hazards within 3 m of the edge of the carriageway,

- High crash history or high potential of crash risk,
- Disparity between the intended function of the road and existing road standard,
- Higher concentration of land use activity generators with uncontrolled access points,
- Higher number and spacing of intersections and other access points along the road without suitable provision for turning vehicles, or inadequate sight distances, or
- Forms a local connection between towns and communities without any arterial or strategic function.

See Section 6.1 for assessing road safety risk to support a speed limit based on this criteria and Section 6.2.2 for additional considerations.

Examples:

Angle Vale Road, Virginia; Heaslip Road, Waterloo Corner; Barossa Valley Way, Lyndoch; Gomersal Road, Gomersal;

5.14 100 km/h speed limit

This speed limit applies to roads in the following situations:

- The default rural speed limit (see Section 1.4 and Section 2.2).
- Rural roads that do not meet the criteria for 90 km/h or 110 km/h speed limits.

5.15 110 km/h speed limit

The highest speed limit applied on South Australian roads is 110 km/h. On the basis of the Safe Systems approach to setting speed limits, a 110 km/h speed limit should only be considered for rural roads that are designed and constructed to an appropriate standard and level of safety for the speed limit, which meet the following criteria:

- Perform an interstate or inter-regional transport function, and
- Have divided carriageways, central median barriers or wide centre line treatments with a design speed of 120 km/h, and
- Have full access control, and
- Have sealed shoulders and appropriate roadside safety treatments (refer to Austroads *Guide to Road Design Part 6: Roadside Design, Safety and Barriers*).

Examples:

Northern Expressway, Port Wakefield Highway, South Eastern Freeway, Dukes Highway

110 km/h speed limit on many existing roads were set according to previous strategies, standards and practices available at that time. A 110 km/h speed limit may be applied to a road where road safety infrastructure improvements are carried out such that a risk assessment using a recognized road safety risk tool such as ANRAM, iRAP (ViDA) or IRR demonstrates that there is no net increase in the level of road safety risk.

5.16 Variable speed limits

Guidance on the use of variable speed limit signs (VSLS) is provided in Austroads *Guide to Traffic Management Part 9: Transport Control Systems, Strategies and Operations* (2020) Section 7.3 and Austroads *Guide to Smart Motorways* (2016) Section 12.

NOTE: Variable speed limit signs at school zones as shown in Austroads *Guide to Traffic Management Part 9: Transport Control Systems, Strategies and Operations* (2020) Section 7.3.3 are not used in South Australia.

5.17 Speed limits for future development

In many rural residential areas, construction of buildings and hence accesses, occurs over a number of years. To avoid frequent speed limit changes due to development along the road, the speed limit for a road in a developing area should be based on the final development and the estimated number of accesses that will exist after all buildings are constructed, if it is expected that:

a) building construction will occur progressively and continuously;

b) the majority of buildings will be constructed within approximately five years; and

c) the majority of motorists are likely to see the speed limit as reasonable for the initial road environment.

Where direct access to the road is to be provided, the future number of accesses should be estimated by counting the total number of properties on both sides of the road combined, assuming one access per property.

Where building construction is likely to occur randomly, or where it is likely that the majority of buildings will not be completed within five years, the speed limit should be determined using the existing number of accesses, unless the design of the road supports a lower speed limit.

5.18 Signalised intersections in high speed environments

The maximum speed limit at traffic signals is 90 km/h.

Where traffic signals have been installed on a road with a prevailing speed limit of 100 km/h or greater, the speed limit shall be reduced to a maximum of 90 km/h, generally applied for a distance of 300 m to 400 m on the approach to the traffic signals. See Section 7.13 for details of signing.

For divided roads, offset speed zones are permitted in these instances (i.e. the start and finish of the speed zone do not coincide for each direction of traffic).

5.19 Roundabouts

The maximum speed limit at roundabouts is 80 km/h.

Where a roundabout is installed on a road with a prevailing speed limit of 90 km/h or greater, the speed limit shall be reduced to 80 km/h.

Additional warning signs may be required to advise drivers of the reason for the speed limit reduction.

Examples:

Sturt Highway / Old Sturt Highway, Monash; Copper Coast Highway / Yorke Highway, Yorke Peninsula

Lower speed limits than would otherwise be appropriate for the road environment are not supported as the basis for a roundabout design.

As drivers approach a roundabout, they need to slow down to negotiate the roundabout and be prepared to give way to vehicles on the roundabout. Adequate advance warning of the roundabout, road geometry or other measures which slows drivers on approach to the roundabout, and sufficient sight distance are critical to the safe operation of the roundabout.

Lowering the speed limit on the approaches to a roundabout without the use of other measures to support a lower speed environment may result in poor compliance, adversely impacting on the safety of the roundabout, and is therefore not supported. Refer to Austroads *Guide to Road Design Part 4B: Roundabouts* (2021) Section 4.5.2 and DIT *Master Specification RD-GM-D1 Road Design* for further information about approach treatments.

5.20 Expressway, freeway and interchange ramps

At interchanges and expressway / freeway entrance and exit ramps there is typically a significant change in speed due to the road geometry, road environment or both. Road geometry is often used to physically slow drivers and reinforce the change in speed environment. Use of speed limits, exit speed signs and other measures to suit various situations is described below.

5.20.1 Exit ramps

Where the road geometry on the exit ramp requires the use of Exit Speed x km/h (W1-9 Series) signs in accordance with *AS 1742.2 MUTCD Part 2: Traffic Control Devices for general use (2022)* clause 3.5.3(c), these signs are the primary means of providing speed guidance to drivers. These signs may reflect the design speed of the exit ramp.

A regulatory speed limit (R4-1) sign may be applied to an exit ramp where the road immediately beyond the exit ramp requires a different speed limit from the main alignment (for example, at the start of a built-up area), or where there is a combination of design factors which require a lower speed limit for the length of the ramp. In the absence of an R4-1 sign applying to the ramp, the speed limit of the main alignment continues to apply to the exit ramp.

See Section 7.14 on signing for exit ramps, including the use of Exit Speed x km/h (W1-9) series signs, Reduce Speed Now (GE9-3) signs, Speed Limit Ahead (G9-79) signs and On Ramp (R9-17) signs.

5.20.2 Entrance ramps

The speed limit on the entrance ramp should be consistent with the speed limit of the main alignment unless road geometry or merging activity on the ramp necessitates the signing of a lower limit. For expressway / freeway entrances, the speed limit (R4-1) signs indicating the speed limit of the expressway / freeway are located after the Start Freeway (R6-19) or Start Expressway (R6-

SA107) sign, where geometry is suitable for the speed, for example, not prior to a substandard curve.

5.20.3 LUMS / VSLS

Where the road geometry of an exit ramp requires the use of an Exit Speed x km/h (W1-9 Series) sign but LUMS or VSLS are located on the ramp, the LUMS / VLSLS shall display a speed assessed in accordance with the advisory speed procedure in *AS 1742.2* (2022) clause 4.3.4. This value must not exceed the design speed for the ramp geometry. Exit Speed x km/h (W1-9 Series) signs are only required where sufficient separation between the LUMS / VSLS and an Exit Speed x km/h (W1-9 Series) sign can be achieved, such that both are not visible at the same time. See Section 7.11 for signing details, including use of supplementary plates.

Where LUMS or VSLS are located on an entrance ramp, they shall display the speed of the main alignment unless road geometry or merging activity on the ramp necessitates the signing of a lower limit.

5.21 Level crossings

For the use of 80 km/h speed limits at rural level crossings on roads with a speed limit of 100 km/h or greater, refer to the Department's *Operational Instruction 4.11 80 km/h Speed Limit at Railway Level Crossings*.

5.22 Roads in poor condition

For the long term temporary use of advisory speed signs or regulatory speed limit signs on sections of road in poor condition, refer to the Department's *Operational Instruction 2.26 Warning Signs for Road and Environmental Conditions*.

5.23 Unsealed roads

The *Australian Road Rules* set a default speed limit of 100 km/h on all roads outside the built up area. As with all speed limits, this is the maximum speed at which drivers are legally permitted to travel. Drivers need to be mindful of the road conditions and adjust their speed accordingly, particularly on rural unsealed roads.

When unsealed roads are narrow, have poor alignment or undulating conditions, drivers will tend to drive at a speed well below the default of 100 km/h. On higher standard rural unsealed roads drivers are not influenced as much by these factors, which may result in drivers choosing speeds nearer to the 100 km/h default limit. However, unsealed roads, by their very nature, are susceptible to changes in conditions such as variability of road alignment, width, or road surface conditions, and these may compromise the safety of drivers. In these cases it may be appropriate that the maximum speed be 80 km/h. The 'Gravel Roads - Maximum 80 km/h' (W1-SA101) advisory sign may be used on these roads in accordance with the Department's *Operational Instruction 4.10 Maximum 80 km/h Advisory Sign on Unsealed Roads*. This sign is not a regulatory speed limit sign.

The use of a regulatory speed sign on unsealed roads outside the built-up area is not recommended as drivers may interpret this as a target value, appropriate for all conditions, rather than a maximum only applicable to good driving conditions.

Regulatory speed signs on unsealed roads within built up areas, indicating values of 50 km/h or less in accordance with this guideline are permitted.

5.24 Beaches

From 1 December 2023, the default speed limit on beaches (where driving or riding of motor vehicles is permitted) is 40 km/h, and 25 km/h when travelling within 50 metres of a person, unless otherwise signposted (*Regulation 8A* of the *Road Traffic (Road Rules – Ancillary and Miscellaneous Provisions) Regulations 2014*).

A beach is a road-related area under the *Australian Road Rules* and all rules applying to drivers on a road will apply on a beach, including the rules for speed limits.

Speed limits that vary from the default are non-standard and will be considered on a case-by-case basis. For speed limits higher than the default limit of 40 km/h, consideration will need to be given to the compatibility of the posted speed limit to the varying type of surface that could be experienced on the beach. Council will be required to submit a traffic impact statement including a detailed risk assessment taking into account the robustness of the beach surface, the type of vehicles which may be driven on it, and the consequences of increasing the speed limit above the default when seeking approval. As the introduction of the default speed limits on beaches was the result of an extensive statewide community consultation process, Council will also need to include an indication of the level of community support for any increase in speed limit and the details of the Council resolution supporting the change in order for it to be considered for approval.

5.25 Shared paths and footpaths

Speed limits are not signed on shared paths or footpaths.

There are existing protections in the *Australian Road Rules* for people walking on shared paths. When riding on a shared use path, a person riding a bicycle must:

- Keep to the left unless it is impracticable to do so, (*Australian Road Rule 250*)
- Give way to any person walking on the path, (*Australian Road Rule 250*)
- Exercise due care by travelling at a safe speed and be prepared to stop if necessary, (*Australian Road Rule 250*)
- Not cause a traffic hazard by moving into the path of a pedestrian (*Australian Road Rule 253*)
- Ring a bell or provide a verbal warning to alert people walking, if necessary to avert danger. This could be just a friendly ‘hello’ to make sure the person walking is aware; (*Road Traffic Act 1961 Part 3, Division 9 Provision 99A)*

In addition, there is no legislation in place to require cyclists to use a speedometer.

People riding bicycles tend to self-regulate their speed on paths based on the conditions. For example, on a crowded path where there are large numbers of pedestrians, or there are young or inexperienced cyclists using the path, an appropriate speed of travel is considerably lower than on

an isolated path with no other path users. Setting a very low speed limit on a shared path may detrimentally affect a cyclist's stability, and hence safety. Setting a higher speed limit may also be counter-productive as it could indicate to some riders that the speed limit is appropriate at all times.

Refer to the Department's *Code of Technical Requirements* Section 3.7 for use of pavement markings on paths with educational, advisory or promotional messages to enhance users' awareness of the road rules or path safety.

5.26 Intermediate speed limits (formerly buffers)

Where there is a reduction in speed limit on a length of road of 30 km/h or more, Speed Limit Ahead (G9-79) signs shall be installed to provide advance warning of the lower limit (see Section 7.7). A speed limit buffer comprising a speed zone of intermediate value shall not be used.

Speed Limit Ahead (G9-79) shall not be used in advance of shared zones as the entry treatment should slow vehicle speeds (see Appendix B2). They shall also not be used in advance of school zones as other advance warning devices may be used if necessary (see Section 7.18).

When there is a need for an existing speed limit buffer to be altered, the Speed Limit Ahead (G9-79) sign shall be installed. If a change occurs for one approach to a town, consideration should be given to changing all approaches for consistency, where appropriate.

There may be locations where an 80 km/h speed limit or another speed limit applies on the approach to a town due to the speed environment of the road meeting the criteria of this guideline for setting speed limits. This situation may occur where there is sparse development set back from the road on the approach to the town. In this case, it shall not be replaced by a Speed Limit Ahead (G9-79) sign as it is a speed limit in its own right.

Buffer zones established under earlier versions of *AS 1742.4 MUTCD Part 4: Speed controls* may be longer than the previous *AS 1742.4* (2008) requirement of 300 m to 400 m, but shorter than the current minimum desirable length for that speed limit (see *Section 5.2)*. Where the adjacent roadside development supports the speed limit of intermediate value, this speed limit may remain. In these situations, Speed Limit Ahead (G9-79) signs may be installed within this section of intermediate speed zone, provided:

- they meet the requirement for a reduction of 30 km/h or more, and
- they will achieve consistency with the use of Speed Limit Ahead (G9-79) signs other approaches to the town.

Section 6: Risk factors and treatments

The typical speed limit applications identified in Section 5.3 are generally based on combinations of the key factors identified in Section 3.1. However, all roads vary and in some cases a road may not fit with the typical applications. This section identifies methods to take other factors into account when assessing speed limits, and treatments to address these road safety risks.

6.1 Assessing road safety risk to determine the speed limit

Road safety risk tools ANRAM, iRAP (ViDA) or IRR may be used to model the specific combination of these key factors and road attributes to determine a risk based speed limit for the road. Details of the use of the IRR assessment tool (https://irrtool.austroads.com.au/) are provided in Austroads *Infrastructure Risk Rating Manual for Australian Roads (AP-R587A-19)*.

This approach may be applied to determine the speed limits on rural (including rural residential) roads. The preferred approach for higher volume and higher productivity routes (ie roads classified as motorway or arterial according to the Department's Road Classification map http://maps.dit.sa.gov.au/pdfs/stdmaps/StateRoadClassification.pdf or Rural Arterial (Primary) on the Department's Road Features File) is to upgrade the infrastructure to a suitable standard to support speed limits suited to their function, rather than reduce speed limits through a risk based assessment.

A risk based speed limit reduction may be appropriate where the IRR assessment tool indicates the current risk rating on the road is in the High or Medium-High IRR risk band. On Departmental roads, the use of ANRAM or iRAP (ViDA) is preferred. Using the ANRAM tool, the proposed speed limit reduction should reflect a reduction from high to intermediate risk.

A speed limit based on road safety risk should be compared against current speed data where available (see Section 6.2.6 on operating speeds) to provide additional context to the proposed change. Where existing mean speeds are below the new proposed limit, and existing 85th percentile speeds are within 10% of the new proposed limit, the change in speed limit is likely to be considered credible and consistent with typical road user expectations.

NOTE: Applying a risk based speed limit can lead to inconsistencies with speed limits on similar adjacent roads which have not been assessed in this manner. Consideration should be given to reviewing other similar roads within the area for consistency.

6.2 Considering other factors

The key factors in setting speed limits identified in Section 3.1 are taken into consideration in the typical speed limit applications, and also in the individual attributes used in road safety risk tools. The following sections identify other considerations when assessing speed limits:

6.2.1 Visual cues of 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.

Roadside development is an indicator of where concentrations of activity, such as pedestrians, cyclists, vehicles entering or leaving the road, and turning traffic, may occur. Land use is considered to capture typical pedestrian activity levels and hence pedestrian activity is not considered as a separate attribute in risk modelling.

The visual cues of roadside development may be affected by vegetation, fences and topography. Consideration of property access for a house situated close to the road on a typical residential size allotment, but obscured from the road by large front fence, or a steep slope should be the same as that of a house which clearly visible, and both of these situations are considered to be the same when measuring roadside development. By taking into account roadside development when determining speed limits, the safety and amenity can be balanced with the mobility function of the road.

6.2.2 Alignment

The geometric features of a road may influence the speed at which drivers choose to travel. Speed limits should consider the overall standard of road alignment.

Isolated sections of road with adverse alignments should be treated with advisory warning signs. The use of advisory signs is covered in Section 6.4.1. In critical locations, such as approaches to tunnels, level crossings or bridges, it may be necessary to reduce speed limits and use enforcement measures to achieve the desired results.

In sections with adverse vertical alignment, advisory signage may take the form of warning of crests and dips or other hazards rather than indicating a specific advisory speed. This typically applies to roads which meet the description of intermediate speed rural roads in Austroads *Guide to Road Design Part 3: Geometric Design (2021)* Section 3.4).

The speed limit for a section of road that is characterised by closely spaced curves may be set to take into account the recommended safe speed of the curves rather than the straight sections of road. Application of this approach must consider the speed limits on adjacent sections of road to keep the number of speed limit changes to a minimum. Road safety risk tools (see Section 6.1) may assist in determining an appropriate speed limit for this scenario.

NOTE: Setting of a speed limit based on road alignment of closely spaced curves must consider the anticipated driver behaviour on any straight sections of road, including the tendency for drivers to accelerate on these sections, and the loss of potential overtaking opportunities on these sections due to a lowering of the speed limit on the entire section of road. As such, this approach is best adopted on roads where double two-way barrier line exists for the entire length and there is little opportunity for drivers to accelerate between curves. The need for advisory speed signs on curves will also need to be reassessed following any reduction in speed limit.

6.2.3 Road access

Insufficient sight distance at road accesses and intersections (as described in *AS/NZ 2890.1 – Section 3.2.4: Sight distance at access driveway exits* and Austroads *Guide to Road Design Part 4A: Unisgnalised and Signalised Intersections (2021)* Section 3) is not a justification for a lower speed limit on its own and physical improvements to sight distance, such as vegetation

trimming, alterations to parking arrangements or realignment of the access are the preferred measures for improving safety.

RIAWS treatments (see Section 6.3) may be appropriate for isolated intersections with insufficient sight distance where it is not feasible to address this by other measures.

6.2.4 Lane width and the physical speed environment

In urban areas, narrow lane widths may be used to enhance the amenity of the area, providing for a more pedestrian friendly environment with road space allocated to other users (e.g. cyclists, and pedestrians). In combination with different road surface treatments such as contrasting pavement, this can assist in creating a lower speed environment.

Reduced lane widths on low volume rural roads may also contribute to a lower speed environment. Such roads are often unsigned and the rural default speed limit applies, with drivers self-regulating their speed to suit the road conditions. Road safety risk tools may assist in determining an appropriate speed limit where the unsigned rural default is problematic (e.g. where an increase in traffic volume, change in road user type or wide variation of travel speeds necessitates posting of a speed limit).

6.2.5 Traffic patterns and flow

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

Exceptions can be made for specific traffic management plans, including temporary speed limits (e.g. community events, operation of vehicle checking stations) or changing conditions on freeways or expressways. Other exceptions are school zones, work sites and variable speed limits (e.g. high pedestrian activity centres).

Congestion may lead to increased speed variance on urban roads. See Section 6.2.6 for use of speed data (mean speed and speed variance) and setting speed limits to reduce speed variation.

A lower speed limit may be applied where high levels of weaving activity occur along a length of a multi-lane road, increasing the risk of crashes due to the speed differential and lane change manoeuvres between accelerating vehicles entering the road, decelerating vehicles exiting the road and through traffic.

6.2.6 Operating speeds

Speed surveys are used to determine overall traffic speed and volume on a road by a survey of vehicles travelling under free-flow conditions. Austroads *Guide to Traffic Management Part 3: Transport Study and Analysis Methods (2020)* provides guidance on conducting speed surveys.

While 85th percentile speeds are no longer used as a tool for setting speed limits (refer Austroads *Guide to Road Safety Part 3: Safe Speed (2021)* Appendix A for details and commentary), speed data is useful for designing, implementing and evaluating speed management initiatives.

According to Austroads *Model National Guidelines for Setting Speed Limits at High-risk Locations (2014)* Section 11, mean speed data can provide an indication of the typical operation of the road and the behaviour of a "reasonable driver". However, Austroads *Guide to Traffic Management Part 5: Link Management (2020)* Table 7.5 notes that "a reduction of speed limit on the basis of low observed mean speed should be considered carefully".

Information of speed distribution (e.g. speed frequency histogram, standard deviation, coefficient of variation, percentage travelling 10, 20 and 30 km/h over the posted speed limit), as well as any variations between directions of travel, also needs to be considered when utilising speed data in speed limit setting, i.e. mean speed data cannot be considered in isolation as justification for a speed limit reduction. The measurement of mean speed only is insufficient to indicate the overall speed situation (Austroads *Guide to Traffic Management Part 3: Transport Study and Analysis Methods (2020)* Appendix B4).

Austroads *Model National Guidelines for Setting Speed Limits at High-risk Locations (2014)* Section 3.3 provides details on the use of mean speed data in speed limit setting in urban environments where speed variation is high, and such speed variation correlates with increased crash risk.

Speed data can provide an indication of the difference between current speeds and the assessed speed limit prior to implementation. If measured speeds are markedly higher than the assessed speed limit then it may be necessary to consider establishing engineering measures designed to constrain vehicle speeds and consider other measures such as enforcement and public education (Austroads *Guide to Road Safety Part 3: Safe Speed (2021)* Section 7.2). If measured mean speeds are well below the existing speed limit, this may indicate a risk based speed limit assessment (see Section 6.1) be used to determine the appropriate speed limit for the road (Austroads *Model National Guidelines for Setting Speed Limits at High-risk Locations (2014)* Section 8.7).

NOTE: For operating speeds in the road design context, refer to Austroads *Guide to Road Design Part 3: Geometric Design*, and the Department's *Master Specification RD-GM-D1 Road Design*.

6.2.7 Pedestrians and cyclists

The amount of pedestrian and cyclist activity is generally related to the level of roadside development and type of road environment and is therefore taken into account by default when assessing a speed limit based on roadside development and environment.

However, where pedestrian or bicycle facilities are present, but are not typical of the roadside development and environment, a reduced speed limit may be considered. High levels of frequent, regular use of such facilities throughout the year should be evident in order to consider a lower speed limit.

Care should be taken in considering these treatments in isolation. While crossing facilities or bicycle facilities are generally associated with the presence of these users, where these facilities are located within a higher speed environment, their design should suit that environment and not rely on the implementation of a lower speed limit. Warning signs (refer Australian Standards *AS 1742.9 MUCTD Part 9: Bicycle Facilities*, *AS 1742.10 MUTCD Part 10: Pedestrian Control and Protection*, and the Department's *Operational Instructions* and *Supplements*) may be required.

The presence of bicycle or pedestrian facilities adjacent to the road, especially where there is little or no demand to cross the road, are not typically justification for a reduction in speed limit unless additional factors supporting a lower speed limit are also present.

6.3 Rural Intersection Active Warning System (RIAWS / RJAWS)

The Rural Intersection Active Warning System (also referred to as Rural Junction Active Warning System RJAWS) is a road safety treatment which aims to reduce fatal and serious injury crashes at rural intersections by:

- alerting drivers to the presence of vehicles on the side road
- slowing motorists on major road intersection approaches and thus reducing crash likelihood (effectively increasing available stopping distance) and severity (less energy on impact)
- increasing driver awareness and therefore preparing motorists for a possible event (effectively reducing reaction time)
- increasing the gaps between potentially colliding vehicles
- improving Safe Intersection Sight Distance (SISD)

Refer to Austroads *Understanding and Improving Safe System Intersection Performance (2017)* Section 4.9 for background information on this treatment.

RIAWS involves the installation of Variable Speed Limit signs (VSLS) on approaches to intersections which reduce the speed limit by 30 km/h on the main road when the presence of side road traffic is detected. This creates a short section (approximately 300 m) of lower speed limit at the intersection.

Advance warning of the treatment is provided by supplementing the intersection warning sign with a “Lower Speed Limit May Apply” (TES 19612) sign. Supplementing the intersection warning sign in this manner provides drivers with context for the reduced speed limit.

The RIAWS may be installed at intersections where the following factors are present:

- the line of sight on the approaches to the intersection is not adequate
- the side road is not obvious to drivers on the main road
- the risk of right angle crashes is high or there is an existing crash history
- the cost to rectify the line of sight such as realignment is prohibitive
- the speed limit on the major road is 80 km/h or greater
- the intersection is not conspicuous from side roads
- there is a history of driver behavioural issues on the side road such as disobeying Give Way sign or Stop sign (eg reports of run throughs and near misses)
- volume on side roads is preferably less than 1000 vehicles per day.

See Section 7.12 for typical sign layout.

Examples:

Cudlee Creek Road / Fox Creek Road, Cudlee Creek; Bull Creek Road / Paris Creek Road, Paris Creek; McLaren Flat Road / Bakers Gully, Kangarilla; Gorge Road / Torrens Hill Road, Paracombe; Main South Road / Cole Road, Delamere; Angaston Road / Stockwell Road, Angaston; Williamstown Road / Balmoral Road, Cockatoo Valley

6.4 Advisory and reminder treatments

6.4.1 Advisory speed signs

Advisory speed signs (see Section 7.4) are used to inform drivers of changes in alignments (i.e. curves, bends, humps, dips) and of the appropriate speed to negotiate these road features in good weather, traffic and road conditions. Refer to *AS 1742.2 (2022)* clause 4.3 and clause 4.4 and the Department's *Operational Instruction 2.1 Traffic Control Devices for Horizontal Curves* for detailed information.

A regulatory speed limit should not be used in place of advisory speed signs to treat isolated locations. The speed limit for a section of road that is characterised by closely spaced curves may be set according to the recommended safe speed of the curves rather than straight sections of road. Application of this approach must consider the speed limits on adjacent sections of road to keep the number of speed limit changes to a minimum. Road safety risk tools may assist in determining an appropriate speed limit for this scenario.

The Department is supporting a trial of the use of advisory speed signs in a similar manner to the RIAWS treatment described in Section 6.3 (referred to as RIAWS Lite / RJAWS Lite). Future guidance on this treatment will be developed pending the outcome of this trial.

6.4.2 Speed feedback signs

Guidance on the use of Speed Feedback signs (also referred to as Speed Awareness Monitoring signs) is provided in the Department's *Operational Instruction 5.1 Road Safety Message Signs*.

6.4.3 Remember 50 signs

The 'Remember 50 km/h Unless Otherwise Signed' (TES 15342) sign was introduced to assist with educating the public about the 50 km/h default when it was first introduced in 2003. These signs were used at strategic locations on local council roads and served a useful education purpose. While the 50 km/h default urban speed limit is now well understood by drivers, these signs may continue to be used at selected locations by Councils where additional reinforcement of the 50 km/h default message is required in accordance with the conditions below. See Section 7.10.2 for details of the use of these signs.

6.4.4 Unsealed roads 80 km/h signs

Guidance on the use of advisory 80 km/h signs for unsealed roads is provided in the Department's *Operational Instruction 4.10 - Maximum 80 km/h Advisory Sign on Unsealed Roads*.

6.5 Engineering measures

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

Speed data can provide an indication of the difference between current speeds and the assessed speed limit prior to implementation. If measured speeds are markedly higher than the assessed speed limit then it may be necessary to consider establishing engineering measures designed to constrain vehicle speeds and consider other measures such as enforcement and public education.

On local roads these engineering measures may consist of local area traffic management devices in accordance with the Department's *Code of Technical Requirements*, Australian Standard *AS 1742.13 MUTCD Part 13: Local Area Traffic Management*, Austroads *Guide to Traffic Management Part 8: Local Street Management* and the principles of the *Streets for People Compendium*. These documents are applicable to local roads, but the principles may also be adapted to be applied to other roads (also refer Austroads *Guide to Road Design Part 7: New and Emerging Treatments;* Austroads *AP-R642-20 Effectiveness and Implementation of Raised Safety Platforms*). Options such as kerb extensions or other forms of localised narrowing, raised intersections, gateway treatments or perceptual measures may assist in reducing vehicle speeds and improve compliance with lower speed limits on main roads.

The intention of traffic calming devices is to adapt the road to the environment that it serves. The design of the road environment and the use of traffic calming devices should be the main speed reduction tools, as speed limit signs alone are less likely to be obeyed if the road design makes higher speeds attractive.

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, or locations where speed limit has been implemented based on risk.

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

Section 7: Speed limit signing

This section specifies the requirements for the placement and size of signs to ensure consistent speed limit signing practices.

Speed limit marking on the pavement shall not be used.

7.1 Application of regulatory speed limit signs

A speed limit is the number of kilometres per hour indicated within the red circle (annulus) on the Speed Limit (R4-1) sign. Signposted speed limits override the default speed limit that would otherwise apply, but not special speed limits that apply to certain classes of vehicles (i.e. trucks and buses), licences (i.e. learner and provisional drivers) and certain circumstances (i.e. past school buses or in emergency service zones).

7.1.1 Linear speed limits

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.

Linear speed limits are applied to a length of road through the use of speed limit signing at each end. The speed limit may or may not be the same as the default speed limit that would otherwise apply. Where a linear speed limit is the same as the default speed limit, repeater signs indicating the default value along the length of road are not generally used (see Section 7.10 on signing of 50 km/h limits), and speed limit signing is limited to the beginning and end of the length of road.

7.1.2 Area / network speed limits

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, and
- An end area speed-limit sign on each road out of the area.

An area speed limit cannot be applied to road related area under *Australian Road Rule 22(3)*.

In South Australia, area speed limits are usually applied to residential area precincts. Under the *Australian Road Rules*, shared zones and school zones can apply to either a network of roads in an area, or a length of road.

7.1.3 Variable speed limits

Part time or variable speed limits may apply:

- at regular times each day on roads with varying functions throughout the day, for example, high pedestrian activity areas on peak hour routes;
- as seasonal speed limits where traffic or road conditions vary significantly at different times of the year, for example, holiday areas or grain storage facilities; or
- in response to traffic or environmental conditions such as special events with high pedestrian activity, incident management, congestion management, fog, black ice

Signs may be static (with times or conditions, eg “When Lights Flashing”), or electronic.

7.1.4 Offset speed limits

Offset speed limits occur where there are different speed limits in each direction of a road. Offset speed limits are often difficult to enforce and may be confusing to some drivers.

Offset speed limits should only be adopted after careful consideration of road safety and enforcement implications. It may be appropriate to use offset speed limits in the following situations:

- On divided roads where one direction of a road produces a greater risk than the opposing direction (e.g. steep downgrades in combination with poor alignment).
- On divided roads where the roadside development or road geometry on the two sides is markedly different.
- On a undivided road, where a transition speed limit (buffer) is retained to accommodate a geometric deficiency, such as a sub-standard curve.
- At railway level crossing 80 km/h speed limits in accordance with the Department’s *Operational Instruction 4.11 80 km/h Speed Limit at Railway Level Crossings*.
- On a divided or undivided road, to avoid signing an increase in speed limit on the approach to signals or the approach to roundabout.

  Examples: 50 / 60 transition on The Parade, Norwood; 40 / 50 transition on Broadway, Glenelg South

7.2 General signing requirements

A speed zone signing scheme generally consists of:

- Advance warning of speed limit ahead (where required; see Section 7.7)
- Regulatory speed limit signs at the start of the speed limit (see Section 7.3)
- Repeater speed signs to ensure drivers are aware of the speed limit (where required; see Section 7.9)

Refer to *AS 1742.4 (2020)* clause 2.1.2.2 for recommendations and requirements for installing speed limit signs. In addition, the following requirements apply:

- Speed limit signs shall be placed on the left side of the road wherever practicable, and shall be duplicated on the right side of the road where there is a reduction in the speed limit (unless a specific variation to this requirement applies). Signs may also be duplicated on the right side of the road on multilane roads, or where additional signage may be beneficial due to road geometry or the roadside environment.
- Where a speed sign is to be placed near an intersection, the sign should be 20 - 50 m from the intersecting road to ensure that drivers who have turned from the intersecting road have adequate opportunity to read the sign. This distance may be increased in rural, high speed areas to 200 m.
- Signs indicating a higher speed limit should be located on the departure side of intersections to avoid encouraging acceleration prior to an intersection. Offset speed limits (see Section 7.1.4) are permissible in order to meet this requirement.
- Signs shall be used in accordance with the requirements of *AS 1742.4* and the variations and requirements of this document. Sign specification details can be found on the Department's *Standard Road Sign Index (http://www.dteiapps.com.au/signindx/)*. Signs not included on this index shall not be used.

See Sections 7.10 to 7.19 for further requirements for specific types of speed zones.

7.3 Regulatory signs

The following signs are used to prescribe speed limits:

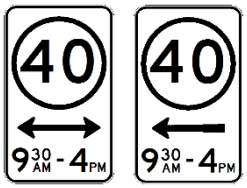
Sign details	Details of use
R4-1 Speed Limit	AS 1742.4 clauses 3.1.3(a), 3.1.4 and 3.1.7
R4-12 End Speed Limit	AS 1742.4 clauses 3.1.3(b) and 3.1.7, and Section 7.8 of this document
R4-10 Speed Limit Area	AS 1742.4 clause 3.1.8 and Section 7.16 of this document
R4-14 Speed Limit Area Reminder	
R4-14 End Speed Limit Area midblock (replaces R4-SA103)	
R4-11 End Speed Limit Area	
R4-4 Shared Zone	AS 1742.4 clause 3.1.10 and Section 7.17 of this document
R4-5 End Shared Zone	
R3-SA58 School Zone sign	Section 7.18 of this document
R4-SA59 End School Zone	
R4-SA60 End School Zone / Speed Limit Area	Section 7.16 of this document
R4-SA61 End School Zone / End Speed Limit Area	

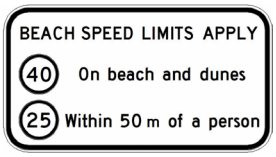
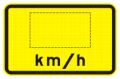
Sign details	Details of use
R4-SA102 Speed Limit with times	Section 7.15 of this document
TES 18371 **When sign above is blank**	AS 1742.4 clause 3.1.12 and Section 7.11 of this document
TES 18516 **Unless lower limit applies**	Section 7.11 of this document
Supplementary plates	AS 1742.4 clause 3.1.11 and Section 7.19 of this document
TES 19687, TES 19689, TES 19688, TES 19690, TES 19691 **Safety camera signs**	The Department's *Operational Instruction 5.1 - Road Safety Message Signs*

7.4 Non-regulatory signs

The following signs are used in conjunction with regulatory speed limits:

Sign details	Details of use
T1-SA109 **Speed Limit Changed** 	When a speed limit is changed, the new speed limit signs shall be accompanied by the temporary installation of 'Speed Limit Changed' (T1-SA109) supplementary plate, for a period of up to 2 months. Where the speed limit change occurs on a road subject to high volumes of seasonal or tourist traffic, this period may be extended to cater for these users.
T1-SA103 **Speed Limit Changed Ahead** 	The T1-SA103 sign shall be installed in advance of new installations of electronic variable speed limits or other temporary speed limits where VMS are not appropriate, available or practical to provide advance warning for a period of two months. Where the speed limit change occurs on a road subject to high volumes of seasonal or tourist traffic, this period may be extended to cater for these users. The location of these signs in advance of the temporary speed limit shall be determined in accordance with Dimension A as specified in *AS 1742.2 (2022)* Appendix D Table D1, for either a significant or low to moderate speed reduction.
T1-SA104 **Speed Limit Changed Ahead (hinged sign)** 	The T1-SA104 hinged sign shall be installed in advance of seasonal speed limits such as grain handling facilities. The location of these signs in advance of the temporary speed limit shall be determined in accordance with Dimension A as specified in *AS 1742.2 (2022)* Appendix D Table D1, for either a significant or low to moderate speed reduction.

Sign details	Details of use
TES 19085 **Speed Limit Changed - 50** 	When a speed limit is changed to 50 km/h, the temporary 'Speed Limit Changed - 50' (TES 19085) signs should be used at a spacing of 200 m to 300 m for a period of up to 2 months. Where the speed limit change occurs on a road subject to high volumes of seasonal or tourist traffic, this period may be extended to cater for these users. This sign is intended to ensure that drivers are informed of the new 50 km/h speed limit (see Section 7.10) without the use of repeater signs for the urban default limit. This sign shall be manufactured from corflute to enable it to be located on existing infrastructure such as lighting poles without the need temporary short term installation of sign posts.
TES 15342 **Remember 50** 	Section 7.10.2 of this document
G9-79 **Speed Limit Ahead** 	Section 7.7 of this document and *AS 1742.4 (2020)* clause 3.1.3(c)
G9-SA131 **Speed Limit Ahead – time based** 	Section 7.15.2 of this document
G9-SA132 and G9-SA133 **Speed Limit Ahead on Side Road – time based** 	Section 7.15.2 of this document
W8-SA106 **Pedestrian Precinct** 	Section 7.15 of this document

Sign details	Details of use
TES 19004 **Unless Lower Limit Applies (yellow)** 	Section 7.11 of this document
TES 19612 **Lower Speed Limit May Apply** 	Section 7.12 of this document
W6-SA106 **School zone warning** 	Section 7.18 of this document
TES 20179 **Beach Speed Limits Information sign** 	Refer to the Department's *Operational Instruction 4.12 Information Sign for Default Beach Speed Limits*
W8-2 **Advisory speed** 	Section 6.4.1 of this document and *AS 1742.4 (2020)* clauses 2.1.2.1(b) and 3.2 Advisory speed (W8-2) signs are used to inform drivers of changes in alignments (i.e. curves, bends, humps, dips) and of the appropriate speed to negotiate these road features. Although the sign provides a warning to approaching drivers, it is not legally enforceable. Determination and signposting of advisory speeds must be done in accordance with *AS 1742.2 (2021)* clause 4.3.4 and the Department's *Operational Instruction 2.1 Traffic Control Devices for Horizontal Curves*.

7.5 Installation and location of signs

Signs shall be installed and located in accordance with the general requirements for sign installation and location in *AS 1742.2 (2022)* Appendix D.

Where possible, signs indicating the speed limit to opposing traffic directions should be fixed back-to-back on a single post.

On divided roads, where the width of the median separating the two carriageways is 3.0 m or less, a single post in the centre of the median is preferred. Where the median width is greater than

3.0 m, separate posts are required for signs installed in the median for each carriageway (see Figure 7.3).

7.6 Sign sizes

Sign sizes shall be in accordance with *AS 1742.4 (2020)* Table 3.2 unless the variations in this section apply.

For sign sizes for different lane configurations see Sections 7.6.1 to 7.6.5.

Where the 'Speed Limit Ahead' (G9-79) signs are required (see Section 5.26 and Section 7.7), these shall be duplicated. Where 'Speed Limit Ahead' (G9-79) signs are installed within a 110 km/h speed zone, or are used to provide advance warning of a speed limit change greater than 30 km/h, they shall be C size.

Where a 90 km/h speed limit on the approach to traffic signals is required (see Section 5.18), R4-1(90) signs shall be C size.

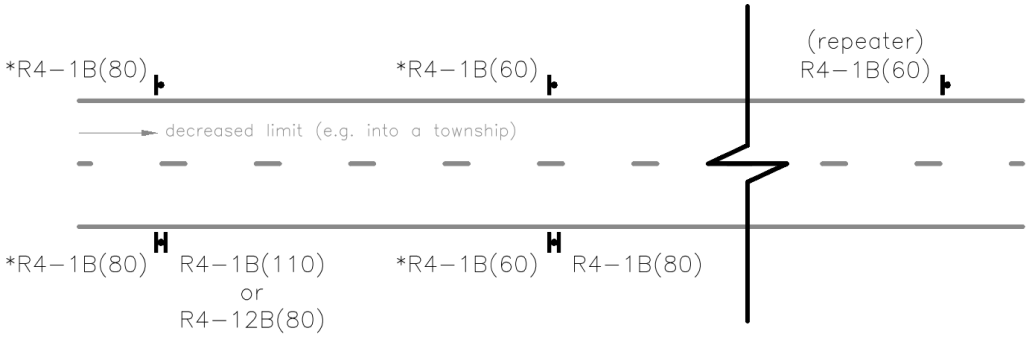
7.6.1 Two lane, two way roads and divided single lane carriageways

Lower Speed Limit: Duplicated R4-1B*

Higher Speed Limit: Single R4-1B or R4-12B. May be duplicated where appropriate.

Repeater signs: Single R4-1B (See Section 7.9). May be duplicated where appropriate.

Figure 7.1 Signing two lane, two way roads and divided single lane carriageways



* R4-1C may be used instead of R4-1B where additional emphasis is necessary due to potentially high approach speeds or where the roadside environment is particularly distracting.

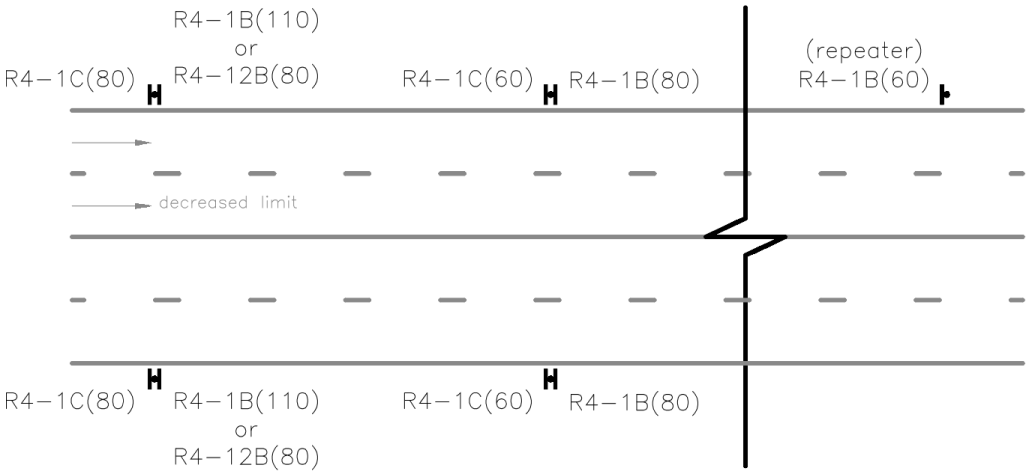
7.6.2 Undivided multi-lane roads

Start of lower speed limit: Duplicated R4-1C

Higher Speed Limit: Duplicated R4-1B or R4-12B

Repeater signs: Single R4-1B (See Section 7.9). May be duplicated where appropriate.

Figure 7.2 Signing undivided multi-lane roads



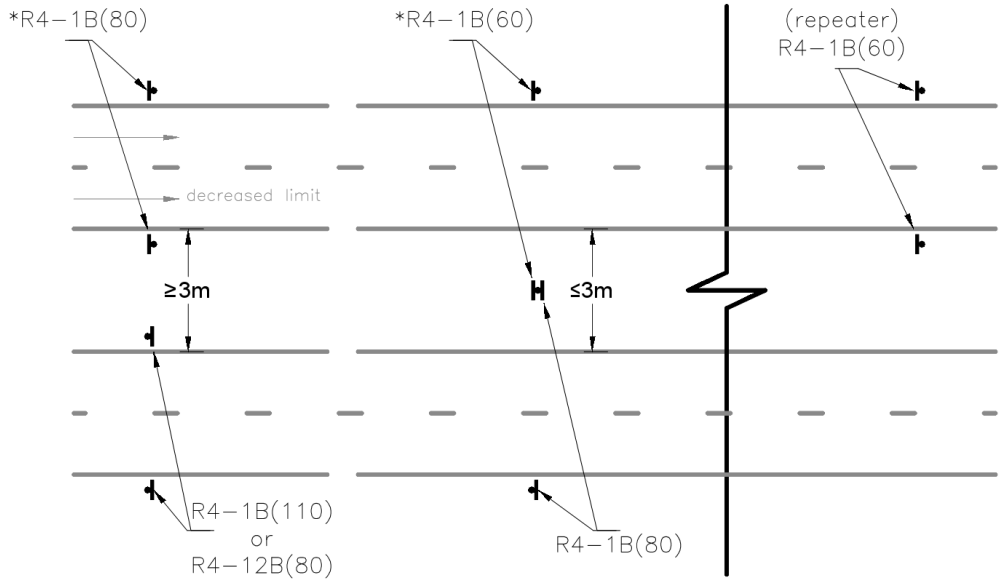
7.6.3 Divided two lane carriageways

Lower Speed Limit: Duplicated R4-1B*

Higher Speed Limit: Duplicated R4-1B or R4-12B

Repeater signs: Duplicated R4-1B (See Section 7.9)

Figure 7.3 Signing divided two lane carriageways



* R4-1C may be used instead of R4-1B where additional emphasis is necessary due to potentially high approach speeds or where the roadside environment is particularly distracting.

7.6.4 Divided three or four lane carriageways

Lower Speed Limit: Duplicated R4-1C

Higher Speed Limit: Duplicated R4-1B or R4-12B

Repeater signs: Duplicated R4-1B (See Section 7.9)

7.6.5 Expressways / Freeways

All signs: Duplicated R4-1C

7.7 Advance warning of lower speed limit (formerly buffer)

Where there is a reduction in speed limit on a length of road **of 30 km/h or more**, Speed Limit Ahead (G9-79) signs shall be installed to provide advance warning of the lower limit.

NOTE: This is a departure from the requirement of *AS 1742.4 (2020)* clause 3.1.3(c).

A speed limit buffer comprising a speed zone of intermediate value shall not be used.

Speed Limit Ahead (G9-79) signs are not used in advance of school zones or 25 km/h speed limits applying at koala crossings as there are alternative advance warning signs for these situations. Speed Limit Ahead (G9-79) signs are also not used in advance of shared zones as the geometry and entrance design of the shared zone physically slows drivers.

When there is a need for an existing speed limit buffer to be altered, the Speed Limit Ahead (G9-79) sign shall be installed. If a change occurs for one approach to a town, consideration should be given to changing all approaches for consistency, where appropriate. See Section 5.26 for further details.

Where there is a series of 30 km/h speed limit reductions (e.g. 110 km/h to 80 km/h to 50 km/h), the 'Speed Limit Ahead' (G9-79) sign shall only be used in advance of the intermediate speed limit if it meets the minimum desirable length (see Section 5.2) for that speed limit.

The 'Speed Limit Ahead' (G9-79) sign should typically be located 300 m to 400 m before the start of the lower speed zone. This distance may be reduced to Dimension A in *AS 1742.2 (2022)* Appendix D Table D.1, for example, in constrained environments such as freeway exit ramps, or to avoid conflict with advisory speed signs. In this table, V_{85} is the speed on approach to the G9-79 sign.

Table 7.1 Extract of *AS 1742.2 (2022)* Appendix D Table D.1

Dimension	Situation	V_{85} km/h		
		< 75	75 - 90	> 90
Dimension A	ii) Significant speed reduction required	60 - 80	80 - 120	120 - 180
	iii) Low to moderate speed reduction required	40 - 60	60 - 80	80 - 120

7.8 End Speed Limit (R4-12) signs

In addition to the requirements of *AS 1742.4* clause 3.1.3(b), the END Speed Limit sign may be used at the end of a section of lower limit where it is not practical or desirable to sign the default urban speed limit with an R4-1 sign at that location.

7.9 Repeater signs

Repeater signs shall be installed in accordance with the requirements of *AS 1742.4 (2020)* clause 3.1.6, and the following:

- Use of 50 km/h repeater signs shall be in accordance with Section 7.10.1.
- Single repeater signs may be duplicated where appropriate based on specific site conditions
- Engineering judgement should be applied to adjust the spacing of repeater signs as required to ensure their use is not excessive and locations are appropriate.
- Repeater signs may be used to reinforce the speed limit after a discontinuity in a road, for example, an unusual intersection where a road name change occurs. In this case there may be doubt as to whether the speed limit continues on through the discontinuity and a repeater sign (duplicated if required) may be installed to confirm the limit which applies beyond the discontinuity.
- A single repeater sign on the left hand side may be installed just beyond the beginning of lowest speed limit in the series of speed limit reductions on the main road approach to a rural town or outer metropolitan development. Where used, it shall be spaced in accordance with the requirements of *AS 1742.2 (2022)* Appendix D Table D.1, based on the speed limit of the approach.
- Where a 60 km/h speed limit applies to an urban arterial road or main road in a rural town, repeater signs shall be installed after major intersections, or at intervals of approximately 800 m. Repeater sign spacing may be reduced to approximately 500 m where appropriate to ensure signs are conspicuous.
- Repeater signs for 110 km/h speed limits shall be placed on the exits of major intersections. Repeater signs for 110 km/h speed limits at other locations are generally not required as it is considered unnecessary to reinforce the message of the higher 110 km/h speed.
- Repeater signs for 100 km/h speed limits shall be placed on the exits of major intersections where the intersecting road has a speed limit of 110 km/h.
- Where repeater signs for 100 km/h or 110 km/h speed limits are used on the exits of major intersections, the signs should be installed at a distance of approximately 300 m from the intersection. Where major intersections are less than 1 km apart, repeater signs shall only be installed after the second intersection. Where reassurance direction signs exist on the exit of roads, the speed limit signs shall be placed approximately 150 m beyond the reassurance sign.
- The location and spacing of repeater signs on freeways / expressways may need to be adapted to suit the locations of LUMS or interchanges.

7.10 Signing of the 50 km/h (urban default) speed limit

7.10.1 Use of R4-1(50) signs

In 2003, the default urban speed limit was reduced from 60 km/h to 50 km/h. At that time, the speed limit on many main roads and some collector roads in built-up areas remained at 60 km/h, and these roads were signed with a 60 km/h speed limit, with repeater signs at regular intervals to remind drivers of the speed limit. Since that time, many of these roads have been reduced to 50 km/h, with previous 60 km/h signs replaced with 50 km/h signs to inform drivers of the change. This results in the use of repeater 50 km/h signs on some roads, and an expectation from the public that 50 km/h signs be installed on other roads.

The Department is periodically reviewing the use of 50 km/h signs on the network in order to achieve consistency in their use.

The use of 50 km/h speed limit signs on roads in South Australia is as follows:

- Where a speed limit review results in a speed limit being reduced to the 50 km/h default speed limit, installation of 50 km/h speed limit signs is minimal in order to maintain a consistent approach to the treatment of the default speed limit, which applies in the absence of signs. The temporary 'Speed Limit Changed - 50' (TES 19085) sign was developed to inform drivers of the change in speed limit to 50 km/h (see Section 7.4) in lieu of permanent R4-1(50) repeater signs.
- 50 km/h speed limit signs shall be installed at the start of the urban area in accordance with *AS 1742.4 (2020)* clauses 3.1.5 and 3.1.7.
- Where a 50 km/h speed limit applies to an urban arterial road (see Section 5.9), repeater signs may be installed after major intersections, or at changes in the road environment where it may not be obvious that the 50 km/h speed limit still applies.
- Where an urban collector road which has been designated by the local Council as performing a traffic function similar to an arterial road, it may be treated as an urban arterial road with respect to the use of 50 km/h repeater signs.
- Where a 50 km/h speed limit applies to a main road through a rural town or outer metropolitan area, 50 km/h speed limit signs should only be installed at the start of the section of road. A single repeater sign on the left hand side may be installed just beyond the beginning of lowest speed limit in the series of speed limit reductions on the main road approach to a rural town or outer metropolitan development. Where used, it should be spaced in accordance with the requirements of *AS 1742.2 (2022)* Appendix D Table D.1, based on the speed limit of the approach.
- 50 km/h repeater signs may be used where a section of main road through a rural town or outer metropolitan area which is less developed than adjacent sections such that the speed limit may appear inconsistent with the surrounding development (e.g. it may be unclear to drivers whether the section of road still meets the *Australian Road Rule* definition of "built-up")
- Where the development on a section of road is too short to meet the Australian Road Rule definition of "built-up" (i.e. less than 500 m), but the type of development is consistent with

adjacent urban roads, and the length of road is too short to be signposted at a higher limit, a 50 km/h speed limit sign may be installed to provide clarity of the speed limit which applies.

7.10.2 Use of Remember 50 (TES 15342) signs

The 'Remember 50 km/h Unless Otherwise Signed' (TES 15342) signs may be used at selected locations on roads which are not primarily traffic routes where additional reinforcement of the 50 km/h default message is required. They shall only be used where one (or more) of the following conditions are met:

- Beyond the start of the 50 km/h default where there is a reduction from another speed limit and there is evidence that the limit is not being adequately observed.
- On collector roads just beyond important intersections for the benefit of traffic which has turned from another road which is subject to a higher speed limit.
- On sections of roads within the built-up area boundary where there is less development than adjacent sections such that it may be unclear to drivers whether the road still meets the Australian Road Rule definition of "built-up".

The 'Remember 50' (TES 15342) sign **shall not** be used as a regular reminder of the default speed limit and shall not be installed at regular intervals along a road.

The 'Remember 50' (TES 15342) sign **shall not** be used on roads where a local area traffic management scheme applies.

Councils may install this sign in accordance with their *Instrument of General Approval* and the requirements of this document, and separate approval from the Commissioner of Highways or authorised delegate is not required.

7.11 Signing for electronic variable speed limits

Variable speed limits signs (VSLS; also referred to as Electronic Regulatory Speed Sign (ERSS)) shall be established using LED electronic variable speed limit signs. For enforcement purposes the variable speed limit signs must have the times when the speed limit is changed recorded and time stamped by the control system.

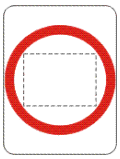
Variable speed limit signs shall comply with the requirements and recommendations of *AS 1742.4 (2020)* clause 3.1.12.

Sign details	Details of use
R4-1 **Speed Limit (electronic)** 	Unless otherwise specified, electronic variable R4-1 signs shall be located in accordance with the requirements for static signs. Refer to Austroads *Guide to Smart Motorways* and Austroads *Guide to Traffic Management Part 9: Transport Control Systems, Strategies and Operations* (2020) for the use of Lane Use Management Systems (including Variable Speed Limits). See Section 7.12 for their use in conjunction with RIAWS treatments. See Section 7.15.2 for their use in high pedestrian activity area speed zones.

Sign details	Details of use
TES 18371 **When Sign Above is Blank** 	Where the speed limit which applies when the VSLS is blank is different to the preceding static speed limit sign (or previous TES 18371 sign), or the VSLS sign is the first speed limit sign that traffic entering from an entry ramp passes, the VSLS shall be supplemented with the TES 18371 sign.
TES 18516 **Unless Lower Limit Applies** 	Where the speed limit is set by LUMS / VSLS, any other speed limit sign within the section (eg a posted speed limit applicable to specific vehicle types such as trucks and buses) shall be supplemented with "Unless Lower Limit Applies" (TES 18516) sign
TES 19004 **Unless Lower Limit Applies** 	Where the speed limit is set by LUMS / VSLS, advisory speed signs on curves or exits need to be supplemented with "Unless Lower Limit Applies" (TES 19004) sign

7.12 Signing for RIAWS / RJAWS treatment

The following signs are used for the RIAWS / RJAWS treatment:

Sign details	Details of use
R4-1 **Speed Limit - Electronic** 	A single R4-1 VSLS shall be located on the main road on both approaches to the intersection, 150 m prior to the intersection. The VSLS will display a speed limit 30 km/h below the prevailing limit when a vehicle is detected on the side road. While a reduction in speed limit typically involves the use of duplicated signs, preliminary trials involving the use of a single sign on the left hand side have demonstrated successful results.
Static 	A single static R4-1 sign shall be located on the main road on both departure sides of the intersection, approximately 150 m from the intersection, indicating the prevailing speed limit for the road. This distance may be reduced where necessary to suit site conditions, e.g. achieving adequate separation from other advisory speed sigs beyond the intersection.

Sign details	Details of use
TES 19612 Lower Speed Limit May Apply 	The "Lower Speed Limit May Apply" (TES 19612) sign shall be used in combination with the appropriate intersection warning sign (refer *AS 1742.2* clause 2.9.3 and 2.9.5), and Distance x m (W8-5) sign on the main road, 250 m prior to the intersection on both approaches. These signs shall be C size.
Direction signs (optional)	Where direction signs (e.g. advance direction, or advance street name signs) are located on approach to the intersection, these may need to be relocated to achieve adequate spacing between consecutive signs (in accordance with *AS 1742.2* clause D2.2, 0.6 V m apart, where V is the 85th percentile speed in km/h). Direction signs should be located in accordance with *AS 1742.15 MUTCD Part 15: Direction signs, information signs and route numbering*. Where this cannot be achieved, direction signs may be located at least 0.6V m prior to the TES 19612 sign combination.

7.13 Signing of signalised intersections in high speed environments

Where a localised speed limit is required for a signalised intersection on a high speed road (see Section 5.18), it should be signed as follows:

- Duplicated C size speed limit signs must be provided at the start of the speed zone, typically 300 m to 400 m on approach to the signals
- For divided roads, offset speed limits are permitted and return to speed signs may be installed 100 m to 200 m on the departure side of the intersection.

Additional warning signs in advance of the speed limit reduction may be required to advise drivers of the reason for the speed limit reduction, particularly if there are a lack of visual cues such as visible development. These may include Traffic Signals 1 km Ahead (TES 20159), Speed Limit Ahead (G9-79), and Reduce Speed Now - Signals Ahead (TES 14234).

7.14 Signing of exit ramps for expressway / freeway and interchanges

For the use of Exit Speed x km/h (W1-9 Series) signs on exit ramps, refer to *AS 1742.2 (2022)* clause 3.5.3(c).

Where W1-9 Series signs are required on the exit ramp due to the geometry, a regulatory speed limit should only be applied where the road beyond the exit ramp requires a different speed limit from the main alignment, for example, at the start of a built-up area. In this situation, Speed Limit Ahead (G9-79) signs are generally not required as the geometry and Exit Speed signs reduce speeds on approach. The R4-1 sign shall be located beyond the curve, curves or loop such that both signs are not visible at the one time.

Where the geometry of the exit ramp does not regulate vehicle speeds on exit from the expressway / freeway, and the road beyond the exit ramp requires a different speed limit, Speed Limit Ahead (G9-79) signs may be installed on the ramp in advance of the R4-1 signs, typically located 300 m to 400 m before the start of the lower limit. This distance may be reduced in

accordance with *AS 1742.2 (2022)* Appendix D (see Table 7.1 for extract). Refer to *AS 1742.4 (2020)* clause 3.1.11(c) for additional guidance on the use of G9-79 signs on exit ramps.

Where the geometry of the exit ramp does not regulate vehicle speeds on exit from the expressway / freeway, and the road beyond the exit ramp does not require a different speed limit, and the ramp ends at a possible stop condition or a significant reduction in speed (of more than 30 km/h), the Reduce Speed Now (GE9-3) sign should be used. Refer *AS 1742.2 (2022)* clause 3.6.2(b) for additional guidance and placement.

Advance warning of the type of control at the end of the ramp (signals, roundabout, Stop or Give Way) may also be required. Refer *AS 1742.2 (2022)* clause 3.5.3(c) and clause 2.10.2.

NOTE: On expressway / freeway exit ramps, other features such as the location and information on the advance direction sign, visible development, overpasses for pedestrians and/or other local roads may provide cues to the driver of the approaching road environment and may allow advance warning of a lower speed limit to be omitted. The above signing requirements may need to be modified to take into account the specific geometry, features and limitations of the particular ramp.

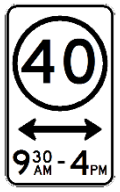
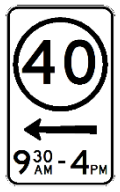
7.15 Signing for high pedestrian activity areas

Speed limit signs for high pedestrian activity areas shall be installed in accordance with the following requirements and details of use. Signs shall be duplicated minimum ‘B’ size.

Speed limit signs shall be installed within the driver’s line of sight such that they are visible to all drivers in all lanes. Vegetation and other roadside furniture must be taken into account to ensure a clear line of sight to the signs.

A ‘gateway’ or ‘precinct threshold’ treatment should be provided where the start of the 40 km/h speed limit is preceded by a higher speed limit to ensure the road users are aware that the road conditions are different from the surrounding road network.

Sign details	Details of use
R4-1 **Speed Limit** 	Speed limit (R4-1) signs shall be installed at the start of a full time high pedestrian activity area speed limit, and at the end of all types of high pedestrian activity area speed limit. Where the start of the high pedestrian activity area occurs at or near an intersection, speed signs shall be placed approximately 20 m to 50 m from the intersection. The start of the high pedestrian activity area speed limit should be located approximately 20 m to 50 m prior to the start of the high pedestrian activity area. See Section 7.1.4 for signing of offset speed limits at the end of the speed limit where applicable. See Section 7.15.1 for repeater signs.
R4-1 **Speed Limit** **(electronic)** 	Electronic variable R4-1 signs shall be used at the start of a part time high pedestrian activity area speed limit where required in accordance with Section 7.11. It shall be installed in accordance with the requirements for R4-1 Speed Limit signs above. Also see Section 7.1.3 for the requirements for variable speed limit signs, and below for the use of the W8-SA106 Pedestrian Precinct supplementary plate.

Sign details	Details of use
W8-SA106 **Pedestrian Precinct supplementary plate** 	Where variable speed limit signs are used, the Pedestrian Precinct supplementary plate (W8-SA106) shall be used to supplement the variable R4-1 sign at the start of the pedestrian activity centre speed limit.
R4-SA102 **Time based Speed Limit** 	Where a part time speed limit is signed with static signs, the time based speed limit (R4-SA102) sign shall be used. It may also be used as a repeater sign in combination with variable speed limit signs within the high pedestrian activity centre.
G9-SA131 **Speed limit ahead (with times)** 	The G9-SA131 sign should be used to provide advance warning to drivers entering the part time speed limit from side roads **where the side road terminates** at the intersection, and the part time speed limit applies in both directions on the main road. It may be omitted where the sign on the main road is clearly visible to traffic entering from the side road. Where used, it shall be installed 20 to 50 m on the approach to the intersection with the main road.
G9-SA132 **Speed limit ahead (with times, both directions)** 	The G9-SA132 should be used to provide advance warning to drivers entering the part time speed limit from side roads **where the side road continues** over the main road and the 40 km/h speed limit applies in both directions on the main road. It may be omitted where the sign on the main road is clearly visible to traffic entering from the side road. Where used, it shall be installed 20 to 50 m on the approach to the intersection with the main road.
G9-SA132 **Speed limit ahead (with times, one direction)** 	The G9-SA133 should be used to provide advance warning to drivers entering the part time speed limit from side roads **where the side road continues** over the main road and the 40 km/h speed limit applies in one direction on the main road. It may be omitted where the sign on the main road is clearly visible to traffic entering from the side road. Where used, it shall be installed 20 to 50 m on the approach to the intersection with the main road.

7.15.1 Location of repeater signs

Repeater signs shall be located in accordance with Table 7.2, subject to the physical constraints of the site. They shall be duplicated and arranged in a staggered fashion if it is considered that this will give an increased effect in busy precincts.

'Major' intersections are all arterial intersections, intersections with collector roads or signalised intersections. Once this requirement is met, additional repeater signs may be spaced according to meet the requirements of Table 7.2.

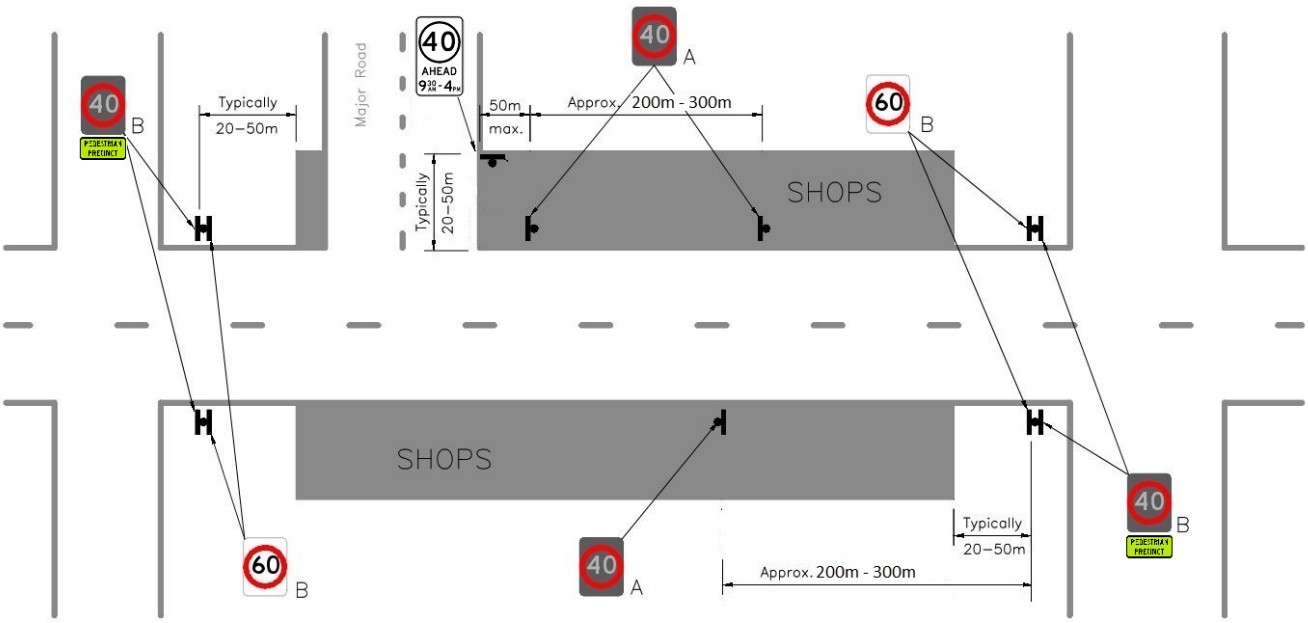
Table 7.2 High pedestrian activity area sign locations

Location	Distance
Departure side of all major intersections	20 m – 50 m from the intersection
Within first km	200 m to 300 m
Intervals beyond first km	Approximately 500 m

7.15.2 Part time 40 km/h speed limits in pedestrian activity centres

Where a part time 40 km/h speed limit is appropriate in accordance with Section 5.7.1, it shall be signed in accordance with the requirements above, and as shown in Figure 7.4.

Figure 7.4 Typical part time high pedestrian activity centre signing



Notes:

1 B size variable speed signs with W8-SA106 supplementary plate at start of part time high pedestrian activity area speed limit.

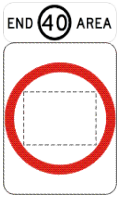
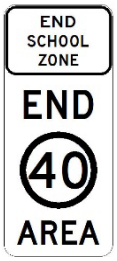
2 B size R4-1 signs at end of part time high pedestrian activity area speed limit.

3 A size repeater signs.

7.16 Signing for speed-limited areas

A speed-limited area requires a 'Speed Limit Area' (R4-10) sign to face drivers at each entrance to the precinct, and an 'End Speed Limit Area' (R4-11) sign to face drivers at each exit from the precinct (*Australian Road Rule 22(2)*).

Sign details	Details of use
R4-10 **Speed Limit Area** 	The start of the speed limit area shall be signed with duplicated 'B' size 'Speed Limit Area' (R4-10) signs within the driver's line of sight. To ensure an adequate legibility distance, signs should ideally be placed not closer than 40 m after an intersection, bend, or other physical feature that may divert drivers' attention to negotiate it. Ideally, drivers should have an unobstructed view of the sign from a distance of 40 m until 10 m from the sign. Vegetation and other roadside furniture must be taken into account to ensure a clear line of sight to the signs. The 'Speed Limit Area' (R4-10) signs should be located to meet the following requirements: • Signs should be located 20 m to 50 m from the intersection and located to maximise the visibility of sign for approaching drivers while taking into account the physical constraints of each site. • Signs should not be placed closer than 0.6V metres (where V is the area speed limit) before another sign, intersection, bend or other physical feature that may divert drivers' attention to negotiate it. • Signs on roads with steep grades must be placed so drivers see the sign before their vehicle is sufficiently influence by the gradient to maintain their low speed. Where a **school zone** is located directly adjacent to the boundary of the speed-limited area, the R4-10 sign shall precede the R3-SA58 school zone sign, while maximising the distance between the two signs. The 'Speed Limit Area' (R4-10) sign shall also be used at the end of the 25 km/h speed limit for a **koala crossing** within a speed-limited area.
R4-11 **End Speed Limit Area** 	A single 'B' size 'End Speed Limit Area' (R4-11) sign shall be installed to the left of drivers at each exit from a speed-limited area where the speed limit beyond the sign is the default speed limit. This sign would generally be installed back-to-back with the 'Speed Limit Area' (R4-10) sign.

Sign details	Details of use
R4-13 with R4-1 **End Speed Limit Area Midblock** **(replaces R4-SA103)** 	In situations where the speed limit beyond the 'End Speed Limit Area' sign is a linear speed limit other than the default, a single 'End Speed Limit Area' (R4-13) sign shall be mounted above the R4-1 'B' size speed limit sign for the continuing speed limit. The sign combination shall be installed on the left hand side at each exit from a speed-limited area. The sign combination may be installed back-to-back with the 'Speed Limit Area' (R4-10) sign, and may be duplicated.
R4-14 **Speed Limit Area Reminder** 	Single 'A' size 'Speed Limit Area Reminder' (R4-14) signs shall be installed as repeater signs on the left hand side at appropriate intervals as determined by an experienced traffic engineering practitioner, up to a maximum of 500 m intervals. Austroads *Guide to Traffic Management Part 8: Local Area Traffic Management* considers street section lengths (i.e. between slow or near stop conditions) shorter than 250 m to be effective in reducing speeds. Streets which carry relatively high speed traffic, or higher than average volume of traffic may benefit from closer spacing of repeater signs.
R4-SA60 **End School Zone Speed Limit Area** 	At the end of a school zone within a speed-limited area, the 'End School Zone 40 Area' (R4-SA60) sign shall be used. **NOTE:** The 'Speed Limit Area' (R4-10) sign shall be used at the end of the 25 km/h speed limit for a koala crossing within a speed-limited area.
R4-SA61 **End School Zone End Speed Limit Area** 	Where a school zone is located directly adjacent to the boundary of the speed-limited area, the R4-10 sign shall precede the R3-SA58 school zone sign, while maximising the distance between the two signs. In these situations, the end of a school zone will coincide with the end of the speed-limited area and the R4-SA61 sign shall be used to end both the school zone and the speed-limited area. **Example:** Sturdee Street, Flinders Park;

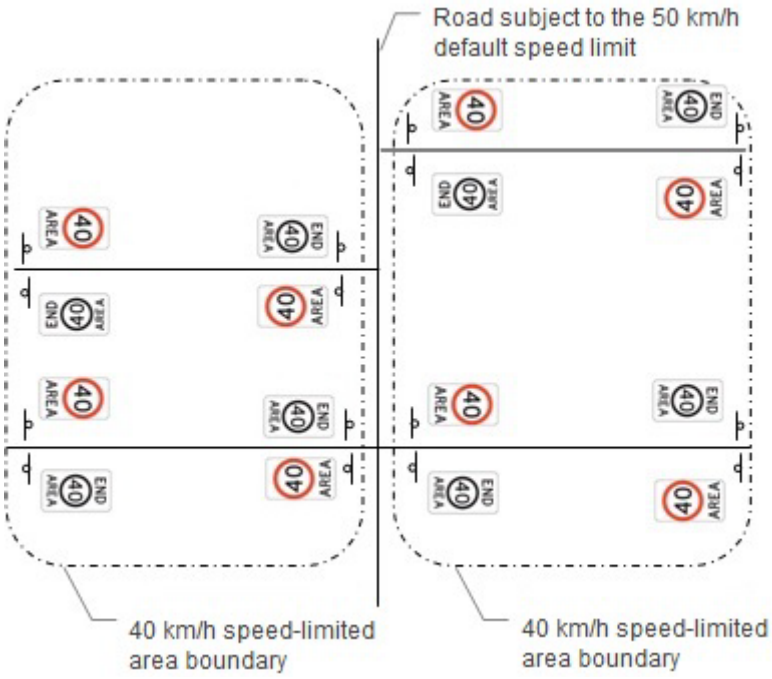
To ensure the these signs are prominent, the left hand sign should be placed:

- no more than 5 m from the centre of the road or dividing line for two lane, two way roads, or
- no more than 5 m from the left hand edge of a median for divided single lane carriageways, or
- no more than 5 m from the lane line for multi-lane roads.

Kerb extensions may be required to meet this criteria. In locations where it may be impractical to install kerb extensions, additional repeater signs may be required to ensure the speed limit is prominent, or other physical controls may need to be considered to assist with controlling speeds.

Where a road through the speed-limited area is to retain the default urban speed limit for its entire length, the speed limit areas on either side shall be signed as separate speed-limited areas, with 'End Speed Limit Area' (R4-11) signs on each exit from each area, and 'Speed Limit Area' (R4-10) signs on each entry (see Figure 7.5). This is to avoid the difficulties associated with signing the entire length of road as at 50 km/h within the speed-limited area, and the potentially confusing signing practice of installing a linear 'Speed restriction' (R4-1) sign immediately after the Speed Limit Area (R4-10) sign at the start of the road.

Figure 7.5 Signing for the 50 km/h default within a speed-limited area



* Note that duplicate and repeater signs are not shown on this figure.

7.17 Signing for shared zones

A shared zone requires a 10 km/h 'Shared Zone' (R4-4) sign to face drivers at each entrance to the shared zone, and an 'End Shared Zone' (R4-5) sign to face drivers at each exit from the zone. A shared zone may consist of a single street, or a network of streets (*Australian Road Rule 24(2)*).

Sign details	Details of use
R4-4 **Shared zone** 	The start of the shared zone shall be signed with duplicated 'A' size 'Shared Zone' (R4-4) signs within the driver's line of sight. Repeater signs are not normally required with a shared zone as the overall design of the street should create a very low speed, pedestrian dominant environment which promotes safer driver behaviour.

Sign details	Details of use
R4-4 **Shared zone** **(continued)**	A single 'A' size 'Shared Zone' (R4-4) sign may be used as a repeater sign where there is evidence of sections of poor driver compliance within the zone. Where driver compliance with the shared zone is poor throughout the length of the zone, additional signs are unlikely to improve driver behaviour. A review of the overall design of the shared zone shall be conducted to identify deficiencies and improvements.
R4-5 **End Shared Zone** 	A single 'A' size 'End Shared Zone' (R4-5) sign shall be installed to the left of drivers at each exit from the shared zone. This sign would generally be installed back-to-back with the 'Shared Zone' (R4-4) sign

Other signage at the entrance to a shared zone should be minimised to ensure that the Shared Zone (R4-4) signs dominate and that the entrance is not highlighted as a potential through route to traffic. Non-essential signs at the entrance must be removed. Warning signs for LATM devices such as road humps within the shared zone are not required.

7.18 Signing for school zones

The sign assembly denoting the start of the school zone as specified in *AS 1742.4 MUTCD Part 4: Speed controls (2020)* shall not be used.

A school zone requires a 25 km/h 'School Zone' (R3-SA58) sign to face drivers at each entrance to the school zone, and an 'End School Zone' (R4-SA59) sign to face drivers at each exit from the zone. A school zone may consist of a single road, or a network of roads (*Australian Road Rule 23(2)*).

Sign details	Details of use
R3-SA58 **School zone** 	The start of the school zone shall be indicated by the 'School Zone' (R3-SA58) sign and shall be installed in accordance with the following: • The posted speed limit shall be 25 km/h. • On arterial roads, the sign shall be B size and duplicated. For most residential streets, a single 'A' sized sign on each approach is sufficient. • Drivers shall have an unobstructed view of the face of the sign when approaching the school zone from a distance of 60 m to 80 m. The presence of vegetation, parked cars, and buses at bus stops should be taken into account when assessing the visibility to the sign. • The sign may be repeated within school zones to remind drivers they are still within the zone.

Sign details	Details of use
R4-SA59 **End School Zone** 	The end of a school zone shall be indicated by the 'End School Zone Speed Limit' sign (R4-SA59), or as detailed in *AS 1742.4 MUTCD Part 4: Speed controls*, with the 'End School Zone' (R4-9) sign located above the 'Speed restriction' (R4-1) sign.
W6-SA106 **School zone warning** 	The school zone warning sign shall be used in advance of school zones: • located on unsealed roads, or • where the school zone is unexpected.

7.18.1 Zigzag pavement markings

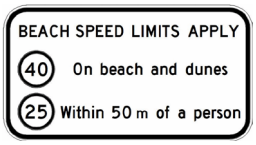
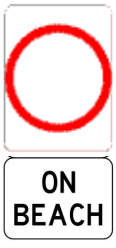
A zigzag pavement marking shall be used in advance of all school zones on sealed roads in accordance with the Department's *Pavement Marking Manual*.

Zigzag markings give drivers important additional warning they are entering a school zone and shall not be used for any other purpose.

7.18.2 School pavement marking

The 'School' pavement message may be used where visibility to the start of the school zone may be limited by the horizontal or vertical alignment of the road. This message may supplement the 'School Zone Warning' sign (W6-SA106) in which case the message shall be adjacent the sign.

7.19 Signing for speed limits on beaches

Sign details	Details of use
TES 20179 **Beach Speed Limits Information sign** 	Refer to the Department's *Operational Instruction 4.12 Information Sign for Default Beach Speed Limits*
R4-1 & TES 18837 **Speed limit On Beach** 	For speed limits other that the default limit on beaches, signs at vehicle access points to the beach should be a minimum 'B' size and be accompanied by the 'On Beach' (TES 18837) supplementary plate. Signs installed along the beach shall be clearly visible, minimum 'C' size and not too far laterally from the general travelled path. If signs can be installed adjacent to the travelled path, 'B' size signs may be used.

7.19.1 Default speed limit

Refer to *Operational Instruction 4.12* for guidance on the use of the information sign TES 20179 which may be installed to remind drivers of the default speed limits prescribed by *Regulation 8A* of the *Road Traffic (Road Rules – Ancillary and Miscellaneous Provisions) Regulations 2014* which apply.

Appendix A: References

A1 Government plans

- *South Australia's Road Safety Strategy to 2031*
  (This document is accessible through https://www.thinkroadsafety.sa.gov.au/road_safety_strategy)
- *National Road Safety Strategy 2021-30*
  (This document is accessible through https://www.roadsafety.gov.au/nrss)
- *Australia's Safe System approach*
  (This document is accessible through https://www.roadsafety.gov.au/nrss/fact-sheets/vision-zero-safe-system)
- *Streets for People: A Compendium for South Australian Practice*

A2 Acts and Regulations

- *South Australia - Australian Road Rules* under the *Road Traffic Act 1961*
- *Road Traffic (Road Rules – Ancillary and Miscellaneous Provisions) Regulations 2014*
- *Road Traffic Act 1961*
- *Motor Vehicles Act 1959*

(These documents are accessible through https://www.legislation.sa.gov.au/)

A3 Department for Infrastructure and Transport documents

- *Manual of Legal Responsibilities and Technical Requirements for Traffic Control Devices*
  Part 1: Legal Responsibilities ('the Instruments')
  Part 2: Code of Technical Requirements ('the Code')
- *Standard Road Sign Specifications*
- *Pavement Marking Manual*
- *Operational Instructions*
- *SA Standards for Workzone Traffic Management*
- *Guidelines for Events on SA Roads*

(These documents are accessible through https://www.dit.sa.gov.au/standards/standards_and_guidelines)

- *A Functional Hierarchy for South Australia's Land Transport Network*
- *DIT Master Specification*
  (This document is accessible through https://dit.sa.gov.au/contractor_documents/masterspecifications)

A4 Speed management on shared paths references

- *Austroads (2006) AP-R287/06 Pedestrian-Cyclist Conflict Minimisation on Shared Paths and Footpaths*
- *Austroads (2021) Guide to Road Design Part 6A: Paths for Walking and Cycling*
- *City of Darwin Darwin Shared Path and Bicycle Lane Technical Notes - 11. Managing Speeds on Shared Paths*
- *Transport and Main Roads (2014) Technical Note TN130 Speed management on shared paths*

Appendix B: Shared zone design principles

B1 Shared zone design principles

Because the low speed design of a shared zone is critical, the following design principles must be met:

- Entrance - Each entrance to a shared zone must be designed so that drivers make a conscious decision to enter the shared zone (See Section B2).
- Shared zone design - the internal physical design of a shared zone should be such that it is not possible for drivers to proceed through it at much more than a walking pace. It should be designed as a 'mall-with-traffic' rather than a 'street-with-pedestrians'.
- The length of the shared zone should be minimised to support driver compliance with the very low speed limit. Shared zones greater than 160 m in length (equivalent to 60 seconds of travel at 10 km/h) should be avoided.
- Clear direction for a driver to take - the intended vehicular path through the shared zone must be made clear to both drivers and pedestrians, while avoiding the traditional carriageway-footpath distinction (See Section B3).
- Pedestrian priority - it must be obvious to drivers entering the shared zone that pedestrians have higher priority than drivers.
- Pedestrian visibility - physical design elements within a shared zone, particularly landscaping, should not unduly restrict visibility of all types of pedestrians, including children.

In residential areas, correctly designed shared zones can also provide safe and attractive play or recreational areas, in addition to catering for vehicle access. The design of a residential shared zone needs to take into account child pedestrian behaviour. Small children may behave erratically when at play, as they are liable to break into a run and change direction of movement without paying any attention to possible vehicular dangers. The size of small children and their erratic behaviour patterns means that design features of a residential shared zone must ensure reasonable visibility within the shared zone at all times.

B2 Entrances and vehicle path

A shared zone should create a feeling of visual enclosure by narrowing the entrance and exit with treatments such as landscaping and kerb realignment so that there is a physical ‘gateway’ to the zone.

The ‘Shared Zone’ (R4-4) sign must be displayed on entry to the zone and the ‘End Shared Zone’ (R4-5) sign on exit.

A narrow entry threshold or angled slow point is recommended for the entry to the shared zone to ensure low entry speeds (refer to *AS 1742.13* and the Department’s *Code of Technical Requirements* for further details). The design of the vehicular path aims to physically restrict travel speed to 10 km/h, which can be achieved through the use of a meandering path of sharp turns.

Long straight stretches of more than about 25 m without treatment should be avoided. In the absence of a meandering path, a narrow travel path, road humps or similar slow points may be used.

Signage at the entrance should be minimised to ensure that the Shared Zone (R4-4) signs dominate and that the entrance is not highlighted as a potential through route to traffic. Non-essential signs at the entrance must be removed. Warning signs for LATM devices such as road humps within the shared zone are not required.

Landscaping, artwork, protected play and seating areas, bollards and other physical forms may all be used in an integrated and complementary way to clearly define a vehicular path within the open pedestrianised environment of the shared zone. To provide an environment conducive to consistently low speeds throughout the shared zone, a one-way traffic flow with a vehicular path width no greater than 3 m is recommended. Two-way traffic flow is not recommended, unless situated in a no through road, as the wider vehicular path may not sufficiently constrain vehicles. Two-way flow for cyclists may be allowed through the use of Bicycles Excepted (R9-3) signs with the one-way regulatory controls.

The design shall accommodate convenient access to private driveways and emergency services vehicle movements. Garbage trucks must also be considered, although it may be more expedient to accommodate garbage collection outside the zone.

A shared zone is unlikely to be suitable for streets with high cyclist usage (e.g. local streets on Greenway routes), as it can be difficult to create a 10 km/h speed environment for cyclists.

B3 Separation of pedestrians and vehicles

Shared zones should not provide a clear horizontal and vertical distinction between pedestrian footpaths and vehicular travel routes. The delineation created by kerb and gutter as found in conventional streetscapes must be avoided. While drivers must be restricted to a specific vehicular path by the design elements, pedestrians have the right to use all the shared zone space.

Where kerb and gutter needs to be retained for drainage purposes, and its position creates substandard footpath widths which are impractical for pedestrian use (eg narrow laneways), a shared zone may still be considered provided it meets the following criteria:

- Narrow, one-way road width (≤ 3.0 m) and narrow “footpath” created by kerb and gutter (<1.0 m)
- Pedestrian access to properties on the road is not available via an alternative route (ie narrow lanes which primarily provide rear access to properties are not suitable for shared zones, see Section 5.5.2 for alternatives)
- Road provides access to local properties only (ie through traffic has an alternative route)
- Comparatively high pedestrian volumes.

See to Section B2 for requirements for entrance treatments and controlling vehicle speeds, and Sections B2 and B4 for creating a shared zone environment which is visually different to conventional roads.

B4 Pavement surface treatment

The use of pavement surface materials other than bitumen can help reinforce a change in the streetscape and assist with modifying driver behaviour. Use of painted surface treatments or road murals may also assist in reinforcing the change in road environment (refer to the Department's *Code of Technical Requirements* for further details).

As shared zones cater for both pedestrian and vehicle traffic within the same space, the skid and slip resistance properties of the pavement surface need to be designed to operate safely for all user groups.

The skid and slip resistance properties of the materials, line marking or any surface treatments should be the greater of the following:

- for trafficked surfaces other than pedestrian traffic, skid resistance of 45 BPN (British Pendulum Number, measured in accordance with the Department's *Test Procedure TP343* or *TP344*) and the requirements of *AS 4049*, and
- for pedestrian trafficked surfaces, the requirements of SA HB 198:2014 *Handbook – Guide to the specification and testing of slip resistance of pedestrian surfaces*. For *AS 4586*, the minimum applicable classifications are P4 for Table 2, D1 for Table 3, B for Table 4 and V6 for Table 6. The Wet Pendulum Test Method for slip resistance is specified in *AS 4586* and *AS 4663*.

Drainage needs to be considered in the selection of pavement surface, particularly where hard surfaces are to replace existing nature strips. It may be possible to design a combination of hard surface treatments and grassed treatments particularly in areas where the introduction of greenery or natural drainage is important to the overall design.

Where paving bricks are chosen as the principal surface treatment, care should be taken not to use similar materials in other locations outside of the shared zone or the individual visual 'message' of the shared zone may be lost. Shared zones on unsealed roads are generally not recommended due to the difficulties associated with creating an environment which is physically different from an adjacent unsealed road network.

B5 Landscaping and other physical elements

Physical elements within the shared zone should not unduly restrict driver visibility of pedestrian activity and vice versa. Designs that rely on a deliberate use of planting to reduce the driver's sight distances are not recommended as such designs could be potentially dangerous.

The design and layout of landscaping should allow for the presence of child pedestrians. Shrubs should be avoided as some species of shrub could obscure child pedestrians in locations where sight distances are short.

B6 Parking

The parking of vehicles within a shared zone is not recommended, as the parking/un-parking manoeuvres needed to access both parallel and angled schemes can pose a danger to pedestrians. Where parking within a shared zone is required, parking control signs shall be installed (refer *Australian Road Rule 188* for the rules pertaining to stopping in shared zones).

Appendix C: School zones

A school zone is a speed restriction for a short section of road, which may be installed adjacent to or near a school to improve the safety for school children travelling to or from school by regulating vehicle speeds. School zones are only to be installed adjacent to or near schools, kindergartens, or child care centres with a kindergarten program. The speed limit of 25 km/h operates when a child is present within the school zone.

Councils may install school zones in accordance with their *Instrument of General Approval* and the requirements of this document, and separate approval from the Commissioner of Highways or authorised delegate is not required.

To maximise the safety of school children around the school and ensure the safe operation of the school zone, the following factors listed below must be taken into consideration when assessing and implementing a school zone.

C1 Assessing the suitability of a school zone

Prior to the installation of a school zone it is necessary to ensure that it is an appropriate treatment for the location. It is also important that existing school zones are periodically reviewed to ensure each is still the most appropriate treatment for the circumstances and location where it is installed.

A school zone is typically used on a road where there is a concentration of school children directly adjacent to motor vehicle activity on the road, or where school children cross the road. For details of children's crossings (where pedestrians have priority) at or near schools, refer to Australian Standard *AS 1742.10 MUTCD Part 10: Pedestrian control and protection* and the Department's *Supplement to AS 1742.10 – Pedestrian control and protection*. A school zone may also be used where school children cross a road at many places making a pedestrian crossing an ineffective treatment.

In some cases, a school zone may need to be supplemented with other treatments, such as an emu crossing (refer to Australian Standard *AS 1742.10 MUTCD Part 10: Pedestrian control and protection* and the Department's *Supplement to AS 1742.10 – Pedestrian control and protection*) or additional warning devices (see Section 7.18 for School Zone Warning signs, and Section 7.18.2 and the Department's *Pavement Marking Manual* for supplementing the School Zone Warning sign with the 'School' pavement message).

C2 Addressing the movement of children near the road

Rather than simply installing school zones as a standard treatment for the protection of school children moving around schools it is desirable to minimise or preferably eliminate the need for children to cross or be near a road. Any possibility of moving activity away from the road should be investigated in liaison with the school before deciding that a school zone is the most appropriate treatment. Actions that may assist in eliminating the need for a school zone include:

- Imposing parking prohibitions on the side of the road opposite to the school while improving set down areas nearer the school to encourage pedestrian movement to and from vehicles on the school side of the road.

- Establishing off-street short term set down and pick up areas on the school side, separating the faster through traffic on the road from the pedestrian activity near the vehicle creating a lower speed environment for child pedestrians. This should be done so that vehicle access to and from the road does not pose an unreasonable degree of hazard to the children or drivers.
- Ensuring school buses always stop on the school side of the road or within the school grounds so children do not have to cross the road.
- Installing a pedestrian crossing where regular road crossings occur in accordance with Australian Standard *AS 1742.10 MUTCD Part 10: Pedestrian control and protection* and the Department's *Supplement to AS 1742.10 – Pedestrian control and protection*.
- Relocating the entrance to the school grounds which may promote pedestrian movement to a safer area, away from any concentrated vehicular activity near the school.
- Installing pedestrian fences to keep children away from the road.
- Improving on-street and off-street bicycle facilities which may encourage cyclists to cross the road at safer locations.
- Avoiding where possible the need for children to wait near the road (e.g. when waiting for a bus) on higher speed roads or in potentially hazardous locations. Where a roadside waiting area is used and is considered hazardous for children the waiting area should be improved to provide a safe area appropriate for the anticipated numbers of children with restricted access to the road. If this is not practical, the waiting area should be relocated to a safer place.

C3 Determining the school zone location

A school zone on the same road as a koala crossing, pedestrian actuated crossing or signalised intersection shall be separated from the crossing or signalised intersection by at least 100 m. An emu crossing, wombat crossing or zebra crossing are the only types of pedestrian crossing permitted within a school zone.

NOTE: Under the previous version of this Guideline, wombat crossings or zebra crossings were not permitted to be installed within a school zone. See Section C5 for the new requirements for the use of these crossings in school zones.

Where school zones are placed in close proximity they shall be separated by a minimum of 100 m.

The length of a school zone should be kept as short as practicable to cover where most children cross the road. Long school zones should be avoided as the 25 km/h speed limit must be observed whenever a child is present anywhere within the zone. In long school zones, visibility of the entire school zone may be restricted, making it difficult for drivers entering the school zone to determine the presence of children within the zone. The minimum length is 60 m, generally to cover one access to the school at or near the centre of the zone.

A school zone should be:

- centred around the area where children mainly cross the road;
- kept as short as practicable for drivers to associate the school zone with the movement of children;

- located approximately 30 m on each approach to the school gate, giving a minimum school zone length of approximately 60 m. Consideration may need to be given to rationalising the number of gates at a school to keep the zone length as short as is practicable,
- merged with another school zone if both are located very close together on the same road. Ideally the overall length of the new school zone should be shortened, and
- used in conjunction with a pedestrian refuge on wider or busier roads. The narrowing of the road and the facility to duplicate the 'School Zone' sign (R3-SA58) on the pedestrian refuge will reinforce the requirement for drivers to reduce their speed to 25 km/h.

Kerb extensions may also be considered where there is sufficient road width. However, care must be taken to ensure the site does not mislead pedestrians by looking like a pedestrian crossing where drivers are expected to stop and give way to pedestrians.

C4 Inappropriate locations for school zones

There are instances where the road and traffic conditions mean that a school zone may not be a suitable treatment to provide a reasonable degree of safety to children, e.g. high volume roads where there may still be insufficient gaps in traffic to safely cross. School zones **shall not** be used on roads which:

- function as a major traffic route, especially high volume arterial roads. School zones are typically best suited to roads with AADT < 10,000; on higher volume roads particular attention should be paid to the peak hour volumes and crossing movements and the ability to safely cross the road in gaps in traffic;
- are multi-lane (as drivers may have difficulty seeing children within the zone);
- have a speed limit in excess of 60 km/h;
- are near a signalised intersection;
- are near a koala crossing (as the 25 km/h speed limit associated with the koala crossing operates under different conditions to a school zone, and there needs to be adequate separation between the two treatments to end one 25 km/h condition and start the other);
- are near a pedestrian actuated crossing (as crossing activity should be concentrated at the PAC and not at other locations along the road); or
- have a grade separated pedestrian crossing.

In these instances other measures should be investigated with the aim of removing or minimising the danger vehicular traffic poses to children around the school, as outlined in Section C2.

Where the criteria for a priority crossing treatment (e.g. koala crossing, wombat crossing, zebra crossing or pedestrian actuated crossing as per Australian Standard *AS 1742.10 MUTCD Part 10: Pedestrian control and protection* and the Department's *Supplement to AS 1742.10 – Pedestrian control and protection*) is met, installation of the priority crossing is recommended, as a school zone is unlikely to be a sufficient treatment. See also Section C5 for crossings that may be installed in school zones.

C5 Crossing types permitted in school zones

An emu crossing, wombat crossing or zebra crossing are the only types of pedestrian crossing permitted within a school zone. Emu crossings, wombat crossings and zebra crossings shall be installed in accordance with the Australian Standard *AS 1742.10 MUTCD Part 10: Pedestrian control and protection* and the Department's *Supplement to AS 1742.10 – Pedestrian control and protection*.

Where the criteria for a wombat or zebra crossing is met, and the location meets the requirements for a school zone, a wombat or zebra crossing may be located within the school zone. A wombat or zebra crossing provides priority for pedestrians to cross the road at all times, not just school times. The short section of 40 km/h speed limit which is typically used with a wombat crossing shall be omitted where the wombat crossing is installed within a school zone.

In some instances, it may be preferable to remove the school zone and instead provide the short section of full time 40 km/h speed limit typically used with a wombat crossing. To determine whether it is preferable to retain the school zone, or install a short section of 40 km/h speed limit in conjunction with the wombat crossing, the following factors should be considered:

- Will the crossing cater for other users at other times, or is it mainly used by school children? A 40 km/h speed limit may better cater for the broader, non-school related use of the crossing.
- Is the existing school zone short (such that it caters for the localised crossing movement only, and this crossing movement will instead be catered for by the wombat crossing), or is it a long school zone which provides a lower speed limit at other crossing points and intersections along the road? A long school zone should be retained if it caters for other locations, whereas a short school zone could be replaced with the 40 km/h speed limit for the crossing.
- When children are not present, is the speed environment greater than 40 km/h? If vehicle speeds are likely to be high outside of peak school times, the full time 40 km/h speed limit may be preferable to the school zone.
- Does the crossing provide a link for off-road shared paths to cross the road? In these situations, pedestrians and cyclists may approach the crossing from land adjacent to the road, rather than from the footpath parallel to the road. A full time 40 km/h speed limit may be preferable to the "25 km/h when children present" school zone as drivers may not see children within the zone if they are approaching the crossing from the shared path.

The guidance and requirements for a physically low speed environment (in the order of 30 km/h) for a zebra crossing still apply, and the 25 km/h speed limit associated with a school zone is not sufficient on its own to meet this requirement. Additional speed reducing measures may be required where a zebra crossing is to be installed in a school zone. Requirements for emu crossings remain unchanged, and these are only to be used within a school zone.

It is important that the school and the road authority are aware that the different road rules for these crossing types. *Australian Road Rule 81* requires drivers to give way to any pedestrians or bicycle rider on or entering the pedestrian crossing, with "give way" meaning "the driver must slow down and, if necessary, stop to avoid a collision". This differs from the requirement for children's crossings, where *Australian Road Rule 80(4)* specifically states that "If a driver stops at a children's

crossing for a pedestrian or bicycle rider, the driver must not proceed until there is no pedestrian or bicycle rider on or entering the crossing".

Appendix D: Assessing area speeds

Before implementing a speed-limited area, speed surveys may be conducted to provide an indication of the current speed environment. Low mean vehicle speeds prior to the implementation of the area speed limit indicate that the speed environment is self-regulating, and the proposed area speed limit will simply reinforce the existing low speed environment. If existing vehicle speeds are high, the introduction of the area speed limit on its own may not result in a sufficient reduction in vehicle speeds, and physical speed control treatments may be required to create a speed environment which is consistent with the lower speed limit. A method for assessing the mean vehicle speeds to determine the suitability for a speed-limited area is provided as a guide in Section D1 below. This is based on the experience of previous successful speed limited areas in South Australia.

A speed-limited area should have a clear boundary. Such an area would generally be bounded by arterial roads, other major traffic routes retaining a higher speed limit, or physical or geographic features which restrict the movement of traffic, such as rail corridors, parks and waterways. Speed-limited areas may also be applied to large areas, such as whole Council areas, excluding major traffic routes and collector roads unless these are suitable for a high pedestrian activity centre speed limit (see Section 5.7.1).

NOTE: Consideration may be given to omitting narrow lanes from a speed-limited area where these lanes already have a self-regulating low speed environment, and the installation of boundary signs on these streets may encourage higher speeds.

Local community support for speed-limited areas is important for the successful implementation of this type of speed limit (see Section 4.3).

D1 Mean speed criteria

A speed-limited area may be suitable within a built-up precinct if the arithmetic average of current mean speeds on all ‘relevant streets’ is less than 10 km/h greater than the suggested area speed limit. For example, a 40 km/h area speed limit may be introduced if the average of the mean speeds on all ‘relevant streets’ is not more than 50 km/h.

‘Relevant streets’ are any streets longer than 250 m, including those with existing high-level physical speed control treatments. It excludes streets that will have new high-level physical speed control treatments when the speed limit is lowered, or streets that will retain the existing speed limit. It also excludes sections of an otherwise continuing street between devices such as stop signs, give way signs or roundabouts which are less than 250 m. If the lengths between these devices are longer than 250 m, they will be ‘relevant streets’.

The documentation provided to the Department when requesting approval based on this criteria shall include:

- a list of all relevant streets within the proposed precinct, including the mean speed of traffic on these streets and the arithmetic average of these mean speeds,
- a list of all streets where new high-level physical speed control treatments are to be installed, including the speed control treatment proposed on each and, if obtained, the mean traffic speed, and

- a list of all streets less than 250 m in length.

Where the size of the proposed speed limit area is large (for example, large suburbs, or multiple suburbs) speed data from a representative sample of typical ‘relevant streets’ is sufficient.