Speed Limit Guideline for South Australia

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Section 1: Introduction
Scope, approvals and definitions

1.1 General

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 to make roads, roadides and road-related areas safer for all road users. The purpose of this document is to ensure:

- speed limits meet the requirements of South Australia’s Road Safety Strategy 2020 Towards Zero Together and its guiding principle of a Safe System,
- compatibility with the functional hierarchy of State Government maintained roads,
- the correct and consistent use of speed limits and signs,
- drivers are not subject to excessive changes in speed limits along a length of road, and
- community views are considered in speed limit selection.

1.2 Scope

This guideline must be used when determining permanent, variable and part time speed limits, and covers all aspects of speed limits from strategy to sign installation.

This document is based on the Australian Standards and Austroads guides with specific details for the following:

- Typical speed limit applications
- High pedestrian activity areas
- Speed-limited areas
- Shared zones
- School zones
- Speed limits on beaches
- Speed limit signing

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

1.3 Approvals

The Road Traffic Act 1961 requires that the Minister for Transport and Infrastructure grant approval to install, maintain, alter, operate or remove traffic control devices, including speed limits.

The Minister has delegated powers and granted approvals by issuing Instruments to the Commissioner of Highways, Councils and a number of other road authorities. These Instruments specify the conditions of approval, and the devices requiring separate approval.

Speed limits are generally excluded from the Instruments of General Approval granted to other road authorities, and require separate approval of the Commissioner of Highways or authorised delegate.

This document supersedes DPTI’s Operational Instructions 4.1 to 4.8.
Speed limit signs associated with school zones, koala crossings and wombat crossings do not require separate approval of the Commissioner of Highways provided they are used in accordance with the requirements of the Code of Technical Requirements, and this document.

1.4 Specifications

Sign specification details can be found on the DPTI 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 DPTI Master Specification (http://www.dpti.sa.gov.au/contractor_documents/specifications).

1.5 Definitions

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.

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

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.

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

Default rural speed limit – Statutory speed limit that applies in the absence of a signposted speed limit in a non-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. Refer to Section 2.3.2 for further details.

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

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.

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

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.

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.

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).

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.

1.6 Structure of this document

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

Section 1: gives the scope, reference documents, definitions, abbreviations and structure of the document.

Section 2: describes the policy framework for speed limits, and its role in road safety. Section 2.3 describes the different types of speed limits and desirable minimum lengths of speed zones and provides an initial indication of the speed limits applicable to various road types and speed environments. Section 2.4 outlines other factors to be taken into consideration when determining a speed limit. Section 2.5 describes the process for requesting a review and approval.

Section 3: provides the technical details of the requirements of speed limits for specific situations, including signing.

1.7 Reference documents

Traffic control devices in South Australia, including speed limits, shall comply with the Code of Technical Requirements, which refers to this guideline. 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 documents listed in Appendix A provide additional reference material relating to the Safe System, speed and speed limits.

1.8 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 DPTI’s Traffic Operations at dpti.enquiries@sa.gov.au. For further information about the contents of this document, contact dpti.tassadminsupport@sa.gov.au.
Section 2: Speed limit policy

Principles and procedures

2.1 Safer speeds strategy

The South Australian Road Safety Strategy 2020 Towards Zero Together is divided into four interconnected intervention areas – Safer Speeds, Safer Roads, Safer People and Safer Vehicles, which are all driven by the Safe System principles. Safer Speeds focuses on managing travel speeds to be safe and credible and aligned to the function, standard and use of the road.

Travel speed is a contributing factor in all crashes. It has consequences for the risk of a crash occurring and the severity of injury when a crash occurs. Managing travel speeds to be compatible with the function of the road, its environment, and roadside activity is important for road safety. Reductions in average travel speed across the network is the most effective and swift way to reduce road trauma and would produce significant and immediate road safety benefits. From research, a reduction of 5 km/h in average travel speed would reduce rural casualty crashes by about 30%, and urban casualty crashes by about 25%.

The following are some measures to manage travel speeds: road design; local area traffic management devices; enforcement; speed limiters; legislation; company policies; and speed limits. State, national and international research consistently shows that speed limits affect a driver’s choice of travel speed, as summarised in Mackenzie, Kloeden and Hutchinson (2015, p 3).

International work has shown that to achieve road safety targets, speed limits need to be set and enforced, taking into account potential crashes and the likely outcomes given the physical impact on the human body. A key strategy under Safer Speeds is to align speed limits to the function, standard and use of the road, and increase consistency in their application across the State. This guideline sets out the means to achieve this.

2.1.1 Functional Hierarchy

South Australia’s roads are a key component of the urban and rural environment and provide for a variety of different transport modes and users (i.e. its functions). A Functional Hierarchy for South Australia’s Land Transport Network has been developed to describe the functions that identify which corridors are important for different modes of transport. It guides the use of road space to improve safety and efficiency for users of the road transport network.

2.1.2 Safe System

The Safe System approach is the foundation of this guideline, which focuses on harm minimisation by reflecting the speed limit to the road safety risk to road users.

The Safe System was officially endorsed by the Australian Transport Council in 2004 and adopted by all Australian state and territory road authorities.

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

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

Biomechanical research into the capacity of the human body to absorb crash energy without significant harm suggest that safe travel speeds would ideally be less than 30 km/h in areas where conflict with people walking and cycling is possible, less than 50 km/h where side impacts are possible, and less than 70 km/h on roads where head-on collisions are possible (see Figure 2.1). This illustrates the need to address speed within a functional approach to road management.

Figure 2.1 Collision – force and risk of fatality

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

2.1.4 Relationship between speed limit and mean speeds

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

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

Speed limits are one of the most proven methods around the world for managing travel speeds and are used for many reasons, including:

- The actual and potential risks on the road not always being obvious or recognisable.
- Driver decisions about speed being made without adequately considering their effect on the safety of other road users.
- Driver inability to judge vehicle capabilities (e.g. stopping) and to adequately anticipate roadway geometry and roadside conditions to determine appropriate driving speeds.
- Driver lack of understanding of the effects of speed on crash probability and severity.
- The safety benefits of more uniform travel speeds.

2.2.1  Speed limits and speed zones

A speed limit is the number shown on the regulatory speed limit sign (Figure 2.2) within the red circle (annulus) and defines the maximum legal speed permitted along a specific section of road under good road and travel conditions. The Road Traffic Act 1961 gives the Minister for Transport and Infrastructure the power to set the speed limits on South Australian roads. The Minister has delegated this power and granted approval to the Commissioner of Highways. DPTI has not delegated this authority to any other agency and is therefore responsible for setting speed limits on all roads in South Australia.

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 over which a particular speed limit applies. Speed zones are signposted to clearly define where the speed limit applies, with signs at the start, reminder signs within the zone (if required) and signs at the end showing the speed limit of the next zone (Figure 2.2 or Figure 2.3).

All signposted regulatory speed limits are in steps of 10 km/h, ending in 0 (except for 25 km/h speed limits at schools and roadworks). All advisory speeds are in steps of 5 km/h, ending in either a 0 or 5.

Figure 2.2  Regulatory speed limit sign (R4-1)

Figure 2.3  End speed limit sign (R4-12)

Other types of speed signs are Advisory Speed (W8-2 on yellow background) and Speed Restriction Ahead sign (G9-79 with black circle); see Figure 2.4 and Figure 2.5. They are not legal speed limits and are used to inform drivers of forthcoming changes in alignment and speed limits. For more information, see Section 2.3.7 and Section 3.4.4 respectively.

Figure 2.4  Advisory speed sign (W8-2)

Figure 2.5  Speed restriction ahead sign (G9-79)

2.2.2  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...
2.2.3 Improved road safety

The setting of speed limits is an integral part of safety on South Australian roads.

Crashes have significant emotional, physical, mental and financial costs to individuals, families and communities:
- There were 30 fatalities and 649 injuries from speed-related crashes in 2015.
- The cost to the community from speed-related crashes in 2015 was around $226 million.

Lower speeds deliver significant road safety benefits, reducing both the number and severity of crashes. A major study (Kloeden et al 2006) that evaluated the introduction of the 50 km/h urban speed limit has found that a 23% reduction in casualty crashes was achieved on residential streets where the lower speed limit was introduced. In the study by Mackenzie (2015) a 27% reduction in casualty crashes resulted when approximately 1,100 km of rural roads were reduced from a 110 km/h speed limit to 100 km/h.

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

2.2.4 Engineering measures

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

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

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

2.2.5 Economic impact

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

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

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

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

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

2.2.6 Public expectations

A 2013 attitudinal survey (Petroulias, 2014) showed that 79% of the community thought that speed limits were generally set at a reasonable level. In relation to the factors contributing to road crashes, nearly half of the respondents recognised speed as a factor.

Drivers expect that speed limits will be consistently applied and credible. The speed limit for some roads may, however, be set lower than for similar roads for reasons such as an adverse crash history, which may not necessarily be apparent to motorists. In these situations, additional signposting may be used to supplement the lower speed limit and assist in managing the factors underlying the crash history (refer Section 2.4.6). Engineering measures (refer Section 2.2.4) must be considered when addressing safety issues.
2.3 Speed limits in South Australia

2.3.1 Introduction
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. There are two types of default speed limits: 50 km/h in urban (built-up) areas and 100 km/h in rural (non-built-up) areas. There are also 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 (refer Sections 82 and 83 of the Road Traffic Act 1961).

- Speed restrictions based on vehicle class (e.g. some heavy vehicles) or licence class (e.g. learner drivers - refer Motor Vehicles Act 1959).

- Signposted speed limits, which are based on an assessment of the road against these guidelines. These include 60, 70, 80, 90, 100 and 110 km/h speed limits on road lengths where those limits have been assessed to be safe and 40, 30, or 20 km/h speed limits and 10 km/h shared zones in high pedestrian areas. Part-time 25 km/h speed limit school zones may be established on local roads adjacent to a school.

2.3.2 Speed limits – types and ranges
Table 2.1 shows the range and types of speed limits used in South Australia. It has been adapted from AS 1742.4 and Austroads' Guide to Traffic Management Part 5: Road Management to provide details of key applications and features for speed limits in South Australia. Factors such as crash history, road cross-section, alignment, roadside development and traffic volume will influence the selection of a posted speed limit (refer to Section 2.4). This table must be read in conjunction with the detailed descriptions found in Sections 3.2 and 3.3.

Table 2.1  Overview of typical speed limit applications

<table>
<thead>
<tr>
<th>Speed limit (km/h)</th>
<th>Type of speed limit</th>
<th>Typical application</th>
</tr>
</thead>
</table>
| 10                | Linear or area      | **Pedestrian mall, car parks, shared zones**  
Confined area where pedestrians and vehicles occupy the same space. Low speed environment where vehicle movement is physically constrained. Shared zones where pedestrians have priority. Refer Section 3.3.3. |
| 20                | Linear or area      | **Off-street area, car parks, access driveways, beaches**  
Confined area where vehicles and pedestrians mix. Refer Section 3.3.5 for beaches.  
Note: Shared spaces may also be designed as a low speed environment in the order of 20 km/h, without the need for a posted speed limit (refer Streets for People Compendium). The design principles of shared zones in Section 3.3.3 may also be adopted in these situations. |
| 25                | Linear or area      | **School zones, children’s crossings**  
Part-time speed limits at locations where school children may cross or where concentrations of school children may be adjacent to the road. Refer Section 3.3.4. |
Section 2: Speed limits

### 30, 40 Linear or area
**Recreational areas, car parks, residential streets or areas, commercial streets or areas**
Open areas where vehicles and pedestrians may mix, but some separation between vehicles and pedestrians is provided. Roads in recreational areas such as parks, gardens, sports fields or large car parking areas. Pedestrian activity areas including shopping precincts, town centres, residential areas, holiday house/shack areas. Often used in conjunction with local area traffic management scheme. Bicycle boulevards where accompanied by traffic calming devices to achieve the desired speed. *Refer Section 3.3.1 and Section 3.3.2*

### 50 Default urban speed limit
**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 volumes. *Refer Section 3.2*

### 60 Linear
**Urban arterial road**
Arterial roads within the fully built-up area. *Refer Section 3.2*

### 70, 80 Linear
**Urban arterial road**
Arterial roads in partially developed roadside environment with low levels of direct access. These are typically township fringes. *Refer Section 3.2*

### 80, 90 Linear
**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. *Refer Section 3.2*

### 90, 100 Linear
**Urban expressway**
High standard urban roads with no direct access, adequate clear zones, grade separated interchanges. *Refer Section 3.2*

### 100 Default rural limit
**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. *Refer Section 3.2*

### 110 Linear
**Rural arterial road or expressway**
Maximum allowable speed limit in SA. Typically these roads will be of the highest standard in non-built-up areas and feature full access control, have divided carriageways, sealed shoulders and be a major traffic and primary freight route. *Refer Section 3.2.*

### 2.3.3 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 2.2.*

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.

Generally, any consolidating of speed limits to minimise the number of changes should not involve increasing speed limits.
### Section 2: Speed limits

#### 2.3.6 Unsealed roads

The default speed limit is often inappropriate for unsealed roads. Other than the default urban or default rural limits, AS 1742.4 only permits the use of speed limits less than 50 km/h on roads that are not traffic routes.

In South Australia, an advisory sign indicating a maximum speed of 80 km/h, accompanied by a message reminding drivers to drive to the conditions may be used on unsealed roads. See DPTI’s *Operational Instruction 4.10* for further details.

The *Australian Road Rules* set a default speed limit of 100 km/h on all roads outside a 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 DPTI’s *Operational Instruction 4.10*. This sign is not a regulatory speed limit sign.

#### 2.3.7 Advisory speeds

Advisory speed signs (*Figure 2.4*) 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. Advisory speed signs are used where the appropriate speed on a section of road is less than the posted speed limit. Refer to AS 1742.2 Clause 4.4.4 and DPTI’s *Operational Instruction 2.10* for detailed information.

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**Table 2.2** Desirable minimum speed limit lengths from AS 1742.4

<table>
<thead>
<tr>
<th>Speed limit (km/h)</th>
<th>Desirable minimum length (km)</th>
</tr>
</thead>
<tbody>
<tr>
<td>40</td>
<td>0.4</td>
</tr>
<tr>
<td>60</td>
<td>0.6</td>
</tr>
<tr>
<td>70</td>
<td>0.7</td>
</tr>
<tr>
<td>80</td>
<td>0.8</td>
</tr>
<tr>
<td>90</td>
<td>0.9</td>
</tr>
<tr>
<td>100</td>
<td>2.0</td>
</tr>
<tr>
<td>110</td>
<td>10.0</td>
</tr>
</tbody>
</table>

#### 2.3.4 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 (*refer Sections 3.4.9 and 3.5.1*).

Seasonal speed limits are used where traffic or road conditions vary significantly at different times of the year, for example, holiday areas or grain storage facilities. They should only be implemented where other means of addressing a road safety problem are not possible (*refer Section 2.4.6*).

#### 2.3.5 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.

They are not recommended and should only be adopted after careful consideration of road safety and enforcement implications. It may be appropriate to use offset speed 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.
2.4 Key factors in setting speed limits

2.4.1 Introduction

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 for a particular length of road must reflect the road safety risk to the road users while maintaining mobility and amenity.
- The default 50 km/h general urban speed limit should be the initial consideration for speed limits in urban areas.
- The default 100 km/h should be the initial consideration for speed limits outside of built-up areas.
- The need for a non-default speed limit should be obvious to drivers.
- The speed limit must not exceed the maximum assessed speed for the road, taking into account key factors such as crash profile, road function, road use, roadside development, road characteristics, traffic mix, crash history, the presence of vulnerable road users, and the number, type and frequency of driveways and intersections which indicate potential conflict points.
- Speed limit changes should be kept to a minimum, refer Section 2.3.3.
- Lower speed limits may be applied to at-risk locations.
- The setting and review of speed limits should be part of a route-based approach.

2.4.2 Road function

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

Roads which primarily function as ‘traffic routes’, such as those identified in DPTI’s *Functional Hierarchy for South Australia’s Land Transport Network* as freight, public transport transit or express routes, major traffic routes or major peak hour routes, will generally be suited to a speed limit of 60 km/h or more. ‘Traffic routes’ are defined by AS 1742.4 as ‘a road or street that serves primarily to enable travel between localities, typically arterial, sub-arterial and major collector roads’.

2.4.3 Roadside development

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

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. This activity may result from residential or retail development, schools, recreational or community facilities. Roadside development generally consists of visual cues to the driver, with buildings on typical residential size allotments situated close to the road with direct access, but should also take into account factors such as drivers reversing to enter or leave the road at residential properties, vegetation, fences and topography.

The residents of 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 provided with the same level of safety as the residents whose house is 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.

2.4.4 Road characteristics

A variety of road characteristics, such as horizontal and vertical alignment, clear zones, medians, lane widths, sight distance etc., are able to influence the choice of a safe speed limit for a length of road. These factors need to be considered when reviewing the speed limit as discussed below.
2.4.4.1 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 (refer to Section 2.3.7).

Isolated sections of road with adverse alignments should be treated with advisory warning signs. The use of advisory signs is covered in Section 3.4.3.7. In critical locations, such as approaches to tunnels or bridges, it may be necessary to reduce speed limits and use enforcement measures to get the desired results.

The speed limit for a section of road that is characterised by closely spaced curves 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.

2.4.4.2 Road access

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

2.4.4.3 Lane width

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

2.4.4.4 Adjacent speed zones

Take into account the limits on adjacent sections of road to the section of road under speed limit consideration. Speed limit changes should meet the minimum length criterion shown in Table 2.2.

2.4.5 Traffic characteristics

The following traffic characteristics need to be considered when reviewing a speed limit.

2.4.5.1 Traffic patterns

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

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

2.4.5.2 Pedestrians and cyclists

When assessing the speed limit for a length of road, factors such as roadside development and road environment should be considered in terms of pedestrians and cyclists. The presence of these vulnerable road users, and the presence of facilities for these users should be taken into consideration when determining the speed limit for a length of road.

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

- Nearby pedestrian attractors and generators.
- Presence of young children, elderly, mobility and vision impaired pedestrians.
- Pedestrian crossing facilities.
- On-road bicycle facilities.
- Bicycle crossing facilities.
- Public transport links.

Care should be taken in considering any of these factors in isolation. While crossing facilities or bicycle facilities are associated with the presence of these users, where these facilities have been designed to suit a higher speed limit their presence alone is not justification for a lower speed limit.

Speed limits specifically suited to high pedestrian environments should be considered where certain selection criteria are met. This includes shared zones, high pedestrian activity centres and school zones (refer to Section 3.3 for more information).

2.4.5.3 Speeds

Speed surveys are used to determine overall traffic speed and volume on a road. This speed is usually determined by a survey of vehicles travelling under free-flow conditions. One of the measures used is the mean speed (refer to Section 1.5).
This measure is useful for designing, implementing and evaluating speed management initiatives to address a speeding problem on a length of road.

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 measures may consist of local area traffic management devices in accordance with the Code of Technical Requirements, Australian Standard AS 1742.13 MUTCD Part 13: Local Area Traffic Management, Austroads Guide to Traffic Management Part 8: Local Area Traffic 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. 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. A low-speed traffic environment is essential in pedestrian dominated streets. 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.

2.4.6 At-risk locations

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

An at-risk location is defined as a location along the road network where there are road geometry constraints, hazards in the roadside, non-conformance with design standards for the proposed speed limit, or a perceived or 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, DPTI may reduce speed limits 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.

Supplementary plates or advance signing displaying the risk may be used to enable drivers to differentiate between the speed environment in an at-risk location, and the speed environment of a regular speed limit. Sign details must be determined in consultation with DPTI (email dpti.tassadminsupport@sa.gov.au).

Variable speed limits may be used where the crash risk is only present during particular times or circumstances (refer to Section 3.4.9)

2.5 Speed limit review process

2.5.1 Introduction

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

- Determine the need for a change in the current speed limit, taking into account the need to:
  - a) Respond to community views and concerns related to speed limit policies and practices.
  - b) Identify and correct speed limit anomalies.
  - c) Ensure that speed limits reflect changes in road use and the level of roadside activity.
  - d) Keep the number of speed limit changes along a section of road to a practical minimum.

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

2.5.2 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.

2.5.2.1 Review and approval process for DPTI roads

Requests for changes to speed limits on DPTI roads must be addressed to DPTI’s Traffic Operations at dpi.enquiries@sa.gov.au for assessment and approval.
DPTI’s Traffic Operations 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 on the DPTI intranet. The traffic impact statement must be endorsed by a DPTI Recognised Traffic Engineering Practitioner with experience in speed limit assessments, and attached to the approval documentation.

Details of any consultation (refer Section 2.5.3) associated with the speed limit change, including the process and feedback received shall also be included in the traffic impact statement.

2.5.2.2 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, who may formally request an assessment and approval of the speed limit from the Commissioner of Highways. The Commissioner of Highways has authorised certain positions within DPTI to exercise these powers of approval.

This guideline may be used as a resource by Council to conduct an initial review of a proposed speed limit to determine whether it is suitable. Council may contact DPTI’s Traffic Operations to discuss the proposal in this initial review stage.

Prior to submitting a formal request for approval to DPTI, Council must resolve that they endorse the proposed speed limit changes. When submitting a request for approval of a speed limit to DPTI, Council should contact Traffic Operations via dpti.enquiries@sa.gov.au in order to ascertain the supporting documentation that will be required, which may include some (or all) of the following:

- Resolution from Council endorsing the proposed speed limit change,
- Indication of support from the local State Member of Parliament,
- 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,
- 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, and
- Details of an appropriate contact person to liaise with DPTI officers on traffic planning as well as technical design aspects of the proposed speed limit.

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 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.dpti.sa.gov.au/standards/tass.

Details of any consultation (refer Section 2.5.3) 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 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 DPTI’s Traffic Operations at dpti.enquiries@sa.gov.au.

2.5.3 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 DPTI 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
2.5.4 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 3.4.3, 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 DPTI’s Operational Instruction 2.36).

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.
3.1 General

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.

3.1.1 Definitions of types of speed zoning

3.1.1.1 Default speed limits

Default speed limits are statutory limits imposed by South Australian law, specifically the Australian Road Rules Rule 25 under the Road Traffic Act 1961.

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.

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,
- 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.

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. Towards Zero Together - South Australia’s Road Safety Strategy 2020 promotes safer speeds and aims to achieve greater application of the default speed limits where a limit above the default cannot be justified.

Where a speed limit review results in a speed limit being reduced to the default speed limit, signing of the default speed limit value will be limited to maintain the integrity of the default speed limit philosophy (refer Sections 3.4.6, 0, 3.4.3.5 and 3.4.3.2).

3.1.1.2 Signposted limits

A speed limit is the number of kilometres per hour indicated within the red circle (annulus) on the R4-1 sign (Figure 2.2). 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).

3.1.1.3 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, and speed limit signing is limited to the beginning and end of the length of road.

3.1.1.4 Area 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.

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.

3.2 Typical Speed Limit Applications

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 (refer Section 2.5). 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.

A speed limit review may prompt the need to review other similar roads or networks of roads within a region to ensure a consistent application of speed limits. These roads may be the responsibility of different road authorities eg different local councils and DPTI. In the interests of road safety, the Minister for Transport and Infrastructure has the power under the Road Traffic Act to direct a road authority to install or remove traffic control devices, including speed limit signs.

a) 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.

Figure 3.1 50 km/h default urban speed limit

Towards Zero Together - South Australia’s Road Safety Strategy 2020 promotes safer speeds and aims to achieve greater application of the 50 km/h default speed limit where a higher limit cannot be justified.

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 Sections 3.4.6 and 3.4.8 (also refer to Sections 3.4.3.5 and 3.4.3.2 for additional advisory signs which may be appropriate).

**Figure 3.2 50 km/h speed limit in rural town**

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, the 50 km/h speed limit should be continued through this section to avoid an unreasonable number of speed limit changes.

**Figure 3.3 60 km/h on divided urban arterial road with direct access**

b) **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.

This speed limit is 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.

The 60 km/h speed limit may also be applied to:

- Roads in rural residential, commercial or retail areas which do not meet the legal definition for the urban default limit.
- Roads in rural residential, commercial or retail areas where there is visible development 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.
- Roads in rural residential areas where a significant proportion of the road alignment consists of closely spaced curves.
- Main roads in rural towns outside of the central business district.

**Figure 3.4 60 km/h on main road in rural town**

**Figure 3.5 60 km/h on road in rural residential area**
c) **70 km/h speed limit**

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.

It may also be applied to urban fringe roads, or where a significant proportion of the road alignment consists of closely spaced curves.

**Figure 3.6** 70 km/h divided urban arterial road with limited access

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**d) **80 km/h speed limit**

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

It is also applied to undivided roads in rural areas where a lower standard of vertical or horizontal alignment exists.

80 km/h speed limit also applies to rural roads in partially built-up areas with limited adjacent development, typically a small village in a rural area, or roads through urban / rural fringe areas. Houses may be located on larger allotments and be set back from the road, allowing drivers accessing these properties to enter and leave the road in a forward direction.

**Figure 3.7** 80 km/h divided urban arterial with little direct access

**Figure 3.8** 80 km/h rural road lower standard of horizontal alignment

**Figure 3.9** 80 km/h rural road with limited adjacent development
e) 90 km/h speed limit

This speed limit is typically used for suitably designed urban expressways, or 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.

f) 100 km/h speed limit

This speed limit applies to roads in the following situations:

- The default rural speed limit (see Section 1.5).
- Roads that do not meet the criteria for 90 km/h or 110 km/h speed limits.

g) 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 with a design speed of 120 km/h, and
- Have full access control, and
- Have sealed shoulders and appropriate roadside clear zones.
110 km/h speed limit on many existing roads were set according to previous strategies, standards and practices available at that time. South Australia's Road Safety Strategy aims to achieve greater application of the rural default of 100 km/h where higher limits are not justified. Due to their strategic function National Highways, major traffic and primary freight routes providing interstate links may be considered appropriate to retain a speed limit of 110 km/h.

**Figure 3.13** 110 km/h divided rural road

### 3.3 Other speed limits

#### 3.3.1 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 DPTI's *Functional Hierarchy* as priority pedestrian areas. It is not intended for streets with short holiday or tourism peaks.

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.

Research into the capacity of the human body to absorb crash energy indicates that speeds would ideally be less than 30km/h in where conflict with people walking and cycling is possible (refer Section 2.1.3). A speed limit of 30 km/h 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.

**Figure 3.14** 30 km/h high pedestrian activity centre speed limit
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.

Figure 3.15 40 km/h high pedestrian activity centre speed limit

Traffic calming devices and other measures may be required to assist in the creation of an environment suitable for the lower speed limit. Refer to Section 2.4.5.3, 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.

A high pedestrian activity centre speed limit on a road under the care, control and management of DPTI may be initiated by either Council or DPTI. Where Council have identified a need for the lower speed limit, Council shall consult with DPTI to confirm the suitability of the lower speed limit. Where a road is identified as being suitable for a low speed environment, DPTI will work in partnership with Council in the assessment, consultation (refer Section 2.5.3) and implementation process. National Highways, and roads identified in DPTI’s Functional Hierarchy as freight routes or major traffic routes are unsuitable for high pedestrian activity centre speed limits.

If most properties along the road are residential, a speed limited area for a residential precinct may be suitable (refer Section 3.3.2).

### 3.3.1 Variable or time based speed limit

A road may be suitable for a high pedestrian activity centre speed limit as a variable or time based speed limit in the following situations:

- Where the road environment is not suited to low speeds outside of peak pedestrian times, a variable or time based speed limit may be considered. 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.

- High volume roads with AADT > 20,000 vehicles per day 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. Refer to Section 3.5.1 for variable signing. If there are significant numbers of pedestrian crashes outside normal shopping hours, consideration should be given to implementing a full time high pedestrian activity centre speed limit.

### 3.3.2 Speed-limited 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.

An area speed limit of 30 km/h 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.
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 3.3.2.1 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 (refer Section 3.3.1).

Local community support for speed-limited areas is important for the successful implementation of this type of speed limit (refer Section 2.5.3).

3.3.2.1 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 DPTI 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.

3.3.3 Shared zones

A shared zone is a 10 km/h speed limit applied to a road or a network of roads in an area where pedestrians and vehicular traffic share the road space. Drivers within a shared zone must give way to pedestrians at all times and must only park in marked bays or where permitted by parking control signs.

The image and character of the street in a shared zone is critical to its successful operation. Drivers need to be made aware that they are entering a street 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 car parks, reserves or caravan parks as long as the speed environment is self-enforcing to restrict vehicles to very low speeds.

Although speeds are expected to be low in shared zones it is desirable to also delineate a part of the street for pedestrian movement only, where pedestrians will not unreasonably obstruct the path a driver (Australian Road Rules Rule 236).

3.3.3.1 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 (Refer Section 3.3.3.2).

- 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'.

- 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 (Refer Section 3.3.3.3).

- Pedestrian priority - it must be obvious to drivers entering the shared zone that pedestrians have equal or 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.

3.3.3.2 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 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.

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.

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.

3.3.3.3 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.

3.3.3.4 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 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 DPTI’s Test Procedure TP343 (http://www.dpti.sa.gov.au/?a=77200) or TP344 (http://www.dpti.sa.gov.au/?a=47253)) 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.

3.3.3.5 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.

3.3.3.6 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 Rules Rule 188 for the rules pertaining to stopping in shared zones).
3.3.4  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, not child care centres. The speed limit of 25 km/h operates when a child is present within the school zone.

Figure 3.19 School zone on local street

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.

3.3.4.1  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 adjacent to motor vehicle activity on the road. For details of children’s crossings at or near schools, refer to the Code of Technical Requirements. 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 Section 8.5.1 of the Code of Technical Requirements) or additional warning devices (refer to Section 3.4.3.6 for School Zone Warning signs, and the DPTI Pavement Marking Manual for supplementing the School Zone Warning sign with the ‘School’ pavement message).

3.3.4.2  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 Section 8 of the Code of Technical Requirements.
- 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.

### 3.3.4.3 Determining the school zone location

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

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. The number of gates at a school should be rationalised 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.

### 3.3.4.4 Inappropriate locations for school zones

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;
- are multi-lane;
- have a speed limit in excess of 60 km/h;
- are wide and kerb extensions, medians, median islands or pedestrian refuges are not installed;
- are near a signalised intersection;
- are near a koala crossing, wombat crossing, zebra crossing or pedestrian actuated crossing; or
- meet the criteria for a koala crossing or pedestrian actuated crossing, as per Section 8 of the Code of Technical Requirements, and Appendix D of the Code of Technical Requirements.

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 3.3.4.2.

### 3.3.5 Beaches

Speed limits on beaches may be applied where driving or riding of motor vehicles is permitted and a speed
3.3.5.1 Use of a 20 km/h speed limit
A 20 km/h speed limit is suited where motor vehicle use occurs in an area where there is a concentration of people or significant pedestrian activity or children.

It is important that the authority create a well-defined pedestrian area and keep it as short as possible so that drivers will understand the reasons for the 20 km/h speed limit within this clearly identifiable area. This area shall be near the beach access point to maintain the already slow entry speed of drivers.

3.3.5.2 Use of a 50 km/h speed limit
This section does not apply if a beach meets the definition of a built-up area and the default limit of 50 km/h already applies. In those cases refer to Section 3.5.5.3.

Without speed limit signs a beach will generally be subject to the default limit of 100 km/h. For coastal built-up areas this would seem inconsistent with the 50 km/h default that applies to the roads. Therefore, a 50 km/h sign may be used in this case.

Although establishing this speed limit does not meet AS 1742.4 for unsealed roads, it is considered appropriate to provide an authority the flexibility to create a consistent speed environment in a built-up area. The extent of this 50 km/h speed limit should be kept to a minimum and be consistent with the other roads subjected to the 50 km/h default speed limit of the built-up area.

3.4 Speed limit signing – general requirements
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.

3.4.1 Definitions
Single sign – A sign positioned on the left side of the carriageway.
Duplicated sign – Signs placed on both the left and right sides of the carriageway.
Lower speed limit – Where the speed limit changes to a lower limit.
Higher speed limit – Where the speed limit changes to a higher limit.
Repeater signs – Signs placed along the road to indicate to entering traffic, or remind and reinforce to other traffic, the prevailing speed.

3.4.2 Regulatory signs
The following signs are used to prescribe speed limits:
- R4-1 Speed Restriction
- R4-12 End Speed Limit
- R4-10 Speed Limit Area
- R4-11 End Speed Limit Area
- R4-4 Shared Zone
- R4-5 End Shared Zone
- R3-SA58 School Zone sign
- R4-SA59 End School Zone
- R4-SA60 End School Zone / Speed Limit Area
- R4-SA61 End School Zone / End Speed Limit Area
- R4-SA102 Speed Limit with times
- R4-SA103 modified End Speed Limit Area
- TES 18371 When sign above is blank

These signs shall be used in accordance with the requirements of AS 1742.4 clause 3.1 and the variations and requirements of this document. Sign specification details can be found on the DPTI Standard Road Sign Index.
(http://www.dteiapps.com.au/signindx/). Signs not included on this index shall not be used.

3.4.3 Non-regulatory signs
The following signs are used in conjunction with regulatory speed limits:
- T1-SA109 Speed Limit Changed
- TES 19085 Speed Limit Changed - 50
- T1-SA103 or T1-SA104 Speed Limit Changed Ahead
- G9-79 Speed Limit Ahead
- G9-SA131 Speed Limit Ahead – time based
- G9-SA132 Speed Limit Ahead on Side Road – time based
- G9-SA133 Speed Limit Ahead on Side Road – time based
- TES 15342 Remember 50
- W6-SA106 School zone warning
- W8-2 Advisory speed
- W8-SA106 Pedestrian Precinct

3.4.3.1 Speed Limit Changed (T1-SA109) sign
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.

Figure 3.20 Speed Limit Changed (T1-SA109) sign

3.4.3.2 Speed Limit Changed - 50 (TES 19085) sign
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 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 for temporary short term installation of sign posts.

Figure 3.21 Speed Limit Changed - 50 (TES 19085) sign

3.4.3.3 Speed Limit Changed Ahead (T1-SA103 or T1-SA104) sign
The ‘Speed Limit Changed Ahead’ (T1-SA103 or T1-SA104) signs may be used in advance of temporary speed limits, where VMS / MMS are not appropriate, available or practical.

The T1-SA103 sign shall be installed in advance of new installations of electronic variable speed limits 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.

Figure 3.22 Speed limit changed ahead (T1-SA103) sign

The T1-SA104 hinged sign shall be installed in advance of seasonal speed limits such as grain handling facilities.
Figure 3.23 Speed limit changed ahead (T1-SA104) hinged sign

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 Appendix D Table D1, for either a significant or low to moderate speed reduction. An extract of this table is provided in Table 3.1.

Table 3.1 Location of advance warning signs

<table>
<thead>
<tr>
<th>Situation</th>
<th>$V_{85} &lt; 75 \text{ (km/h)}$</th>
<th>$V_{85} 75$ to $90 \text{ (km/h)}$</th>
<th>$V_{85} &gt; 90 \text{ (km/h)}$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Significant speed reduction required</td>
<td>60 – 80 m</td>
<td>80 – 120 m</td>
<td>120 – 180 m</td>
</tr>
<tr>
<td>Low to moderate speed reduction required</td>
<td>40 – 60 m</td>
<td>60 – 80 m</td>
<td>80 – 120 m</td>
</tr>
</tbody>
</table>

3.4.3.4 Speed Limit Ahead (G9-79) sign

Where the Speed Limit Ahead (G9-79) sign is required in accordance with Section 3.4.4, it shall be installed 300 m to 400 m in advance of the start of the lower speed limit.

Figure 3.24 Speed Limit Ahead (G9-79) sign

3.4.3.5 Remember 50 (TES 15342) sign

The ‘Remember 50 km/h Unless Otherwise Signed’ (TES 15342) signs were 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.

Figure 3.25 Remember 50 (TES 15342) sign

Where the 50 km/h default applies and a repeater sign may otherwise be desirable, the ‘Remember 50’ (TES 15342) sign may be used in the following situations on roads which are not primarily traffic routes:

- 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.

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 interval 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.

3.4.3.6  School Zone Warning (W6-SA106) sign
Refer to Section 3.5.4 for the use of the School Zone Warning sign in advance of a school zone.

![School Zone Warning (W6-SA106) sign](image)

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.

3.4.3.7  Advisory speed (W8-2) sign
Advisory speed signs (Figure 3.27) 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. Advisory speed signs are used where the appropriate speed on a section of the roadway may be less than the posted speed limit. Although the sign provides a warning to approaching drivers, it is not legally enforceable. Determination and signposting of advisory speeds must be done in accordance with AS 1742.2 Clause 4.4.4 and DPTI’s Operational Instruction 2.1.

![Advisory speed (W8-2) sign](image)

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

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

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.

3.4.4  Buffers
A speed limit buffer is used where there is a significant reduction in the speed limit to enable drivers to decelerate to the lower speed. Since November 2008, AS 1742.4 MUTCD Part 4: Speed controls has permitted speed limit buffers to be in the form of either a speed limit of intermediate value, or the ‘Speed Limit Ahead’ (G9-79) sign, with only one of these options to be used throughout the region.

The ‘Speed Limit Ahead’ (G9-79) sign shall be used for speed limit buffers in accordance with AS 1742.4 (2008) clause 2.3.5(b). Speed limit buffers comprising a speed zone of intermediate value as contained in AS 1742.4 (2008) clause 2.3.5(a) shall not be used as they increase the number of changes in speed limit where there is no roadside development. The Speed Limit Ahead (G9-79) sign shall only be used for speed limit changes of 30 km/h or more.

Where there are a series of 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 (refer Table 2.2) for that speed limit. Refer to Section 3.4.7 for examples.

When there is a need for an existing speed limit buffer to be altered, the ‘Speed Limit Ahead’ (G9-79) sign buffer 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 may be longer than the AS 1742.4 (2008) requirement of 300 m to 400 m, but shorter than the current minimum desirable length for that speed limit (refer Section 2.3.3). Where the adjacent roadside development supports the speed limit of intermediate value, this speed limit may remain.

3.4.5 Installation and location of signs
Signs shall be installed and located in accordance with the requirements of AS 1742.4 Appendix C.

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 (refer Figure 3.29).

3.4.6 Size and location of signs
Signing of linear speed limits of 50 km/h or greater for various lane configurations shall be in accordance with the Sections 3.4.6.1 to 3.4.6.5. Where the ‘Speed Limit Ahead’ (G9-79) signs are required (refer Section 3.4.4 and 3.4.7), these may be duplicated where appropriate.

3.4.6.1 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 (Refer Section 3.4.8). May be duplicated where appropriate.

Figure 3.28 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 (refer Section 3.4.7) or where the roadside environment is particularly distracting.
3.4.6.2 Undivided multi-lane roads

Lower Speed Limit: Duplicated R4-1C
Higher Speed Limit: Duplicated R4-1B or R4-12B
Repeater signs: Single R4-1B (Refer Section 3.4.8). May be duplicated where appropriate.

**Figure 3.29** Signing undivided multi-lane roads

3.4.6.3 Divided two lane carriageways

Lower Speed Limit: Duplicated R4-1B*
Higher Speed Limit: Duplicated R4-1B or R4-12B
Repeater signs: Duplicated R4-1B (Refer Section 3.4.8)

**Figure 3.30** 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 (refer Section 3.4.7) or where the roadside environment is particularly distracting.
3.4.6.4 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 (Refer Section 3.4.8)

3.4.6.5 Freeways

All signs: Duplicated R4-1C

3.4.7 Sign sizes for approaches to built-up areas

For two lane two way roads, divided single lane carriageways or divided two lane carriageways, ‘C’ size signs should be used where additional emphasis is required due to potentially high speeds approaches to built-up areas, as shown in the following figures.

Figure 3.31 Reduction from 110 km/h to 80 km/h

![Figure 3.31](image)

Figure 3.32 Reduction from 110 km/h to 60 km/h

![Figure 3.32](image)

Figure 3.33 Reduction from 110 km/h to 50 km/h

![Figure 3.33](image)
3.4.8 Repeater signs

Repeater signs shall be installed in accordance with the requirements of AS 1742.4, except as follows:

- Single repeater signs may be duplicated where appropriate based on specific site conditions.
- Repeater signs may be used to reinforce the speed limit after a discontinuity in a road, for example, an anomalous 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 approach to a town, urban area or section of development. Where used, it shall be spaced in accordance with the requirements of AS 1742.2 Appendix D Table D1, based on the speed limit of the approach, as shown in Section 3.4.7.
- Where a 50 km/h speed limit applies to an urban arterial road, repeater signs may be installed after major intersections. Additional repeater signs are generally not required within the 50 km/h zone. Where used, they shall be kept to a minimum as 50 km/h is the default speed limit.
- 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.

- In accordance with the requirements of DPTI’s Operational Instruction 5.1 in advance of the ‘Safety Camera Ahead’ signs for average speed safety camera zones.

3.4.9 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.

Sign size and design for VSLs shall be in accordance with the static sign size and design as outlined in AS 1742.4 and AS 1743. When VSLs is designed for specific applications, the size requirements as shown in Table 3.2 should also be considered.

<table>
<thead>
<tr>
<th>Location</th>
<th>Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shopping precincts</td>
<td>B</td>
</tr>
<tr>
<td>Tunnel</td>
<td>B</td>
</tr>
<tr>
<td>Freeways</td>
<td>C</td>
</tr>
<tr>
<td>Other</td>
<td>C on other high speed roads (80 km/h or more) B for all other cases</td>
</tr>
</tbody>
</table>

Where the speed limit which applies when the VSL is blank is different to the preceding static speed limit sign, the VSL shall be supplemented with the TES 18371 sign.

Figure 3.37 VSLS supplementary (TES 18371) sign

3.4.9.1 Sign brightness requirement

The design of VSLs signs should meet the requirements of AS 5156 for sufficient conspicuity. The flaring effect of illuminated numerals may be an issue, especially for smaller sign sizes. The intensity of the illumination will affect the level of flaring experienced and thus the illumination should be adjusted based on the lighting conditions, especially during daylight hours. Flaring is not usually an issue with the smaller VSL size used in road tunnels due to the more controlled lighting environment.

3.4.9.2 Sign annulus flashing requirement

When displaying the normal speed limit for the road all pixel rings of the annulus shall be illuminated. When displaying other than the normal speed limit, the outermost ring of the red annulus shall be static to satisfy the regulatory status of the sign, and all other inner rings shall be flashing. The option of enhancing the VLS with flashing yellow lights which operate when the reduced limit is used (AS 1742.4 Clause 3.5(b)) shall not be used.
3.5 Other speed limits – special signing requirements

3.5.1 Signing for high pedestrian activity areas

The start of the high pedestrian activity area shall be signed with duplicated minimum ‘B’ size ‘Speed restriction’ (R4-1) signs within the driver’s line of sight. They must be visible to all drivers in all lanes.

**Figure 3.38** Speed restriction (R4-1) sign

Vegetation and other roadside furniture must be taken into account to ensure a clear line of sight to the signs. 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.

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.

Speed restriction signs may be static, electronic variable speed limit signs (**refer Section 3.4.9 and Section 3.5.1.2**) or time based speed limit signs (**refer Section 3.5.1.2**).

**Figure 3.39** Variable speed limit (R4-1) sign

The end of the high pedestrian activity area shall be signed with duplicated ‘B’ size ‘Speed restriction’ (R4-1) signs indicating the return to the higher limit.

3.5.1.1 Spacing of repeater signs

Repeater signs shall be located in accordance with Table 3.3, 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.

<table>
<thead>
<tr>
<th>Location</th>
<th>Distance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Departure side of all major intersections</td>
<td>20 m – 50 m from the intersection</td>
</tr>
<tr>
<td>Within first km</td>
<td>200 m to 300 m</td>
</tr>
<tr>
<td>Intervals beyond first km</td>
<td>Approximately 500 m</td>
</tr>
</tbody>
</table>

‘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 3.3.

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

Part time 40 km/h speed limits shall be signed by either variable or static speed limit signs (**refer Figure 3.42**), or a combination of both. They shall be installed as per the above requirements for static or variable signs, Figure 3.41, and the following additional requirements.

Where variable speed limit signs are used, the W8-SA106 Pedestrian Precinct supplementary plate shall be used to supplement the variable R4-1 sign at the start of the pedestrian activity centre speed limit.

**Figure 3.40** Pedestrian precinct supplementary plate (W8-SA106)
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.

Figure 3.42 Time based speed limit (R4-SA102) sign

To provide advance warning to drivers entering the part time speed limit from side roads, either the G9-SA131, G9-SA132 or G9-SA133 shall be installed 20 to 50 m on the approach to the intersection with the main road.

The G9-SA131 shall be used where the side road terminates at the intersection, and the part time speed limit applies in both directions on the main road.

The G9-SA132 shall be used where the side road continues over the main road and the 40 km/h speed limit applies in both directions on the main road.

The G9-SA133 shall be used where the side road continues over the main road and the 40 km/h speed limit applies in both directions on the main road.
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.

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 not be placed 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 must be located to meet the following requirements:

- Signs should be located 20 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 influenced by the gradient to maintain their low speed.

To ensure the 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.

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.

In situations where the speed limit beyond the ‘End Speed Limit Area’ sign is a linear speed limit other than the default, a single modified ‘End Speed Limit Area’ (R4-SA103) 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.

**Figure 3.48** End Speed Limit Area (R4-SA103) sign above the R4-1 sign

Single ‘A’ size ‘Speed Limit Area’ (R4-10) 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.

At the end of the 25 km/h speed limit for a koala crossing within a speed-limited area, the ‘Speed Limit Area’ (R4-10) sign shall be used.

At the end of a school zone within a speed-limited area, the ‘End School Zone 40 Area’ (R4-SA60) sign shall be used.

**Figure 3.49** End School Zone 40 Area (R4-SA60) sign

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.

**Figure 3.50** End School Zone End 40 Area (R4-SA61) sign

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 (refer **Figure 3.51**). This is to avoid the difficulties associated with signing the entire length of road 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.
3.5.3 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. 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.

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.

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. 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.
3.5.4 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 shall not be used.

A school zone may consist of a single road, or a network of roads.

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.

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.

### Figure 3.54 School zone (R3-SA58) sign

![School zone sign](image)

The school zone warning sign shall be used in advance of school zones:

- located on unsealed roads, or
- where the school zone is unexpected.

### Figure 3.55 End School Zone Speed Limit (R4-SA59) sign

![End School Zone Speed Limit sign](image)

### Figure 3.56 School zone warning (W6-SA106) sign

![School zone warning sign](image)

#### 3.5.4.1 Zigzag pavement markings

A zigzag pavement marking shall be used in advance of all school zones on sealed roads in accordance with the DPTI 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.

#### 3.5.4.2 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.
3.5.5 Signing for speed limits 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.

Figure 3.57 Speed restriction (R4-1) sign with On Beach (TES 18837) 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.

3.5.5.1 20 km/h beach speed limit

Signs for a 20 km/h beach speed limit shall be installed as follows:

- For drivers entering the beach, a 20 km/h speed limit sign supplemented by the sign ‘On Beach’ (TES 18837) shall be placed on both sides of the road facing drivers before they enter the beach (refer to Figure 3.58 and Figure 3.59).
- For drivers exiting the beach, the speed limit of the road ahead shall be indicated by a speed limit sign facing drivers exiting from the beach. The ‘END Speed Limit’ sign (R4-12) shall be used where the conditions stated in AS 1742.4 are met.
- For drivers on the beach, a 20 km/h sign shall be installed such that drivers on the beach will face this sign before entering the pedestrian area.
- For drivers leaving a 20 km/h section of beach and entering a 50 km/h section of beach, 50 km/h signs shall face drivers leaving the 20 km/h section. Where the 20 km/h speed limit extends to the urban boundary along the beach, an ‘END (20) Speed Limit’ sign (R4-12) shall be used.

3.5.5.2 50 km/h beach speed limit

Signs for a 50 km/h beach speed limit shall be installed as follows:

- For drivers entering the beach, a 50 km/h speed limit sign supplemented by the sign ‘On Beach’ (TES 18837) shall be placed on both sides of the road facing drivers before they enter the beach (refer to Figure 3.58).
- For drivers exiting the beach, the speed limit of the road ahead shall be indicated by a speed limit sign facing drivers exiting from the beach. The END Speed Limit sign (R4-12) shall be used where the conditions stated in AS 1742.4 are met.
- For drivers leaving a 20 km/h section of beach and entering 50 km/h section of beach, 50 km/h signs shall face drivers leaving the 20 km/h section.
- For drivers on the beach approaching the urban boundary, a 50 km/h sign shall be installed such that it is visible to drivers before entering the urban boundary.

3.5.5.3 Default speed limit

For drivers entering the beach, a speed limit sign is not used at the entry point to the beach where the default of 50 km/h or 100 km/h applies because it will imply to drivers that it may be safe to travel at that speed.

A speed limit sign shall not face drivers coming from the beach when the road about to be entered is subject to the 100 km/h default speed limit. In other cases, a speed limit sign indicating the speed limit of the road about to be entered from the beach shall face drivers coming from the beach. The END Speed Limit sign (R4-12) shall be used where the conditions stated in AS 1742.4 are met.

For drivers on the beach, the ‘END Speed Limit’ sign (R4-12) shall be used where the default 50 km/h or 100 km/h speed limit applies beyond the section of beach signed at 50 km/h or 20 km/h.
**Figure 3.58** Speed limits on beach within the urban boundary

**Figure 3.59** Speed limit on beach outside of the urban boundary
Appendix A: References

Reference material for Safe System, speed and speed limits

The following documents provide additional reference material relating to the Safe System, speed and speed limits:

Appendix A1  Government plans

- Towards Zero Together – South Australia’s Road Safety Strategy 2020
  (This document is accessible through http://dpti.sa.gov.au/towardszerotogether)
- National Road Safety Strategy 2011-20
  (This document is accessible through www.infrastructure.gov.au)
- Australia’s Safe System approach
  (This document is accessible through http://roadsafety.gov.au/nrss/safe-system.aspx)
  (This document is accessible through http://dpti.sa.gov.au/towardszerotogether)
- Streets for People / Compendium for South Australian Practice
  (This document is accessible through https://www.healthybydesignsa.com.au/resources/)

Appendix 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 www.legislation.sa.gov.au)

Appendix A3  DPTI 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
- DPTI Operational Instructions
- SA Standards for Workzone Traffic Management
- Guidelines for Events on SA Roads
  (These documents are accessible through www.dpti.sa.gov.au/standards/tass)
Appendix A: References

- A Functional Hierarchy for South Australia’s Land Transport Network (This document is accessible through http://www.sa.gov.au/transport/corridors)
- DPTI Master Specification (This document is accessible through http://www.dpti.sa.gov.au/contractor_documents/specifications)
- Road Crashes in South Australia: Statistical Summary of Road Crashes & Casualties in 2015 (This document is accessible through http://dpti.sa.gov.au/towardszerotogether)

Appendix A4  Australian standards

- Australian Standard AS 1742.1, Manual of uniform traffic control devices, Part 1: General introduction and index of signs
- Australian Standard AS 1742.4, Manual of uniform traffic control devices, Part 4: Speed controls
- Australian Standard AS 1743, Road signs - Specifications
- Australian Standard AS 2890.1, Parking facilities – Off street car parking
- Australian Standard AS 5156, Electronic speed limit signs

Appendix A5  Austroads documents

- Guide to Traffic Management – Part 5: Road Management
- Guide to Traffic Management – Part 8: Local Area Traffic Management
- Guide to Traffic Management – Part 10: Traffic Control and Communication Devices
- Austroads Report AP-T141-10 – Infrastructure / Speed Limit Relationship in Relation to Road Safety Outcomes
- Austroads Report AP-R455-14 – Model National Guidelines for Setting Speed Limits at High-risk Locations
- Austroads Report AP-R508-16 – Speed Reduction Treatments for High-speed Environments

Appendix A6  Research reports


• Nilsson, G, 1990, *Reduction in the speed limit from 100 km/h to 90 km/h during summer 1989: effects on personal injury accidents, injured and speeds*, report no. 358A, Swedish Road and Traffic Research Institute, Linkoping, Sweden.


• Scharping, F K, 1994, *Experience Report. 30 km/h Speed Limit Zones in Hamburg, Speed Reduction Measures on Major Inner City Roads*, Transportation Research Institute, Technion-Israel Institute, Haifa, Israel.


