Department of Transport and Main Roads

Queensland Road Safety Technical User Volumes (QRSTUV)

Guide to Speed Management

March 2025

Queensland Government

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About this document

The *Queensland Road Safety Technical User Volumes* (QRSTUV): *Guide to Speed Management* is the document used for speed limit setting and speed management in Queensland.

How to use this document

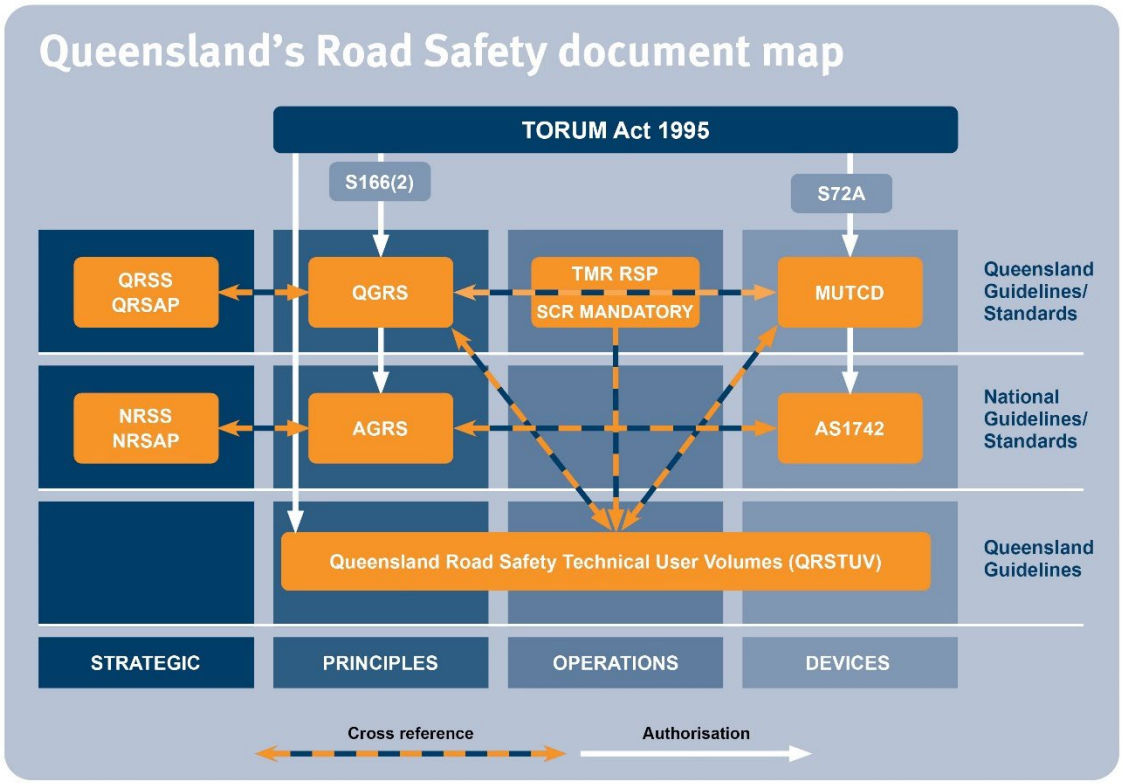
The Department of Transport and Main Roads has agreed to adopt the standards published in Austroads Guides and Australian Standards as part of national harmonisation. The department seeks to avoid duplicating information addressed in national guidance and has developed documents instead that provide Queensland-specific advice while following the structure established in Austroads Guides and Australian Standards.

Queensland-specific advice includes practices which vary from national practice because of local environmental conditions (such as geography, soil types, climate); different funding practices; local research; local legislation requirements; and to expand instruction on particular issues.

As such, the *Queensland Guide to Road Safety* (QGRS) takes precedence over the Austroads *Guide to Road Safety* (AGRS,) except where the Austroads Guide is accepted without changes. In the same manner, the Queensland *Manual of Uniform Traffic Control Devices* (Queensland MUTCD) takes precedence of the Australian Standard AS 1742, except where the Australian Standards are accepted without changes.

The QRSTUV: *Guide to Speed Management* is designed to be read and applied together with the QGRS and AGRS, and Queensland MUTCD and AS 1742. Readers shall have access to the Austroads Guide and Australian Standards to understand its application in Queensland.

A summary of the documents relevant to road safety practice in Queensland, and their links, is provided below:



Definitions

The following general amended definitions apply when reading the *Queensland Road Safety Technical User Volumes: Guide to Speed Management*.

Term	Definition
AGRS	Austroads *Guide to Road Safety*
AS 1742	Australian Standard AS 1742 *Manual of Uniform Traffic Control Devices*
NRSS	*National Road Safety Strategy*
NRSAP	*National Road Safety Action Plan*
QGRS	*Queensland Guide to Road Safety*
QRSS	*Queensland Road Safety Strategy*
QRSAP	*Queensland Road Safety Action Plan*
QRSTUV	*Queensland Road Safety Technical User Volumes*
RSP	Queensland Department of Transport and Main Roads *Road Safety Policy*
TORUM Act 1995	*Transport Operations (Road Use Management) Act 1995* (Qld)

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1 Introduction

1.1 Background

Control of speed is an important aspect in effective management of traffic. Involvement of speed related factors in road crashes is well established and generally understood by road users.

It should not be assumed that the provision of a lower speed limit will address all perceived road safety problems or even alter travel speeds. Experience and research in Australia and overseas has demonstrated that arbitrarily imposed limits that are too low attract poor levels of compliance. Actual speeds may remain at the same levels as before unless the road environment is changed to support the lower speed, road users understand and accept the reasons for the lower speed, or substantial and continued enforcement is undertaken.

Authorities need to ensure that the method of setting speed limits can be justified as being appropriate for the environment, the function of the road and the safety of all road users.

The *Transport Operations (Road Use Management) Act 1995* (Qld) (TORUM) states that, while it may be possible to regulate to achieve the highest level of safety, doing so would ignore the impact of the regulation on the efficiency of road use and that there is a need to achieve an appropriate balance between safety and the cost that regulation imposes on road users and the community.

The methods described in this document aim to achieve such a balance through setting speed limits that are realistic and consistent and consequently encourage voluntary compliance.

1.2 Scope

This document:

- provides guidance on the process for determination and setting of appropriate speed limits on Queensland roads, and
- speed limit setting in school zones.

This document does not cover the following:

- advisory speed signing, such as that used at sub optimal alignments (refer to the Queensland *Manual of Uniform Traffic Control Devices* (Queensland MUTCD) Part 2: *Traffic Control Devices for General Use*)
- temporary speed limit zoning for roadworks (refer to the *Queensland Guide to Temporary Traffic Management* (QGTTM) and the Queensland MUTCD Part 3: *Traffic Control for Works on Roads*)
- speed limit zoning for tramways
- 110 km/h speed limits on a declared motorway
- speed control in Local Area Traffic Management (LATM) areas (refer to the Queensland MUTCD Part 13: *Local Area Traffic Management*), or
- traffic control devices to be used in Queensland for the regulatory control of traffic speed (refer to the Queensland MUTCD Part 4: *Speed Controls*).

1.3 Professional engineering service

Road authorities are advised that speed limit setting is a professional engineering service pursuant to the *Professional Engineers Act 2002*.

In using this document, or when acquiring engineering services to undertake a speed limit setting process, road authorities have obligations under the *Professional Engineers Act 2002*.

The *Professional Engineers Act 2002* provides that a person who is not a Registered Professional Engineer of Queensland (RPEQ) must not carry out professional engineering services, except that a person who is not an RPEQ may carry out professional engineering services while under the direct supervision of an RPEQ who is responsible for the engineering services being undertaken.

1.4 Responsibility and authority for installation

TORUM provides that official traffic signs shall be installed only by the authority of the Director General of Transport and Main Roads or a local government. TORUM also provides that any such sign shall be installed in accordance with the methods, standards and procedures prescribed in this document. For guidance on the responsibility and authority for installation, removal or change of official traffic signs, please refer to the Queensland MUTCD Part 2 and Queensland MUTCD Part 4.

1.5 Referenced documents

This document makes reference to the following documents / publications:

- *Professional Engineers Act 2002*
- *Transport Operations (Road Use Management) Act 1995* (Qld) (TORUM)
- *Coastal Protection and Management Act 1995*
- Transport and Main Roads *Queensland Guide to Road Safety Part 3: Safer Speeds*
- Transport and Main Roads *Queensland Guide to Road Safety* (other Parts)
- Transport and Main Roads *Queensland Guide to Traffic Management*
- Transport and Main Roads Queensland MUTCD Part 4: *Speed Control*
- Transport and Main Roads Queensland MUTCD (other Parts)
- Transport and Main Roads Queensland Road Safety Technical User Volumes Guide to Schools
- Transport and Main Roads *Queensland Guide to Temporary Traffic Management*
- Transport and Main Roads *Road Planning and Design Manual 2nd Edition* (RPDM)
- Transport and Main Roads *Routine Maintenance Guidelines*
- Transport and Main Roads *Infrastructure Risk Rating Manual*
- Transport and Main Roads Queensland *Guide to Smart Motorways*
- Transport and Main Roads Queensland *Guide to Traffic Management Part 10 Transport Control – Types of Devices*
- Transport and Main Roads *Speed management at shared paths*
- Transport and Main Roads Technical Specifications

- Transport and Main Roads Technical Note TN170 *Township Entry Treatments (TETs)*
- Australian Standard AS 1428 *Design for access and mobility Part 1: General requirements for access – New building work*
- Australian Standard AS 1742 *Manual of uniform traffic control devices*
- Australian Standard AS 5156 *Electronic speed limit signs*
- Austroads *Guide to Traffic Management* Part 4: *Network Management Strategies*, and
- Austroads *Guide to Road Safety*.

1.6 Glossary of terms

Table 1.6 – Glossary of terms

Term	Definition
AADT	Average Annual Daily Traffic: the total volume along a length of road for a year, divided by 365 days.
ADT	Average Daily Traffic: the total volume along a length of road divided by the number of days recorded.
Bin	A bin is a discrete range of values into which all measurements within that range are accumulated (for example, 40–41 km/h or 56–57 km/h). A bin should have a range of 1 km/h.
Buffer zone	A speed zone, of minimal length, used for an incremental or a decremental speed change between two speed limit zones, buffer zones are generally not used in Queensland, except at road works zones or on roads with VSL signs.
Built-up area	In relation to a length of road, built-up area means 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: a) buildings, not over 100 m apart, on land next to the road b) street lights not over 100 m apart.
Casualty crash	A road traffic crash where at least one person is injured, does not include property damage only crashes.
CBSL	Criteria Based Speed Limit (CBSL): A speed limit that is determined in accordance with specific criteria relevant to that speed zone.
Controlled approach	A controlled approach of an intersection is the approach controlled with traffic control devices such as traffic signals, GIVE WAY signs / GIVE WAY lines or STOP signs / STOP lines or ROUNDABOUT GIVE WAY or similar other regulatory devices (or right of way rule) used to control traffic.
CRR	Crash Risk Rating (CRR): A risk classification determined by a quantitative measure of personal crash risk based on frequency of occurrence of casualty crashes along the speed zone; CRR is a historic measure of crashes that have occurred.
DCA	Definitions for Coding Accidents (DCA) is a system of classifying crashes, using ‘collision diagrams’, based on the traffic movements leading up to the crash.

Term	Definition
Design standard (road)	The design standard relates to the level of service, mobility and safety provided by design elements such as: • horizontal and vertical curvature • sight distance • superelevation • pavement, shoulder and lane width • gradients, and/or • degree of access restriction.
EDD	Extended Design Domain.
Foreshore	The land lying between high water mark and low water mark as is ordinarily covered and uncovered by the flow and ebb of the tide at spring tides.
FSI crashes	Fatal and serious injury crashes.
HATUA	High Active Transport User Areas (HATUA) are areas that encourage social activity and are considered to have a significant value to the community by being a 'place' for people to gather – roads and streets that are considered to be within HATUAs have land uses and developments that generate or attract levels of pedestrians and people riding bikes that are considered higher than typical (refer Section 4.3.4).
IRR	Infrastructure Risk Rating (IRR): A measure of the expected risk associated with the road infrastructure based on an objective assessment of the road attribute data.
Local area	An urban area containing only local and collector roads which is bounded by arterial and sub arterial roads or features such as rivers, railway lines or the limit of urban development – a local area may comprise a suburb, or part of a suburb.
May	A permissive condition: where the word ‘may’ is used, it indicates that provision is conditional, or optional – usually, no specific requirement for design or application is intended.
Multilane road	A one way road, or a two way road, with two or more marked lanes (except bicycle lanes) that are: a) on the side of the dividing line or median strip where the driver is driving, and b) for the use of vehicles travelling in the same direction.
Must	Refer to definition of ‘*shall*'.
Narrow seals	Sealed roads of insufficient width for two vehicles to pass without use of the unsealed shoulder or verge.
Queensland MUTCD	Queensland *Manual of Uniform Traffic Control Devices.*
Pace	A nominated speed range in which the greatest number of vehicles in traffic is observed to travel under expected conditions past a nominated point; for example, the 15 km/h pace is the 15 km/h speed range in which the largest percentage of vehicles is observed to travel.
Pavement bars	Road pavement bars are raised blocks that may be used to augment painted islands and painted median strips to discourage, but not prohibit, traffic movements across the islands or median strips.
PMD	Personal mobility device, as defined by Queensland *Transport Operations (Road User Management) Act 1995*.

Term	Definition
RASL	Risk Assessed Speed Limit (RASL): A speed limit that is determined through consideration of a combination of crash risk, infrastructure risk, environment context class and road functional class
RPEQ	Registered Professional Engineer, Queensland as defined by the *Professional Engineers Act 2002*.
RRM	Road Risk Metric (RRM): a descriptive risk classification that is a combination of the CRR and the IRR.
SDSL	Speed Data Speed Limit (SDSL): a speed limit that is based on analysis of speed data within a speed zone where the speed limit is under review
Shall	A mandatory condition: stipulation of a ‘shall' condition indicate that the requirements stipulated are to be met.
Should	Indicates a recommendation: Where the word ‘should’ is used, it is considered to be recommended usage, but not mandatory – any recommendation that is not applied shall be based on sound traffic engineering judgement and documented.
SLRP	Speed Limit Review Panel.
Speed environment	The elements of the road and traffic environment that collectively influence a road user's determination of an appropriate travel speed.
Speed limit	The maximum speed at which a vehicle is legally permitted to travel on a particular section of road.
SMC	Speed Management Committee.
Speed transition	In relation to VSLs, a term which describes the change of speed limit at a single VSL site: the speed transition creates a new speed zone, which may function as a VSL buffer zone.
Speed zone	A length of road or a network of roads (area) to which a single speed limit applies.
TAC	Traffic Advisory Committee.
TORUM	*Transport Operations (Road Use Management) Act 1995* (Qld).
Traffic carrying road	A road which carries traffic and which primarily has trip origins and destinations outside a local area.
Traffic control device	Any sign, signal, pavement marking or other installation placed or erected under authority of the TORUM for the purpose of regulating, warning or guiding road users.
Traffic route	A road or street which primarily serves trips originating and terminating to enable travel between localities, typically arterial, sub arterial and major collector roads.
Uncontrolled approach	An uncontrolled approach of an intersection is the approach which runs on priority against another approach (on side roads) controlled by right of way rule or by signs (for example, GIVE WAY, STOP) or even signals.

2 Speed limits and speed zones

2.1 General

The purpose of this section is to provide context for the rest of the document.

2.2 Principles

The following principles shall be observed when determining speed limits:

a) Speed limits should be set at the lowest applicable speed, taking into consideration the safe system, unless justification for a higher speed limit is provided.

b) Speed limits should be capable of being enforced.

c) Speed limits should not be applied specifically for the purpose of compensating for isolated geometric deficiencies.

d) All signposted speed limits shall be in multiples of 10 km/h. The exception to this is on footpaths or shared paths, where a 25 km/h speed limit sign may be installed when warranted.

e) The lowest speed limit that can be applied is 10 km/h (at a shared zone, refer Section 4.3.2). The maximum speed limit that can be applied is 110 km/h, subject to the provisions described at Section 7.8.

2.3 Default speed limits

In Queensland:

- the default speed limit for a road in a built-up area is 50 km/h, and
- the default speed limit for a road that is not in a built-up area is 100 km/h.

These speed limits are legally enforceable with or without posted signs, which avoids the need for extensive signing.

A default speed limit is not an appropriate process for selecting a speed limit. A default speed limit is a method of applying an appropriately determined speed limit.

2.4 Speed zones

There are two types of speed zones, being linear speed zones and area speed zones.

The process of establishing appropriate speed limits for a linear speed zone requires that discrete sections of roads are considered separately based on function, prevailing traffic speed and speed environment. These homogeneous, discrete sections are referred to as *speed zones*.

The process of establishing appropriate speed limits for an area speed zone requires that consistent characteristics of roads are considered together based on a uniform road function and speed environment. These uniform areas of roads are referred to as area *speed zones*.

Speed zoning is the first step in the establishment of a speed limit.

2.4.1 Non-uniform area wide speed limit

A non-uniform area may also be signed as an area speed zone, encompassing all roads in an area of more than one road function type, should it be determined that the linear and/or area speed limits on these roads are the same.

2.5 Variable speed limits

Speed limits are generally fixed, that is, they apply at all times, however it may be appropriate in some circumstances to establish a Variable Speed Limit (VSL) – see Section 7.2.

3 Speed limit setting process

3.1 Introduction

The procedure for determining a speed limit for a speed zone is outlined in this section of this document.

The use of a standard procedure to determine speed limits is necessary to provide:

a) guidance for engineers regarding the sequence of data collection and analysis, and the relative importance of the various criteria used in determining speed limits

b) consistent methodologies between jurisdictions and engineers

c) consistent application of speed limits that take account of road function, speed environment, safety performance requirements, other considerations, and the needs of all road users

d) standardised documentation which assists in satisfying accountability, quality management requirements and transparency of governance, and

e) preservation of the integrity and credibility of speed limits.

3.2 Roles and responsibilities

The Speed Limit Review process described in this document involves a number of roles. The responsibilities associated with each of these roles is as follows:

- **Engineer** – the Speed Limit Review process is considered a professional engineering service under the *Professional Engineers Act 2002*. Accordingly, the engineer responsible for undertaking a Speed Limit Review must be a certified Registered Professional Engineer of Queensland (RPEQ) (refer Section 1.3.1). The engineer is responsible for undertaking, or for directly supervising others who are undertaking, the technical components within stages 1–7, and stage 9 of the Speed Limit Review process and providing additional support to the responsible officer, Speed Management Committee and/or Speed Limit Review Panel where required. It is the responsibility of the engineer to ensure that the technical elements of the Speed Limit Review process are undertaken in accordance with the procedures outlined within this document.
- **Responsible officer** – the responsible officer has the ultimate authority to approve the implementation of any recommendations from a Speed Limit Review. The responsible officer shall ensure that the engineer is appropriately certified and adheres to the process described within this document. The responsible officer shall also ensure that the recommendations have been fully understood and considered by the Speed Management Committee. In the event that endorsement of the recommendations by the Speed Management Committee cannot be obtained, the responsible officer shall refer the recommendations of the Speed Limit Review, along with feedback from the Speed Management Committee, back to the engineer to reconsider. Additionally, the responsible officer shall ensure that any Speed Limit Reviews and all related decisions are appropriately documented and stored for future reference.

  For speed limit reviews conducted on state-controlled roads, the role of responsible officer is assigned to the appropriate Department of Transport and Main Roads' District Director, or Deputy Regional Director if there is no District Director. For Speed Limit Reviews conducted on local government roads, the role of responsible officer is assigned to the Chief Executive Officer or their delegate.

- **Speed Management Committee** – the Speed Management Committee is to deliberate thoroughly on all issues in relation to the Speed Limit Review recommendations that are presented to it by a road authority. The Speed Management Committee will also come to a decision to either:
  - endorse, or
  - not endorse.

  The Speed Management Committee may request further information about the recommendations of each Speed Limit Review presented to it but shall request further information if it does not endorse the speed limit review recommendations presented.
- **Speed Limit Review Panel** – it is the responsibility of the Speed Limit Review Panel to independently review, assess and provide feedback on any referred Speed Limit Reviews.

3.3 Homogeneity of road

The Speed Limit Review process shall be applied only to speed zones which are considered homogeneous in terms of characteristics, movement and place functions, and speed environment (refer to Section 2.4). Accordingly, it is necessary to determine whether the road is, or area of roads, are homogeneous for the entire length, or area. If not, the speed environment should be divided into homogeneous segments and the review process applied to each segment or area.

Determination of separate homogeneous segments or areas will require a subjective assessment of the continuity of a speed environment, based on the density of driveways (accesses) and intersections, horizontal and vertical alignment, general speed environment, land use and traffic volume. Each length should ultimately need to meet the minimum length recommendations of Section 3.4.

The homogeneity of a road section or area should be assessed prior to undertaking of the Speed Limit Review process described in Section 3.5. Compromise may be needed in some areas to avoid frequent and continual changes in the speed limit; however, this shall be balanced with the overall aim of aligning speed limits with the speed environment and the movement and place function of the road.

3.4 Length of speed zones

Except where specified elsewhere in this document, the minimum length of a speed zone is defined by the speed limit, as specified in Table 3.4. Unless specifically detailed elsewhere in this document, speed zones are to be as long as possible and should not be less than the ‘minimum lengths’ in Table 3.4.

There is no minimum length when an area speed zone is applied.

Where development density varies along a homogenous road section, it is desirable to keep the frequency of speed limit changes to a minimum. A speed zone should, therefore, bridge any length of road for which a higher limit would otherwise be indicated, but where the length is shorter than indicated in Table 3.4.

Table 3.4 – Minimum lengths of speed zones

Speed Limit (km/h)	Minimum Length (km)
10	Not applicable
20	Not applicable
30	0.3
40	0.4
50	0.5[1]
60	0.9
70	1.1
80	1.2
90	1.8
100	2.0
110	20.0
School zone	0.2 or 0.3 (see Section 7.1)

Notes:

[1] Minimum length provisions do not apply where default speed limit for a road in a built-up area of 50 km/h is in operation.

3.5 Overview of Speed Limit Review process

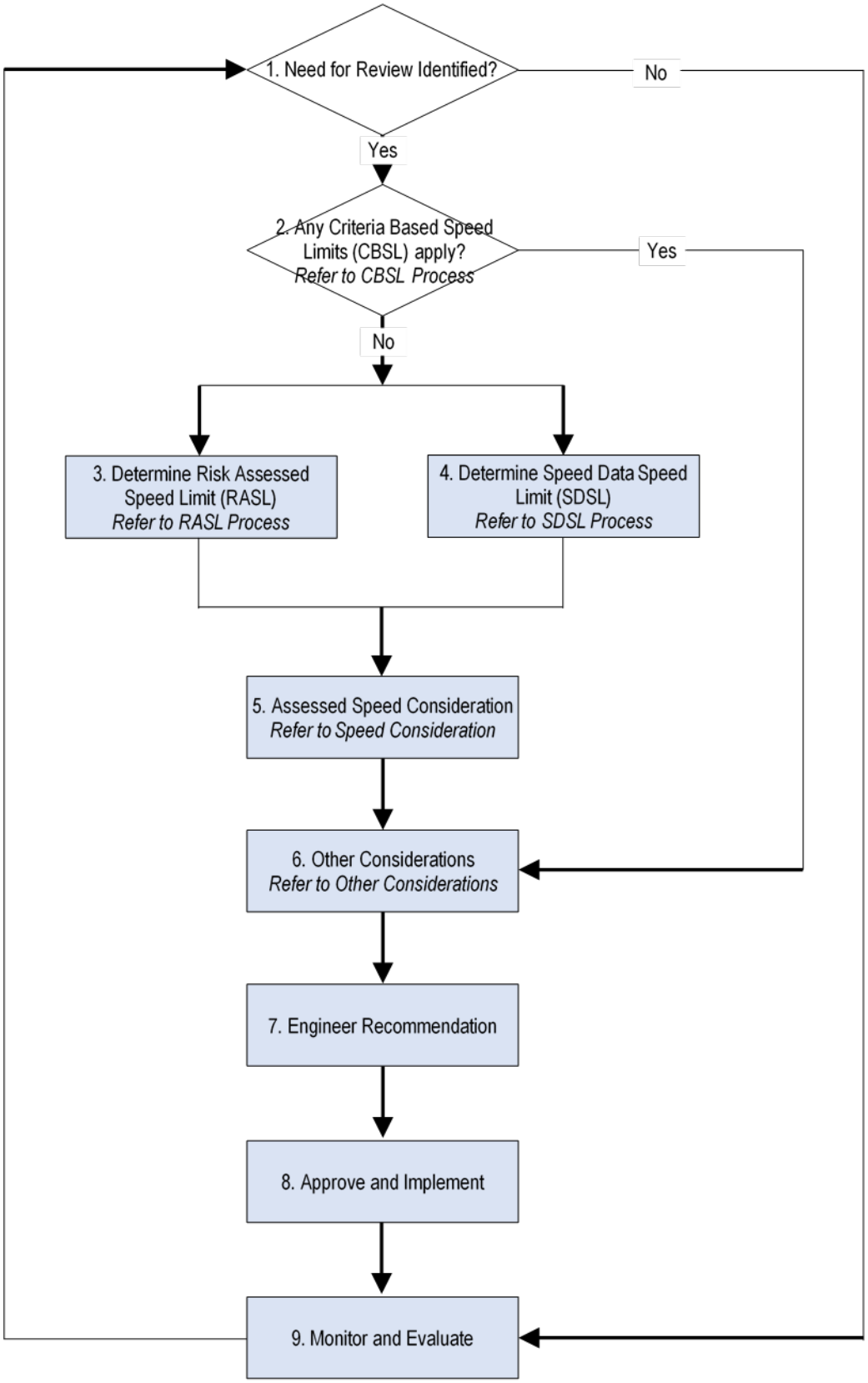
The process described in this document is applicable to existing roads. This process should also be applied to new roads as soon as possible after these are open to traffic, taking into account the need to allow sufficient time for traffic patterns and flows to stabilise and normalise.

Broadly, the aim of a Speed Limit Review is to determine and implement an appropriate speed limit. The specific objectives of a Speed Limit Review are to undertake a staged technical assessment, and to make a recommendation for endorsement, approval and implementation.

The Speed Limit Review process comprises nine stages, as indicated in the flowchart at Figure 3.5.

Once a speed limit is approved and implemented, it should be evaluated and monitored and reviewed; hence, the process is iterative and cyclical. The process described here also makes provision where there is not agreement on a recommended speed limit.

Figure 3.5 – Speed Limit Review process



The following text describes each of the stages and indicates where more detail about each stage is provided in this document.

3.5.1 Stage 1: Need for Speed Limit Review

Stage 1 is the decision to undertake a Speed Limit Review.

Speed limits should be reviewed regularly to determine whether they are still appropriate, as well as in response to identified circumstances. Circumstances that may lead to a review of a speed zone include:

a) the existing speed limit may no longer be appropriate, due to factors such as:
   i. changed traffic or land use patterns, or
   ii. the road safety performance of the speed zone.
b) the completion of various works over-time has resulted in a range of speed environments within a road section
c) community requests, or other enquiries, have prompted a review of a particular speed limit
d) existing speed zone lengths are less than the minimum lengths specified in Section 3.4, including pre-existing buffer zones
e) identified as part of the monitoring and evaluation process (Stage 9).

Road authorities should develop a forward work program for reviewing speed zones on roads in their jurisdictions to demonstrate the currency of the existing speed limit.

For an identified speed zone, unless a Speed Limit Review has already been determined necessary, a desktop review of the speed zone shall be undertaken to determine if a full Speed Limit Review is to occur, with the following possible outcomes:

- If the desktop review indicates a Speed Limit Review is to occur, proceed to Stage 2.
- If the desktop review indicates a Speed Limit Review is not needed, proceed to Stage 9 to monitor and evaluate as needed. A record of the desktop review is to be retained by the Responsible Officer.

3.5.1.1 Desktop review

A desktop review is a formal part of the Speed Limit Review process to determine if there is a need to undertake a full Speed Limit Review. This is to ensure that any changes in traffic conditions, speed environment including land use or increase in casualty crashes which may influence the speed limit can be determined. A desktop review shall consider, as a minimum, changes to the following:

- route consistency
- length of speed zone
- traffic volumes
- crash risk rating
- road infrastructure element changes, and
- adjacent speed limits.

3.5.2 Stage 2: Criteria Based Speed Limit assessment

Stage 2 requires the undertaking of a Criteria Based Speed Limit (CBSL) assessment.

A CBSL is a speed limit determined in accordance with specific criteria relevant to that speed zone. Detail of CBSLs that exist are provided at Section 4 of this document.

The aim of the CBSL assessment stage is to identify whether or not a CBSL is applicable to the speed zone under review.

If a speed zone satisfies the criteria for application of a CBSL, it is possible to go directly to Stage 6 of the Speed Limit Review process, which is to consider other elements that could affect the selection of an appropriate speed limit.

If no CBSL applies, then it is necessary to proceed to Stages 3 and 4.

3.5.3 Stage 3: Determination of the Risk Assessed Speed Limit

Stage 3 is the determination of the Risk Assessed Speed Limit (RASL).

A RASL is a speed limit that is determined through consideration of a combination of crash risk, infrastructure risk, environment context class and road functional class.

More detail on how to derive the RASL for a speed zone is provided at Section 5.1 of this document.

Stages 3 and 4 may be completed concurrently but both shall be completed prior to commencement of Stage 5.

3.5.4 Stage 4: Determination of the Speed Data Speed Limit

Stage 4 is the determination of the Speed Data Speed Limit (SDSL).

A SDSL is a speed limit that is based on analysis of speed data within a speed zone where the speed limit is under review.

More detail on how to derive the SDSL for a speed zone is provided at Section 5.2 of this document.

Stages 3 and 4 may be completed concurrently but both shall be completed prior to commencement of Stage 5.

3.5.5 Stage 5: Assessed Speed Consideration

Stage 5 is the Assessed Speed Consideration.

The objective of Stage 5 is to use the information derived from both Stage 3 and Stage 4 to select an appropriate speed limit.

The process of Assessed Speed Consideration is described at Section 6 of this document.

Upon completion of Stage 5 it is necessary to proceed to Stage 6.

3.5.6 Stage 6: Other Considerations

Stage 6 is the Other Considerations.

The objective of Stage 6 is to consider other elements, not covered in a previous stage, that may exist which would affect the selection of an appropriate speed limit.

The process of Other Considerations is described at Section 7 of this document.

Upon completion of Stage 6 it is necessary to proceed to Stage 7.

3.5.7 Stage 7: Engineer recommendation

Stage 7 is the process of making a recommendation based on the preceding stages.

The process of making a recommendation is described at Section 8 of this document.

Upon completion of Stage 7 it is necessary to proceed to Stage 8.

3.5.8 Stage 8: Approve and implement

Stage 8 is the process of approval and implementation.

The process of approval and recommendation is described at Section 9 of this document.

Upon completion of Stage 8 it is necessary to proceed to Stage 9.

3.5.9 Stage 9: Monitor and evaluate

Stage 9 is the process of monitoring and evaluation.

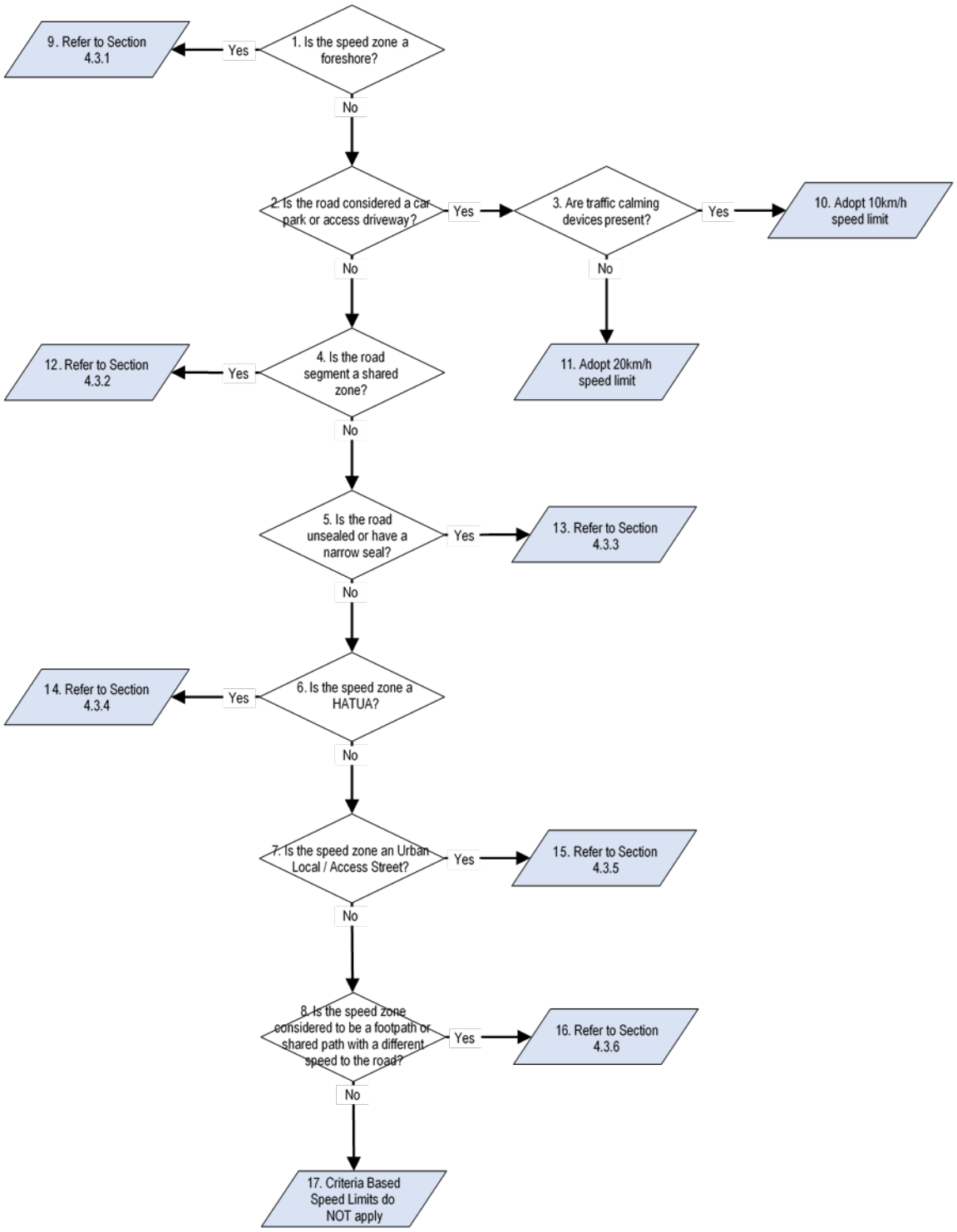
The process of monitoring and evaluation is described at Section 10 of this document.

4 Criteria Based Speed Limits

4.1 General

A CBSL is a speed limit that is determined in accordance with specific criteria relevant to that speed zone. This section describes the process that shall be used to determine whether a CBSL applies. The process is depicted in Figure 4.1, which shall be read in conjunction with the relevant sections following.

Figure 4.1 – Flowchart for Criteria Based Speed Limits



In the context of the flowchart at Figure 4.1 and Stage 2 of the Speed Limit Review process described at Section 3.5, the engineer shall decide whether or not one of these CBSLs is applicable for the speed zone that is under review.

Stages 3, 4 and 5 of the Speed Limit Review process may be omitted if it is determined that a CBSL applies.

4.2 Criteria Based Speed Limit process

The CBSL process comprises eight steps, the last of which is that a CBSL does not apply. With reference to Figure 4.1, this section describes briefly each of the steps where a decision is to be made about application of a CBSL, with reference to where in this document more information about each CBSL is located.

Step 1	Is the speed zone a foreshore? If so, guidance for speed limits in a **foreshore speed zone** is provided at Section 4.3.1.
Step 2	Is the speed zone considered to be a car-park or access driveway?
Step 3	If the speed zone being considered is a **car-park or access driveway**, then it is usual to apply a 10 km/h speed limit if there are traffic calming devices present and a 20 km/h speed limit if there are not traffic calming devices present.
Step 4	Is the speed zone a shared zone? The criteria for a **shared zone** are described at Section 4.3.2. If the speed zone being considered is a shared zone, then a 10 km/h speed limit applies.
Step 5	Is the road segment unsealed or does it have a narrow seal? If so, guidance for speed limits is provided at Section 4.3.3.
Step 6	Does the speed zone satisfy **HATUA zone** requirements? If so, guidance for speed limit is provided at Section 4.3.4.
Step 7	Is the speed zone an urban (or semi urban) **local access street**? The criteria and speed limits for a local / access street are described at Section 4.3.5.
Step 8	Is the speed zone considered to be a footpath or shared path with a different posted speed to the road? The criteria for a **footpath or shared path speed zones** are described in Section 4.3.6.

While the selection of a CBSL may appear at face value to be a prescriptive process, application of engineering judgement (see Section 1.3.1) is expected when determining whether a CBSL is appropriate.

4.3 Types of Criteria Based Speed limit

The types of CBSL that may apply are described in more detail in the following sections.

4.3.1 Foreshore speed zone

The foreshore is defined (in the *Coastal Protection and Management Act 1995*) as *the land lying between high water mark and low water mark as is ordinarily covered and uncovered by the flow and ebb of the tide at spring tides*.

There are many variables on the foreshore that may change over time of day or year. Tidal flows influence the width of the foreshore that is available for driving or for conducting other beach activities. Similarly, seasonal factors determine the volume of both pedestrian and traffic activity on a foreshore. Other environmental factors, such as washouts and so on, also influence driving speeds on the foreshore as well as activities such as camping, hang gliding, and the preservation of native and endangered species.

This section of this document applies to foreshores where vehicles may be driven on the foreshore and where the default speed limit for a road that is not in a built-up area (that is, 100 km/h) is considered to be inappropriate due to the level of pedestrian and other activities on the foreshore.

If there is no posted speed limit on the foreshore, the default speed limit for a road that is not in a built-up area (that is, 100 km/h) will apply and drivers will choose a speed with which they are comfortable, depending on the variables. Posted speed limits considered for a foreshore may range of 10 km/h to 100 km/h, depending on the level of activity.

Where a posted speed limit is to apply on the foreshore, the speed limit should be based on a consideration of the peak pedestrian volume and activity on the foreshore. Setting a speed limit based on pedestrian volume and activity that happens only at certain times of the year, or where the activity or foreshore conditions vary significantly, may not suit some motorists during non-peak periods and may result in non-compliance with the speed limit during these periods.

The speed limit permitted on the foreshore should be based on the assumption that the conditions on the foreshore are ideal for driving: for example, it is free of washouts and the sand is well compacted. This may not always be the case but the speed limit represents the maximum safe speed under these ideal conditions. The local government shall consult with representatives from Transport and Main Roads and Queensland Police Service. It may also consult with representatives from Transport and Main Roads responsible for managing environment, natural resources, parks and wildlife, marine parks and any other stakeholder. Consultation with other agencies that may have an interest is also encouraged.

4.3.2 Shared zone

This is a zone with the speed limit applied to an area or length of road that is shared by vehicles, people riding bikes and people not travelling in vehicles, typically people using personal mobility devices, wheelchairs, or other mobility devices and pedestrians. Shared zones have no minimum length.

Shared zones are generally constructed in areas where the competing demands of pedestrians, people riding bikes, motorised vehicles and parking require a form of control which allows complete pedestrian mobility whilst at the same time enhancing pedestrian safety. A speed limit of 10 km/h applies.

In the design of a shared zone, the most important single element is to alter the environment to make it obviously different from other road environments. This can be achieved by the use of different coloured and textured paving, by the use of full width paving between property lines and by judicious and aesthetic placement of planters and other landscaping. In considering the needs of people with disabilities in a shared zone, reference should be made to Queensland MUTCD Part 10 *Pedestrian control and protection* and Australian Standard AS 1428.1 *Design for access and mobility, Part 1: General requirements for access — New building work*.

Shared zones are appropriate where all of the following conditions exist:

a) the road is not used as a high order movement route

b) active transport movements predominate

c) reasonable vehicle movements (for example, parking, loading / unloading, and so on) are required, and

d) it is desired to clearly establish the priority of pedestrian movement.

Entry to a shared zone is not restricted (that is, it is not controlled by permit) although particular classes of vehicle may be prohibited (for example, large trucks).

Parking bays are marked to control parking of vehicles within the shared zone.

Guidance for signing a shared zone is provided at Section 13.2. Textured pavements or other perimeter treatments should be considered (refer Queensland MUTCD Part 13).

4.3.3 Unsealed roads and roads with narrow seals

Speed limits, other than default built-up area, default outside built-up area or school zone speed limits (refer to Section 7.1) should not be applied to unsealed roads or roads with narrow seals, unless appropriate signage is provided indicating that drivers should drive to the conditions.

Where it is determined that a posted speed limit may be appropriate for a road section, it is up to the engineer to determine the appropriate posted speed limit. If a posted speed limit is applied, these roads shall be maintained for that posted speed limit.

4.3.4 High Active Transport User Area zone

The process of establishing an appropriate speed limit for a section or network of roads may be influenced by other road user activity alongside or on the road. The Movement and Place framework outlined in Austroads' *Guide to Traffic Management* Part 4: *Network Management Strategies* acknowledges that roads serve two primary roles for the users:

a) movement – facilitate the movement of people and goods, or

b) place – act as places for people.

The Movement and Place framework considers that roads serve a certain level of each of these roles as opposed to the traditional view that considered roads serve a balance between Movement and Access. High Active Transport User Areas (HATUAs) are areas that encourage social activity and are considered to have a significant value to the community by being a 'place' for people to gather. Roads and streets that are considered to be within HATUAs have land uses and developments that generate or attract levels of pedestrians and people riding bikes that are considered higher than typical.

The following presents a number of characteristics that should be considered, but not limited to, when identifying HATUA sites:

- there is a significant number of pedestrians travelling adjacent the road corridor for key periods of the day, **or**
- there is a high demand for pedestrians to cross the road corridor for key periods of the day, **or**
- there is a significant number of people riding bikes along the road corridor during key periods of the day, **or**

- there is high parking demand, **or**
- there is a pedestrian demand from an attractor within the road centre median (for example: parking facility, taxi rank, public toilet, park, recreation facility, or other public facility), **or**
- it is expected that any of these characteristics would increase in the near future, **or**
- any combination of these.

Examples of activity centres that might be expected to be considered a HATUA are:

- recreational areas, such as shorefronts and esplanades
- shopping strips and commercial areas
- hospital zones
- entertainment areas, and/or
- Central Business Districts.

Where the upper limit of 15 km/h pace is less than or equal to 39 km/h, a speed limit of 30 km/h may be adopted. Otherwise, a speed limit of 40 km/h should be adopted. If the upper limit of 15 km/h pace speed is higher than 49 km/h, the engineer shall consider whether additional controls are required to ensure greater levels of compliance.

Where it is considered desirable to implement a 30 km/h or 40 km/h speed limit and the upper limit of 15 km/h pace speed is greater than 39 km/h or 49 km/h respectively, the engineer shall consider whether additional controls are required to ensure greater levels of compliance. Additional controls may include road infrastructure enhancements (for example, signage or traffic calming devices), enforcement, community engagement or a combination thereof.

4.3.5 Local access street

The function of a local access street is to provide for direct property access and/or for limited local neighbourhood movement. Local streets are generally characterised by having the trip start or end within the local area and are typically classified as access, local streets or collector streets (refer to Table 5.1.5(b) for functional descriptions) in an urban environment (refer to Table 5.1.5(a) for environmental context classification descriptions).

Local streets typically have some or all of the following additional characteristics:

- a roadway width of 6-10 metres (or less)
- absence of centre line markings
- located in built-up areas which typically have maximum block sizes up to 2000 m², and
- have an average daily traffic (ADT) volume of typically up to 3000 vehicles (or service up to 300 dwellings).

Note: These typical characteristics are given for guidance only. Depending on the nature and extent of the local road network, there may be significant variation on the traffic volume and road features in the local road hierarchy.

Where the upper limit of 15 km/h pace exceeds 49 km/h, a speed limit of 50 km/h should be adopted. Where the upper limit of 15 km/h pace is less than or equal to 49 km/h, a speed limit of 40 km/h should be adopted, and where the upper limit of 15 km/h pace is less than or equal to 39 km/h, a speed limit of 30 km/h should be adopted.

Where it is considered desirable to implement a 30 km/h or 40 km/h speed limit and the upper limit of 15 km/h pace speed is greater than 39 km/h or 49 km/h respectively, the engineer shall consider whether additional controls are required to ensure greater levels of compliance. Additional controls may include road infrastructure enhancements (for example, signage or traffic calming devices), enforcement, community engagement or a combination thereof.

Engineers are reminded that speed limit signs (refer to Queensland MUTCD Part 4) are generally not installed on local streets where the default speed limit for a road in a built-up area of 50 km/h applies. There are instances, however, when 50 km/h speed limit signs will need to be installed. These include, for example, at the termination of school zones on local streets or when the function of a road changes from traffic carrying to local access.

4.3.6 Footpath or shared path speed zones

The default speed limit for a footpath or shared path for all drivers and riders on the path (for example, bicycle riders) is generally the speed limit of the adjacent road, that has been determined by either a preceding CBSL, or has been determined following the steps outlined in the speed limit setting process. An exception to this is for PMD's where the default regulatory speed limit under the Queensland Road Rules on a footpath or shared path is 12 km/h, unless one of the following applies:

- the posted speed of the adjacent road has been determined to be less than 12 km/h, in which case the speed limit for the adjacent road applies to all drivers and riders on the path, including bicycle and PMD riders, or
- the footpath or shared path has been specifically signed at a different speed limit, for example, 20 km/h, and this applies to all drivers and riders on the path (for example bicycle and PMD riders), or
- an engineer has assessed the path as suitable for a 25 km/h PMD speed limit, based on the considerations set out in Section 4.3.6.1.

Under the second dot point above, an engineer may determine that a footpath or shared path requires a specific speed limit (for example, a speed limit that is different to the adjacent road). Such a speed limit would apply to all drivers and riders using the footpath or shared path, including bicycle and PMD riders. In this situation, the engineer undertaking the speed limit review is to use their engineering judgment in determining the appropriate speed to be posted. There is no minimum length for a path.

4.3.6.1 25 km/h PMD footpath and shared path speed zone considerations

The following items need to be considered when assessing the appropriateness for a 25 km/h PMD speed limit on a footpath or shared path. These items take into consideration characteristics of a path’s adjacent road network environment, land use, path user activity and path network quality.

Subject to engineering judgement, if the answer to any question below is yes, then the 12 km/h default PMD speed limit on footpaths and shared paths should apply:

- Is the path less than 2 m in width?
- Is the path unable to safely support bicycle use at 25 km/h?
- Is the rideability of the path surface inappropriate for a 25 km/h limit?
- Does the path service a foreshore?
- Does the path service a shared zone?

- Is the path unsealed?
- Does the path service a high active transport user area?
- Does the path service an urban local access street?
- Is the path in a CBD?
- Is the path adjacent to a significant number of driveways?
- Is there a significant number of children along the path?
- Is there a significant number of elderly pedestrians along the path?
- Is there a significant number of pedestrians with pets along the path?
- Is there significant static behaviour along the path (i.e., people standing, sitting or queuing)?
- Is the path adjacent to a dedicated bicycle path?
- Is the path adjacent to a bicycle lane that PMD's are able to use (for example, a bicycle lane on a road with a speed limit of 50 km/h or less or a bicycle lane that is physically separated from other lanes of traffic on the road)?
- Does path service a place of interest (refer to Table 4.3.6.1)?

If the answer to one or more of the questions above is yes, it may still be appropriate to apply a 25 km/h PMD speed limit on a footpath or shared path. Engineering judgement is required to consider whether the recommendation for the footpath or shared path speed zone consideration is suitable for the site context, such as a minor or short section of the path that may meet the conditions outlined above. Engineers should consider the benefits of maximising the utility of PMDs as a mode in order to achieve positive transport network outcomes and promote value for money. For more guidance on addressing complexities above, please refer to the department's *Speed management on shared paths*.

Table 4.3.6.1 – Places of Interest

Local Places of interest
bakery, childcare, church or place of public worship, community centre, entertainment facility (local), general practitioner, grocer, leisure centre (local), library, medical centre (local), park (local), places that support temporary creative activity in the public domain all year round (e.g. stalls, art, music), police station, public eating and drinking areas, public facility (local), recreation facility (local), regional cycle route, school (< 200 students), shopping centre (< 1000 sqm), sports field (local), supermarket (< 1000 sqm), swimming pool, town hall, walking route (major local)
Regional places of interest
cinema, convenience store (regional importance e.g., serving a town), entertainment facility (regional), gallery, hospital, information or visitor centre, leisure centre (regional), markets, medical centre (regional), music hall or performance space, park (regional), public facility (regional), recreation facility (regional), school (> 200 students), shopping centre (> 1000 sqm), sports field (regional), tertiary education, theatres, university, walking route (regional)
Metropolitan places of interest
metropolitan or international place of interest, e.g., state art gallery / museum, sports stadium, metropolitan park, large shopping centre

Source: Transport for New South Wales 2020, *Walking Space Guide State of New South Wales.*

4.3.6.2 10 km/h footpath and shared path speed zone considerations

The Queensland Road Rules allows for shared zones on road-related areas such as footpaths or shared paths. Shared zones on footpaths or shared paths are generally constructed in areas where the competing demands of pedestrians and other path users, such as bicycle and PMD riders, require a form of control which allows complete pedestrian mobility, whilst at the same time enhancing pedestrian safety. A speed limit of 10 km/h typically applies to all drivers and riders using the path.

In the design of a path shared zone, the most important single element is to alter the environment to make it obviously different from surrounding paths. This can be achieved by the use of different coloured and textured paving, by the use of paving on the path and by judicious and aesthetic placement of planters and other landscaping. In considering the needs of people with disabilities in a shared zone, reference should be made to Queensland MUTCD Part 10 *Pedestrian control and protection* and Australian Standard AS 1428.1 *Design for access and mobility, Part 1: General requirements for access — New building work*.

5 Risk Assessed Speed Limit / Speed Data Speed Limit

This section describes the standard technical procedure to be applied for establishing speed limits on roads that are not subjected to the application of the CBSL provided in Section 4.

This section provides guidance to engineers required to determine the RASL and the SDSL that are required respectively at Stages 3 and 4 of the Speed Limit Review process described in Section 3 of this document.

For either a linear speed zone or an area speed zone, the following process is to be followed.

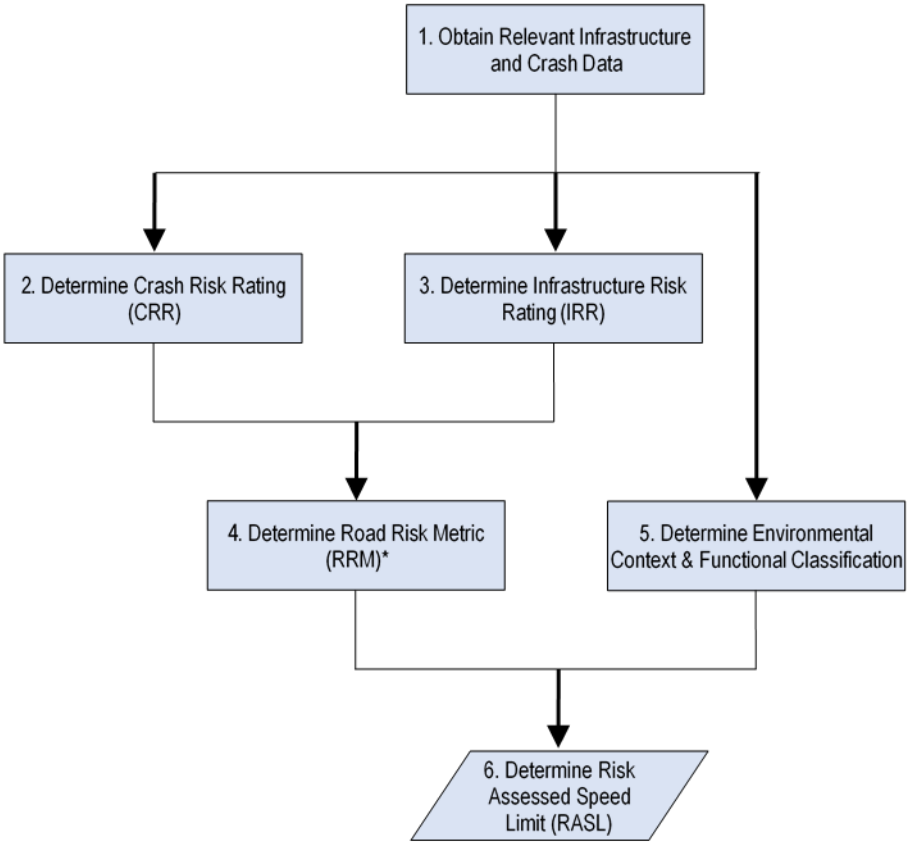
Where an area speed zone is being considered for review, it is worth checking again that the area is not a local access, and as such would be subject to the CBSL process outlined in Section 4.

5.1 Risk Assessed Speed Limit

The RASL is the speed limit that is determined through consideration of a combination of crash risk, infrastructure risk, environmental context class and road functional class.

The broad process, which comprises six steps, for determining the RASL is depicted in Figure 5.1.

Figure 5.1 – Risk Assessed Speed Limit flowchart



* At Step 4 if the RRM is High, speed management improvements to improve road safety in the future should be considered. The recommended improvements are not part of the speed limit setting process.

5.1.1 Risk Assessed Speed Limit Step 1 – Obtain relevant infrastructure and crash data

Eight road attributes have been identified as having key impacts on safety risk. These are:

a) road stereotype

b) alignment

c) carriageway (lane and shoulder) width

d) roadside hazards

e) land use

f) intersection density

g) access density, and

h) traffic volume.

Guidance for selection of the appropriate category for each road attribute is provided in the Transport and Main Roads *Infrastructure Risk Rating Manual*.

In addition, the process requires collection of crash data for the speed zone under review, collected over the most recent five-year period, disaggregated by Definitions for Coding Accidents (DCA) Code Groups (see Appendix C).

5.1.2 Risk Assessed Speed Limit Step 2 – Determination of the Crash Risk Rating

Step 2 of determination of the RASL requires the determination of the Crash Risk Rating (CRR).

CRR is a risk classification determined by a quantitative measure of personal crash risk based on frequency of occurrence of casualty crashes along the speed zone. CRR is a historic measure of crashes that have occurred.

CRR is determined in accordance with the process at Appendix C. The output is in terms of a numerical score which translates to a descriptive CRR classification.

5.1.3 Risk Assessed Speed Limit Step 3 – Determination of the Infrastructure Risk Rating

Step 3 of the determination of the RASL requires the determination of the Infrastructure Risk Rating (IRR).

IRR is a measure of the expected risk associated with the road infrastructure based on an objective assessment of the road attribute data collected at Section 5.1.1. IRR is determined in accordance with the process described in the Transport and Main Roads *Infrastructure Risk Rating Manual*.

The output is in terms of a numerical score which translates to a descriptive IRR classification.

5.1.4 Risk Assessed Speed Limit Step 4 – Computation of Road Risk Metric

Step 4 of the determination of the RASL is the computation of the Road Risk Metric (RRM), which is a descriptive risk classification that is a combination of the CRR determined in Section 5.1.2 and the IRR determined in Section 5.1.3.

Speed limit reviews undertaken on roads with divided carriageways require calculation of the IRR, CRR and RRM separately for each direction. The resultant RRM for the speed zone should be the higher RRM of the two.

This is undertaken using the RRM matrix (Table 5.1.4).

Table 5.1.4 – Road Risk Metric matrix

		Infrastructure Risk Rating				
		Low	**Low Medium**	**Medium**	**Medium High**	**High**
Crash Risk Rating	**High**	High	High	High	High	High
	Medium	Medium	Medium	Medium	Medium	High
	Low	Low	Low	Medium	Medium	High

If the RRM is determined to be high, program infrastructure to improve road safety in the future, although this is not part of the speed limit setting process.

5.1.5 Risk Assessed Speed Limit Step 5 – Determination of environmental context and functional classification

Step 5 of the determination of the RASL is the determination of the environment context classification and the road functional classification for the section of road that is being studied.

Environmental context classification is one of the following:

- urban
- semi urban, or
- rural.

Guidance for selecting the correct environmental context classification is provided at Table 5.1.5(a).

Table 5.1.5(a) – Environmental context classification

Road in environmental context classification	Description	Typical land uses[1]
Urban environment	A road 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: a) average lot sizes of less than 0.5 Ha in size and have an average frontage of less than 40 m, **or** b) street lights not over 100 m apart.	Typical land uses may include: • commercial strip shopping • commercial big box • industrial • urban residential • rural town; and • highway / arterial roads with controlled access.
Semi urban environment	A road section that does **not** meet the criteria for 'Urban' and typically, buildings on adjacent lots, not over 150 m apart, on land next to the road for a distance of at least 500 m or, if the length of road is shorter than 500 m, for the whole road.	Typical land uses may include: • urban residential • rural residential • rural town, and • highway / arterial roads with controlled access.
Rural environment	All other roads.	Typical land uses may include: • rural residential • remote rural, and • no access freeways with at grade intersections.

[1] Land uses have been provided as a guide **only**. The components listed in the *Description* column of this table shall be used for *Identification* of the appropriate environmental context class.

Roads are classified in terms of their function as part of the development of a road hierarchy plan. In the context of this process, road functional classification is one of the following:

- local / access
- collector street
- trunk collector road
- sub arterial or arterial road, or
- motorway / freeway / expressway (urban only).

Guidance for selecting road functional classification for each of the three environmental context classes described previously is provided in Tables 5.1.5(b), 5.1.5(c) and 5.1.5(d).

Note: The road shall be classified according to these tables and **not** other road classification systems such as those that may be maintained by some road authorities. Comparisons have shown significant variation between existing road classification systems. Use of these tables is necessary for consistency in speed limit setting across the state.

Table 5.1.5(b) – Risk Assessed Speed Limits: Roads in an urban environment

Road class	Road functional description	Road Risk Metric		
		Low	**Medium**	**High**
Access / local street	Access to property	Refer to CBSL process		
Collector street	Access to property and other streets; neighbourhood access	Refer to CBSL process		
Trunk collector road	Transport of people and goods within suburbs; district movement	60 km/h	50 km/h	50 km/h
Sub arterial, arterial road	Transport of people and goods across suburbs and between metropolitan areas, typical intersection spacing 0.3–1.0 km	70 km/h[1]	60 km/h	60 km/h
Motorway, freeway, expressway	Direct access is generally prohibited, transport of people and goods through and around metropolitan centres	100 km/h	90 km/h	80 km/h

[1] RASL of 80 km/h may be adopted on road segments with divided carriageways, fewer than two accesses per kilometre and fewer than two intersections per kilometre.

Table 5.1.5(c) – Risk Assessed Speed Limits: Roads in a semi urban environment

Road class	Road functional description	Road Risk Metric		
		Low	Medium	High
Access / local street	Access to property	60 km/h	50 km/h	50 km/h
Collector street	Access to property and other streets; neighbourhood access	70 km/h	60 km/h	50 km/h
Trunk collector road	Transport of people and goods within suburbs; district movement	80 km/h	80 km/h	70 km/h
Sub arterial, arterial road	Transport of people and goods within suburbs; district movement	80 km/h	80 km/h	70 km/h

Table 5.1.5(d) – Risk Assessed Speed Limits: Roads in a rural environment

Road class	Road functional description	Road Risk Metric		
		Low	Medium	High
Access / local street	For roads that provide direct access to property	80 km/h	70 km/h	60 km/h
Collector road	Used for access to properties and other roads and for local neighbourhood access within the rural residential areas, generally used only by owners of properties along those roads and by other people living within the rural areas	80 km/h	70 km/h	60 km/h
Trunk collector road	Used to travel through an area or as a major connector into an area, significant use by motorists from outside the area	100 km/h	90 km/h	80 km/h
Arterial road	These roads form the principal avenues for communications between major regions, such as: • direct connections between cities, or • between a capital city and adjoining states, or • between a capital city and key towns, or • between key towns	100 km/h	100 km/h	90 / 80[1] km/h

[1.] 80 km/h should be applied where the road segment is in a residential land use or where the speed limit is already 90 km/h; however, the RRM is still *High*.

5.1.6 Risk Assessment Speed Limit Step 6 – Determination of the Risk Assessed Speed Limit

Step 6 is the determination of the RASL.

The RASL is determined with reference to Tables 5.1.5(b), 5.1.5(c) and 5.1.5(d), by following this procedure:

1. Identify RRM as determined in Section 5.1.4.
2. Identify environmental context classification determined in Table 5.1.5(a) of Section 5.1.5.
3. Identify road functional classification determined in Section 5.1.5.
4. Read off the suggested speed limit from the appropriate table.

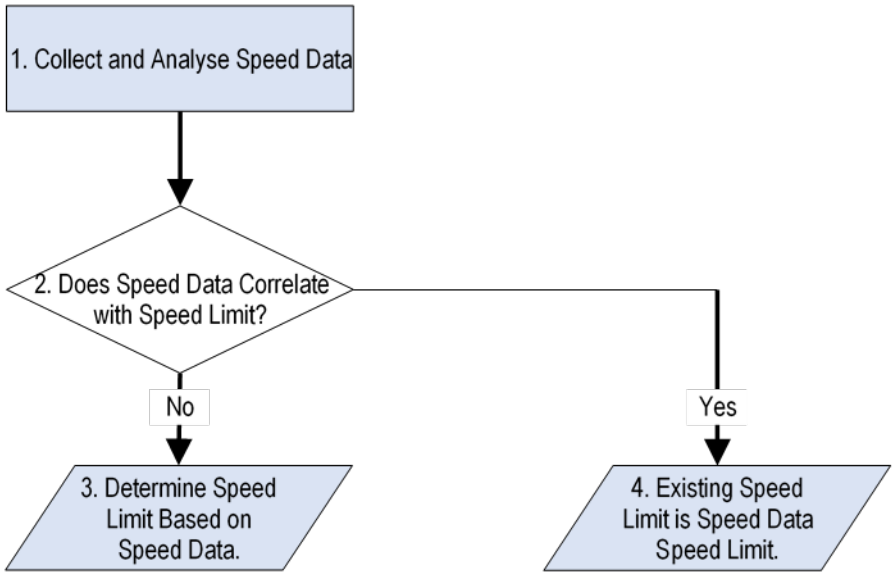
This suggested speed limit is the RASL.

5.2 Speed Data Speed Limit

The SDSL is the speed limit that is determined through analysis of speed data for the speed zone that is under consideration. This speed is representative of the general perception of a reasonable travel speed on a particular section of road or network of roads.

The broad process for determining the SDSL, which comprises two steps resulting in a decision point, is depicted in Figure 5.2.

Figure 5.2 – Flowchart for determining Speed Data Speed Limit



5.2.1 Speed Data Speed Limit Step 1 – Collect and analyse speed data

Speed data collection

Speed data collection sites (stations) should be located within homogeneous segments of the speed zone under consideration. Each segment should contain a uniform road environment and/or be a logical segment between significant nodes (for example, major intersection, bridge, commercial centre, railway crossing, and so on). The location of stations should be representative of the general road environment and traffic conditions within the particular segment.

For manual speed surveys, vehicle speeds should be recorded on a Speed Survey Field Sheet (see Figure B(b) in Appendix B). Guidelines for conducting speed surveys are included in Appendix A.

Speed data may be collected in any form that aligns with the guidelines outlined in Appendix A, which may include, but is not limited to:

- collection from probe speed data
- collection from tube counters
- collection from video imagery counts, and
- collection from manual counts.

Speed data processing

The mean speed, upper limit of the 15 km/h pace, and percentage within the pace are to be determined. For a manual analysis, this is done using a standard *Speed Survey Calculation Sheet* (see Figure B(c) in Appendix B). Cumulative speed curves and speed frequency distribution curves for each direction of travel at each station can be plotted to assess the normality of the speed distribution (see Figure B(d) in Appendix B).

Various speed data management software packages are available to assist engineers to process and analyse speed data collected using automated methods. Care shall be taken when using automated methods to ensure adherence to the guidelines in Appendix A.

5.2.2 Speed Data Speed Limit Step 2 – Does the speed data correlate with speed limit

An ideal speed distribution is considered to have the following characteristics:

a) vehicle speeds are in a compressed band width (comparable with a normal distribution)

b) a low percentage of recorded speeds are below the lower limit of the 15 km/h pace, with greater than 60% within the 15 km/h pace, and

c) the upper limit of the 15 km/h pace is approximately the same value as the speed limit.

The speed distribution obtained from the data processing (Section 5.2.1) is tested against the criteria in Table 5.2.2 to determine whether it conforms to an acceptable speed distribution for the existing speed limit.

Table 5.2.2 – Speed data test ranges

Criteria	Existing Speed Limit (km/h)							
	40	**50**	**60**	**70**	**80**	**90**	**100**	**110**
Mean speed	32–43	41–53	49–63	59–72	69–80	79–89	89–97	99–106
Upper limit of 15 km/h pace	36–49	46–59	56–69	66–79	76–89	86–98	96–106	105–114
Percentage within pace	> 60	> 60	> 60	> 60	> 60	> 60	Urban > 54 Rural > 45	> 40

5.2.3 Decision

If the speed distribution conforms to the acceptable distribution for the existing speed limit (at Section 5.2.2 and Table 5.2.2), the existing speed limit is accepted as the SDSL.

If the speed distribution does not conform to the acceptable distribution for the existing speed limit, the upper limit of the 15 km/h pace (measured in Section 5.2.1) is used to determine the suggested SDSL using Table 5.2.3.

Table 5.2.3 – Suggested speed limit from speed data analysis

Upper limit of the 15 km/h pace	<40	40–49	50–59	60–69	70–79	80–89	90–99	100–107	>107
Suggested SDSL (km/h)	30	40	50	60	70	80	90	100	110

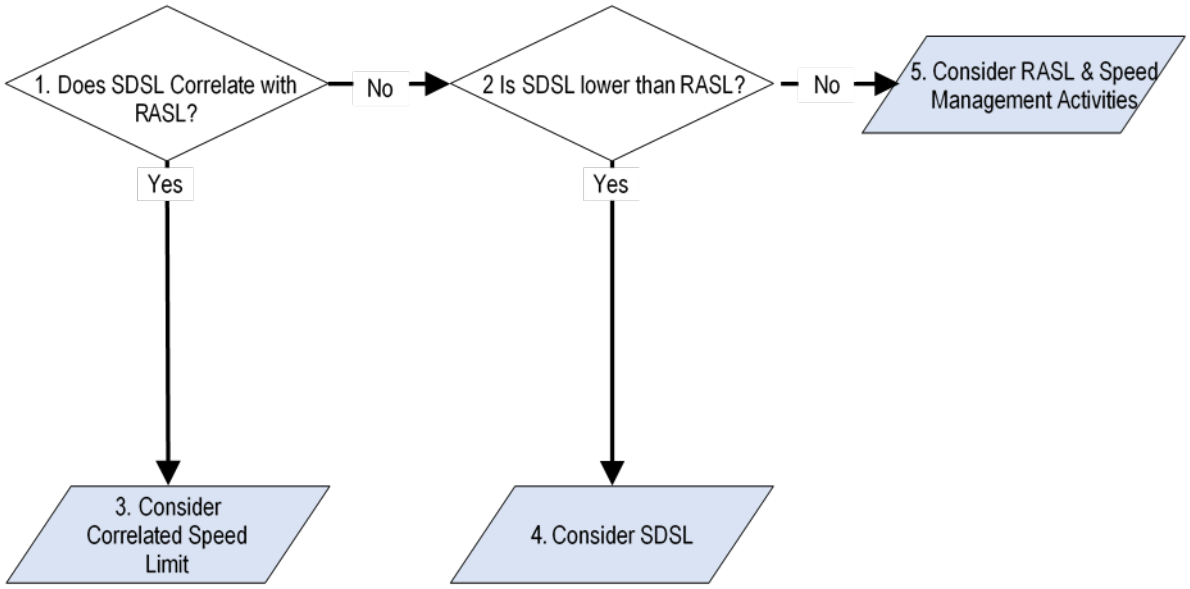
6 Assessed speed consideration

Stage 5 of the process is the assessed speed consideration.

At this point in the process, which implies that a CBSL does not apply to the subject site, the engineers undertaking the Speed Limit Review should have both a RASL (from Section 5.1) and a SDSL (from Section 5.2).

The process for selection of a speed limit to consider for recommendation is depicted at Figure 6. This flowchart shall be read in conjunction with the text following.

Figure 6 – Comparison of Risk Assessed Speed Limit and Speed Data Speed Limit



If the SDSL corresponds with the RASL, this is the speed limit that should be chosen for consideration. Otherwise:

- If the SDSL is lower than the RASL, it is considered that the road environment is constrained, due to either road infrastructure measures or traffic capacity restrictions. In this scenario, while the SDSL is lower than the speed limit typical of the function of the road, the SDSL should be chosen for consideration to encourage more uniform vehicle speeds along the road corridor.
- If the SDSL is higher than the RASL, it is the RASL that should be chosen for consideration. This outcome indicates that drivers are travelling faster than the speed that is appropriate for the road. This can be related to drivers' perceptions of road function or road environment. Accordingly, speed management activities (engineering, enforcement and/or education) are recommended to reduce vehicle speeds to be more appropriate for the roads' function and/or infrastructure elements and support the RASL (refer to Section 6.1).

6.1 Speed management activities

Speed management activities support or encourage lower vehicle speeds to levels compatible with the considered speed limit, specifically where the RASL was selected through comparison of assessed speed limits. Speed management activities, and some examples, are broadly categorised as:

- Engineering: traffic calming devices, active warning signs, portable warning signs
- Enforcement: mobile speed cameras, point to point speed cameras
- Education: community-based behaviour change initiatives.

Setting vehicle speeds within acceptable ranges, supported through speed management activities, is expected to result in the following benefits:

- reductions in casualty crashes
- reduces the severity of crashes
- increase the credibility of speed limits, leading to voluntary compliance with speed limits.

Appendix I lists contemporary speed management activities to assist selection of appropriate measures that will support a speed limit under consideration. Selection of speed management activities may consider the road function and speed limit under consideration. Selection may also consider how effective these activities are in achieving a reduction in vehicle speeds and likelihood of crashes, as well as community acceptance of treatments.

It is noted this is not an exhaustive list of speed management activities, and that a combination of treatments may provide the best support or encouragement of lower vehicle speeds.

7 Other considerations

Stage 6 of the Speed Limit Review process (Figure 3.5) is the consideration of other site specific circumstances that may apply or exist that could affect the selection of an appropriate speed limit.

This section describes criteria that may be used to help determine an appropriate speed limit for a road section, looking at various features or road functions that should be considered. This section describes briefly each of the steps where a decision can be made related to other considerations, with reference to where in this document more information about each consideration is located.

Consideration	Section
Is there school activity in the speed zone?	7.1
Is a variable speed limit sign appropriate?	7.2
Is a speed limit required for a specific vehicle class?	7.3
Is the road a traffic carrying road through strip shopping centres or commercial area?	7.4
Is the road a speed zone on an arterial road through a rural town?	7.5
Is there a high crash rate?	7.6
Is there a high crash rural intersection?	7.7
Is the road being considered for a 110km/h speed limit?	7.8
Does the road have a rough surface?	7.9
Is there a temporary speed limit being proposed?	7.10
Is there a signalised intersection on the road section?	7.11
Is the road section an on or off-ramp?	7.12
Is the speed limit proposed to be offset?	7.13
Are there other circumstances to consider?	7.14

7.1 School zone

School zones should be considered as part of a Speed Limit Review in consultation with the school community, typically through the Safe school travel (SafeST) program investigation process.

7.1.1 General

In line with the Safe System approach, school zones provide Safer Speeds within school road environments where school aged children are likely to be present. School aged children are typically less experienced road users and can be unpredictable in their behaviour on and around roads. These roads are often complex environments for drivers and pedestrians, especially because vehicle and pedestrian movements can be concentrated to short periods at the start and the end of a school day. School zones are used to encourage drivers to slow down and take care on roads around schools.

A school zone is a time-based linear speed zone that is installed to regulate vehicle speeds in the vicinity of schools. School zones include signage indicating the start and end of the school zone, and repeater signs as required.

While school zones would generally be installed to support facilities such as children's or pedestrian crossings, the absence of such facilities at a school would not preclude installation of a school zone.

Supporting enhanced school zone treatments can be considered where required, including enhanced (flashing light) school zone signs (Section 13.3.2) and threshold treatments with pavement marking (Section 13.3.3).

School zones are one of several measures that can be used to influence safe speeds and safe school road environments. Other supportive measures may include pedestrian crossing facilities including raised pedestrian crossings, traffic calming installations, and so on. For further information refer to QRSTUV: *Guide to Schools*.

7.1.2 School zone criteria

School zones should be established on roads adjacent to eligible schools or where the school is visible to motorists and there is ongoing significant school related activity on or beside the road.

For eligible school zone sites both of the following criteria for eligible schools (Section 7.1.2.1) and significant school related activity (Section 7.1.2.2) should be met.

7.1.2.1 Eligible schools

School zones can be installed at eligible schools, which include primary schools, secondary schools, or other similar schools.

School zones should not be installed at:

- tertiary institutions
- kindergartens, or
- day care centres.

An exception would be where one of these facilities is next to an eligible school, in which case the school zone may be extended to include the facility. In this case, the times of operation of the school zone shall not be extended beyond the times required for the eligible school.

7.1.2.2 Significant school related activity

School related activity may include, but is not limited to:

- picking up and dropping off children on the kerbside
- vehicles or pedestrians entering or exiting the school property
- pedestrian movements adjacent to the road or crossing the road, and
- bus stops servicing school children.

It should be determined whether the school related activity at the site is significant, in the context of the road environment and road features, and in posing a risk to school pedestrians.

What is “significant school related activity” is dependent on what is occurring at a specific site and the risks / features that are present. Significant school related activity at each site will vary, for example a school zone may be recommended at a site with low pedestrian volumes but a very high-risk road environment.

The recommendation to establish or not establish a school zone, along with supporting documentation, shall be provided for review in subsequent endorsement stages of the speed limit review process. This endorsement process ensures the consistent application of school zones within the local area.

Where a school zone is being established that may be unexpected to road users, consideration shall be given to supporting speed management activities, including Enhanced School Zone Speed Limit Signs (flashing signs), appropriate repeater signs and pavement makings.

Note: Pedestrian overpasses or underpasses and signalised pedestrian crossings reduce the risk to pedestrians crossing the road. Pedestrian fencing or other physical barriers may also be installed to encourage pedestrians to cross the road at the overpass or underpass. Although these facilities reduce the risk when crossing the road, there is still a risk to pedestrians when walking along the footpath to access these crossing facilities or waiting to cross the road, so a school zone may still be established to improve safety of school pedestrians, if warranted.

7.1.3 School campus type

Schools that require a school zone, as per Section 7.1.2, may be either a single campus or a split campus school. School campus types are defined as follows:

a) Single campus school:
   A single campus school has all school facilities including, but not limited to buildings, sports grounds, swimming pools, located at one site within the adjacent surrounding road(s). At a single campus school students are contained and move throughout the day within the one campus site. A single campus school does not require students to access or cross any adjacent road(s) throughout the day to access other school facilities.

b) Split campus school:
   A split campus school has facilities including, but not limited to buildings, sports grounds, swimming pools that are used as part of the school curriculum that are separated by a road that school children are required to cross throughout the day and throughout the school year. Two or more closely located schools that share facilities which require school children to cross a road at intervals throughout the day may also be treated as split campus schools.

7.1.3.1 Split campus schools

At split campus schools where a grade separated pedestrian facility is not installed, school zones shall be installed and operational throughout the day, generally between the hours of 7am and 4pm, and as per requirements within Section 13.3.1.

It may not be necessary to install a school zone at a split campus school where a grade separated pedestrian facility is provided. It is desirable that all school related activity is confined to other lower order roads and an all-day school zone may be installed on those roads if required. If a school zone is installed where there is a grade separated pedestrian facility, and it is not an all-day school zone, the times of operation shall be consistent with school zone times at single campus schools within the local government jurisdiction.

Where traffic calming has been installed and vehicle speeds can be regulated to 40 km/h, a school zone is not required at a split campus school. This practice may be preferred where the community accepts traffic calming (such as local streets or low volume traffic carrying roads with speed limit of 60 km/h or less) as there will not be a need to install enhanced school zone signs.

Enhanced School Zone Speed Limit signs shall be installed at split campus schools, subject to requirements detailed within Section 13.3.2.

To reduce road safety risk at split campuses supplementary engineering treatments, such as the installation of traffic calming, pedestrian crossing facilities, and permanent 40 km/h or lower speed limit, should be considered.

7.1.3.2 Minimum infrastructure requirements

Refer to the QRSTUV: Guide to Schools for guidance.

7.1.4 Length of school zone

The minimum length of the school zone should be as follows:

a) 200 m on:

   i. two lane roads (one lane in each direction) with a speed limit of 60 km/h or less outside of school zone operating hours.

b) 300 m on:

   i. two lane roads (one lane in each direction) with a speed limit of 70 km/h or more outside of school zone operating hours, and

   ii. multilane roads (all speed limits).

A school zone should not extend more than 100 m beyond the limits of the school frontage in either direction. Where a school is located on a short block (less than 200 m), the school zone should encompass the full block.

Where possible, the school zone should be installed to ensure that the point where most children cross the road is centred within the school zone. In the absence of road crossing activity, the school zone should be centred at a point where most of the school related activity occurs on or beside the road.

Where there is more than one school located in close proximity along a road and a school zone is considered appropriate for all the schools, a continuous school zone should be provided, rather than having a short section of a higher posted speed between school zones. Refer to Section 3.4.

7.1.5 School zone speed limit

School zone speed limits of 40 km/h and 60 km/h apply in Queensland. The school zone speed limit depends on the usual posted speed limit of the road operating outside of school zone times. Table 7.1.5 shows the speed limits for use at school zones in Queensland.

Table 7.1.5 – School zone speed limits

Posted speed limit[3] (km/h)	School zone speed limit (km/h)
30 or below	Not applicable
40	40
50	40
60	40
70	40 (see Note [1])
80	60 (see Note [1])
90 and above	60 (see Note [2])

Notes:

[1] For 70 km/h or 80 km/h posted speed limit, the SCHOOL ZONE (R4-Q01) signs shall be at least size B.

[2] For posted speed limits 90 km/h and above, the SCHOOL ZONE (R4-Q01) signs shall be size C.

[3] This is the posted speed limit that applies outside the school zone hours of operation.

7.1.6 Implementation of school zones

For guidance on the selection of time of operation of school zones, school zone signs, threshold treatments, and the management of speeding in existing school zones, refer to Section 13.3.

7.1.7 Alternatives to installing school zones

There may be situations where alternatives to establishing school zones may be appropriate to address safety issues identified around schools. Other engineering improvements have the potential to reduce the road safety risk to all road users throughout the day, and not just during school zone times. Various treatments exist that may be implemented to improve road safety and to encourage appropriate vehicle speeds and driver behaviours in the school environment.

7.2 Variable speed limits

Variable speed limits (VSL's) are applied when the need for periodic changes in the speed limit of a speed zone arise, typically for reasons such as:

a) changes in weather conditions that affect the safe speeds at which all vehicles can be driven on a particular speed zone: for example, occasional fog, rainfall or crosswinds on a bridge, which can significantly affect vehicle control

b) sites or events that generate high traffic volumes

c) periodic activity, for example, opening and closing heavy vehicle inspection stations on a highway, which may warrant a reduction in general traffic speeds past the site due to heavy vehicles leaving or entering the traffic stream

d) to regulate traffic flow and ease traffic congestion or for incident management as part of an adaptive speed control system

e) at entertainment areas, near sporting complexes, commercial precincts, and other high active transport user areas where the presence of active transport users is consistent at certain times of the day, days of the week, or times of the year, and

f) during special events.

Separate requirements apply to the VSL zone implementation for roads operating in motorway, long bridge or tunnel environments. VSL requirements for these environments are specified in the *Queensland Guide to Traffic Management* Part 10 *Transport Control – Types of Devices* Section 7.7 *Electronic speed limit signs* and the associated guideline *Permanent placement of variable speed limit and lane control signs for motorways, long bridges and tunnels*.

VSL signs shall comply with the provisions set out in Queensland MUTCD Part 4.

7.3 Speed limits for a vehicle class

Where deemed appropriate to mitigate road safety risks, a lower speed limit may be established for a specific vehicle class. The speed limit for a vehicle class shall not contradict Section 24A of the *Transport operations (Road Use Management – Road Rules) Regulation 2009*.

The speed limit for a specific vehicle class shall be less than the speed limit that has been determined for all other vehicles.

Speed limit signs for a vehicle class shall comply with the provisions for supplementary plates set out in Queensland MUTCD Part 4.

7.4 Traffic carrying roads through strip shopping centres and commercial areas

A 50 km/h speed limit, or lower speed limit, may be erected on traffic carrying roads as follows:

a) Traffic carrying roads that have constrained or changed physical environments to support the lower limit. A typical circumstance is where nodal traffic calming scheme has been introduced or where a constrained speed environment exists on roads through strip shopping areas and commercial areas. The restriction of vehicle speeds in these situations is considered as part of an integrated scheme that aims to balance land use, parking and traffic management, safety, and amenity.

b) Notwithstanding the requirement as stipulated in Item 7.4(a) for traffic carrying roads to have constrained physical environment to support the implementation of speed limit lower than 60 km/h, local governments, in agreement with the local Traffic Advisory Committee (TAC) and Speed Management Committee (SMC) may implement a lower speed limit on traffic carrying roads if they believe that the implementation of such lower speed limits would improve safety and amenity. Local governments need to demonstrate that the implementation of a reduced speed limit would be credible and self-compliant and that no additional speed compliance or enforcement measures would generally be required.

c) Foreshore esplanades where significant recreational activity indicates that a speed limit lower than 60 km/h is appropriate.

The nodal approach to traffic calming or speed management aims to improve levels of safety on traffic carrying roads in areas which support higher levels of mixed land use, while retaining suitable levels of mobility on the overall route.

A constrained environment on a traffic carrying road would generally result in the upper limit of 15 km/h pace speeds typically being less than 59 km/h without the need for any traffic calming.

7.5 Speed zones on arterial roads through rural towns

Arterial roads through rural towns are commonly signed at 60 km/h; however, the increased pedestrian activity and the speed environment through some rural towns suggest that a speed limit lower than 60 km/h should be established to increase the safety for pedestrians while still maintaining mobility for through traffic and amenity for adjacent land users. Speed zones of 50 km/h, or lower, may be applied to arterial roads through rural towns with strip shopping centres, commercial areas, or activity centres. A lower speed limit should only be considered for roads where a Speed Limit Review has determined a speed limit of 60 km/h or lower.

Roads considered for a reduced speed limit shall satisfy the following criteria:

- the speed environment through the town supports the reduced speed limit, and
- there is increased pedestrian activity throughout the length of the speed zone, or
- there is a history of pedestrian related crashes which cannot be addressed by other feasible engineering treatments.

To encourage maximum voluntary compliance with the speed limit, it is highly desirable that the speed environment is compatible with the speed limit. Where the speed environment is not compatible with the speed limit, the speed environment through the town should be physically changed. The following physical treatments should be considered to change the speed environment through the town:

- provide narrow traffic lanes for through traffic

- provide kerbside parking and/or centre parking
- install kerb extensions at the start of the speed zone and within the speed zone
- modify existing pedestrian facilities to elevated (wombat) crossings, or install new wombat crossings
- provide adequate landscaping, and/or
- installing threshold treatments to identify the start of the speed zone.

Where there are only scattered / isolated shopping / commercial premises along a road, a lower speed limit is not likely to be applicable.

Implementation of 50 km/h, or lower, speed zones on arterial roads through rural towns should be carried out in accordance with the guidelines described in Section 13.5.

Lengths of speed zones given in Table 3.4 do not apply where isolated hamlets or townships require a lower speed limit as per the provision of this section. For 50 km/h, or lower, speed zones on arterial roads through rural towns, separate guidelines apply (see Section 13.5.2).

Traffic volume is generally not a criterion for determining the suitability of a 50 km/h, or lower, speed limit through a town; however, on lower volume roads through small towns in more remote areas, a significant percentage of the vehicles will be using the road to access the town facilities – that is, the road will be providing more of a local traffic function. In such cases, a lower speed limit could be considered if it does not adversely affect the performance of the state-road network and the road environment could be altered.

Circumstances in which a 50 km/h, or lower, speed limit would generally not be appropriate include:

- roads with an existing speed limit greater than 60 km/h
- roads with isolated shops or commercial properties
- where the speed environment, even with modifications, is not compatible with a 50 km/h, or lower, speed environment, and
- where shops and commercial properties are located on service roads and there is no parking or pedestrian movements on the through route.

7.6 Speed limit reductions in high crash zones (Black Links)

Following a Speed Limit Review, a Black Links solution shall be considered on a road section if:

1. the crash rate for the road section as determined by the procedure outlined in Appendix C (see Section C3 *Calculating the crash rate*) is at least two times higher than the crash rate threshold for a *High* CRR (Table C4 in Appendix C) or if the rate of fatal and serious injury (FSI) crashes is very high when compared to the rest of the road network, or
2. a road safety review has been completed that recommends road infrastructure improvement works to reduce FSI crash risk but these works will not be implemented in the short term (less than 12 months).

The road safety review can be any engineering investigation and development activity that is undertaken to identify remedial engineering treatments that are known to reduce the risk of FSI crashes. Examples are safety focused planning studies and options analyses, road safety audits and treatments of crash locations processes outlined in Austroads *Guide to Road Safety*.

Where a Black Links solution is implemented, speed data shall be collected prior to implementation and analysed to that of post implementation data collected at six monthly intervals to ensure the effectiveness of the speed reduction measure implemented in accordance with this document.

A Black Links solution shall be removed if road infrastructure improvement works identified in a road safety review have been implemented. The new speed limits shall be determined by a Speed Limit Review.

Signs for Black Links solutions shall be installed in accordance with the signage requirements given in Section 13.3.

7.7 Speed limits on approaches to rural intersections

Speed limits may be reduced on the approaches to intersections with speed limits of 80 km/h or greater, which have either a high crash history or high potential of crash risk (as assessed using tools such as *AusRAP* or a road safety audit) as follows:

a) controlled approach – speed limit may be reduced to 60 km/h, or

b) uncontrolled approach – the speed limit may be reduced by up to 30 km/h.

Lengths of speed zones with reduced speed limit and signage requirements shall be as described in Section 13.4.

A rural intersection reduced speed due to a high crash history shall be removed if road infrastructure improvement works identified in a road safety review have been implemented. The new speed limits shall be determined by a Speed Limit Review.

7.8 110 km/h speed limit

7.8.1 General

The 110 km/h speed limit shall only be applied to a National or State Highway of an appropriate standard for the expected operating speed.

This section does not apply to a declared motorway or a road built to a motorway standard.

The 110 km/h speed limit may be applied to either divided or undivided roads which meet the criteria listed following.

Note: Approval for 110 km/h speed zones which satisfy the selection criteria listed shall be obtained from the Transport and Main Roads General Manager (Program Delivery and Operations).

7.8.2 Criteria for the application of 110 km/h speed zones

A 110 km/h speed zone may only be established when the section of road under consideration complies with the criteria listed following:

a) an existing 100 km/h speed limit applies

b) traffic is not likely to exceed 2500 vehicles per lane per day on long term projected volume

c) the abutting land is undeveloped and, as such, there is minimal movement of pedestrians people riding bikes, and slow moving vehicles onto or across the road

d) major intersections are spaced not less than 10 km apart with low volume side road intersections spaced not less than 1 km apart

e) low density of access is present (generally fewer than two access points/km in total on both sides of carriageway)

f) the crash rate, calculated over a period of not less than five years, shall not exceed a low crash risk rating, outlined in Table C4 in Appendix C

Note: The crash profile should be examined to identify crash clusters, and consideration should be given to implementing countermeasures which address the crash history.

g) the road shall be constructed to a geometric standard for a speed no less than the actual or predicted operating speed for the whole road section being considered; the standard shall be in accordance with the *Road Planning and Design Manual 2nd Edition.*

Note: Use of Extended Design Domain (EDD) and/or occasional design exception may be allowed if suitable justification can be provided.

h) for divided roads, median barrier requirements shall apply as well as adequate provision for safe accessibility for maintenance operations to and from the median

i) except as provided in Section 7.8.3, the candidate road segment shall be not shorter than the minimum length given in Table 3.4 unbroken by lower speed limits

j) the limit shall have an obvious start and finish which will typically coincide with a town or settlement or a change in road environment (that is, it will not start or finish where there is no obvious change in land use and/or speed environment)

k) at approval stage, average pavement roughness, as measured by international roughness index IRI), should not exceed IRI 4, with not more than 20% of the route exceeding IRI 4 and absolute maximum pavement roughness being IRI 6; however, where there are sections of road with crossfall that exceeds 5% on straight sections of road or 7% on curves, absolute maximum roughness should not exceed IRI 4 – pavement roughness should be maintained in accordance with roughness standards for National Highways in the *Routine Maintenance Guidelines*

l) centreline and edgeline pavement markings shall be provided on roads with AADT of greater than 500; for roads with an AADT lower than 500, centreline marking shall be provided and edgelines should be provided

m) audio tactile line markings shall be provided on or adjacent to the centreline or edgelines, and

n) before a 110 km/h zone is approved, a road safety audit shall be undertaken to identify any potential hazards, with particular attention being paid to the provision of adequate protection at embankments and the provision of bridge barriers. In addition to this, attention should be given to elements that may be contrary to motorists' expectation and these should be appropriately treated (for example, signing).

7.8.3 Exceptional circumstances

There may be circumstances where a candidate 110 km/h zone is fragmented by a speed zone that does not meet all of the criteria listed previously. Such a segment shall be permitted only where:

a) the overall zone length of the 110 km/h zone under consideration is greater than 40 km

b) there are no more than two such segments over a 40 km zone, and

c) the segment does not exceed a length of approximately 4 km.

Where such a segment is permitted, the following arrangements shall be made:

a) for a short segment up to 0.5 km in length (for example, isolated curves, narrower sections of road, short segments of rough pavement), larger warning signs and/or additional warning signs shall be installed to ensure that the driver is aware of changed conditions (for example, road narrowing, floodway), or

b) for a longer segment, between 0.5 km and 4 km, a speed limit of 100 km/h shall be implemented and larger and/or additional warning signs provided.

Where a road between two settlements / towns satisfies the criteria for a 110 km/h speed zone, a minimum segment length of 15 km is acceptable.

7.8.4 Audits of 110 km/h speed zones

It is essential that all 110 km/h speed zones are maintained to the standards as required in the *Routine Maintenance Guidelines* and comply with these guidelines throughout the life of the speed zone. All 110 km/h speed zones shall be audited for compliance with the criteria in Section 7.8.2 and *Routine Maintenance Guidelines* every three to five years. Where it is found that the 110 km/h speed zone does not comply with the criteria in this section of this document, the speed limit shall be reduced.

7.9 Treatment for rough surfaces

Where pavement surface deterioration, measured by its roughness index to exceed IRI 4, or is likely to contribute to an increased risk of crashes, the following measures should be considered:

a) If the section of road with poor pavement condition is short (less than half of the minimum distance in Table 3.4), temporary 'reduce speed' advisory signs indicating the nature of hazard (ROUGH SURFACE) may be installed. These signs shall be removed after the roughness issue is addressed.

b) If the section of road with poor pavement condition is long (more than half of the minimum distance in Table 3.4), the speed limit should be temporarily reduced and drivers advised of the reason for the reduction (by implementing a treatment using a similar approach to that outlined in Section 7.6). The previous speed limit shall be reinstated after the roughness issue is addressed.

7.10 Temporary speed limit

Temporary speed limits may be imposed during special events or at road works sites as a temporary measure to protect the road user from unexpected hazards, to safeguard workers and plant, or to protect works from damage. As stated at Section 1.2, temporary speed limit zoning for roadworks is not covered in this document, and guidance should be sought from the *Queensland Guide to Temporary Traffic Management*. Temporary speed limits may also be imposed on a bridge if temporary or permanent structural deficiencies exist. Provisions for establishing a temporary speed limit on a bridge or floodway due to structural deficiencies are described at Section 13.8 of this document.

7.11 Signalised intersections

The maximum speed limit allowable a signalised intersection should be 70 km/h.

Where the approach road has a regulatory speed limit of 80 km/h and above, the approach to the intersection should be speed zoned to 70 km/h or less, for a distance of not less than 10 seconds of travel time at the preceding higher posted speed limit before the signals.

It is highly desirable for speed limit changes in proximity to intersections to be placed such that the lowest speed limit applies through the intersection.

7.12 On/Off-ramps

The setting of a speed limit for an on or off-ramp, often associated with motorways, is based on two key considerations, being the adjacent speeds of the road sections that the ramp connects between, and the designed speed of the ramp.

For both on and off-ramps, there are three identified sections that often exist on a ramp, being the:

- **Diverge** – the point where the ramp splits from the road, up until just before the first vertical or horizontal deflection
- **Deflection** – the point following the diverge where a vertical or horizontal deflection has been built into the ramp, up until the point where the road straightens, and
- **Merge** – the point after the deflection, up until the point where the ramp merges with the road.

An on-ramp is where a vehicle leaves from one road to get onto a road with either a higher speed limit or the same speed limit but higher road function than the initial road.

An off-ramp is where a vehicle leaves from one road to get onto a road with either a lower speed limit or the same speed limit but lower road function than the initial road.

In classifying an on or off-ramp, the higher road function of the two joining roads is to be used.

7.12.1 On-ramps

For an on-ramp, the maximum speed that can be set is the lower of:

- the design speed of the on-ramp, and
- the posted speed limit of the road section the on-ramp is merging onto.

It is noted that for an on-ramp, there is no minimum speed zone length, although the preference is that the speed zones are as long as possible.

Noting that on-ramps are often unique, it is primarily up to the engineer undertaking the speed limit review to determine the appropriateness of how an on-ramp speed limit is to be determined. The below guidance should be used to help inform this decision-making process:

- due to the high acceleration often associated with an on-ramp, the speed for each section of the ramp should be considered separately
- on the **diverge**, it is often appropriate to use the speed limit, for the road diverged from, unless:
  - the design speed of the diverge is less than the diverged from roads posted speed, or
  - the deflection section could accommodate a speed limit more than 20 km/h over the road diverged from speed limit.

- on the **deflection**, it is appropriate to limit the acceleration occurring, due to the combination of potentially horizontal and vertical alignment changes. It is often appropriate to use the speed limit that has been determined appropriate for the diverge section.
- on the **merge**, it is necessary to try and have the vehicles on the ramp being at a speed that can safely merge into the vehicles on the road the ramp is merging onto. It is appropriate to try and keep the merge speed within 20 km/h of the merging onto road speed, unless:
  - the design speed of the merge is less than the merged onto roads speed limit, or
  - the deflection section cannot accommodate a speed limit less than 20 km/h below the merged onto roads speed limit.

7.12.2 Off-ramps

For an off-ramp, the maximum speed that can be set is the lower of:

- the design speed of the off-ramp, and
- the posted speed limit of the road section the off-ramp is diverging from.

It is noted that for an off-ramp, there is no minimum speed zone length, although the preference is that the speed zones are as long as possible.

Noting that off-ramps are often unique, it is primarily up to the engineer undertaking the speed limit review to determine the appropriateness of how an off-ramp speed limit is to be determined. The below guidance should be used to help inform this decision-making process:

- due to the high deacceleration often associated with an off-ramp, the speed for each section of the ramp should be considered separately
- on the **diverge**, it is often appropriate to use the speed limit, for the road diverged from, unless:
  - the design speed of the diverge is less than the diverged from roads posted speed, or
  - the deflection section would require a speed limit more than 20 km/h below the road diverged from speed limit. In this case, a short speed limit section could be considered prior to the deflection section, or consideration of the use of speed limit ahead sign.
- on the **deflection**, it is appropriate to limit the deacceleration occurring, due to the combination of potentially horizontal and vertical alignment changes. It is often appropriate to use the speed limit that has been determined appropriate for the diverge section.
- on the **merge**, it is necessary to try and have the vehicles on the ramp being at a speed that can safely operate, being potentially a merge into the vehicles on the road the ramp is merging onto, or more likely, an intersection. It is appropriate to try and keep the merge speed at, or within 20 km/h, of the merging onto road, or intersection speed, unless the design speed of the merge is less than the merged onto roads speed limit, or the appropriate speed limit for the intersection.

7.13 Offset speed zones

Speed zones on a particular length of roadway, which has different speed limits for each direction of travel, may be permitted under the following conditions:

a) on a divided road where the roadside development adjacent each roadway is different to the extent that a different speed limit is clearly warranted for each, or

b) on a divided or undivided road where it is not safe to increase the speed limit to that which applies in the opposite direction of travel. This could be due to geometric or road features or where there is a part time speed zone, such as a school zone, and it is not practical to align the permanent speed zones.

Where offset speed zones are installed, these should be kept to a minimum. On an uncontrolled approach, offset speed zones should not exceed 500 m.

A repeater sign should be installed if offset speed zones have permitted U-turns.

7.14 Other circumstances

It is noted that the previous sections call out other considerations that are often found on the road network. This list should not be taken as an exhaustive list of all other considerations, and the engineer should consider if there are other circumstances that exist that should be taken into consideration. Speed management activities can be employed to support or encourage lower speeds that are implemented as part of *Stage 6 (Other considerations)* of the Speed Limit Review process.

Some examples of other circumstances include, but are not limited to:

- where there is wildlife activity on the road, or
- areas around hospitals, or
- public transport routes or stops, or
- roundabouts, or
- mountainous roads, or
- service roads, or
- laneways, or
- movement and place.

8 Engineer recommendation

Stage 7 of the Speed Limit Review process (Figure 3.5) is the process of making a recommendation.

At this stage, the engineer undertaking the Speed Limit Review shall have derived an assessed speed limit, which is one of the following:

- a CBSL
- the correlated speed limit (that is, the RASL is equal to the SDSL)
- the lower of the RASL and SDSL, or
- a speed limit based on other considerations (refer to Section 7).

Engineering judgement is required to consider whether the recommendation is suitable for the context, for example, consideration should be given to:

- adjacent speed limits
- route consistency (refer to Section 3.3)
- length of speed zones (refer to Section 3.4)
- road infrastructure elements not previously considered
- specific safety risks not fully accounted for in the IRR score calculation
- history of Speed Limit Reviews at the subject location, and
- consideration of the movement and place function of the road.

If the engineer, on considering these and other relevant factors, considers the assessed speed limit unsuitable for the context, they shall recommend what they judge to be the most appropriate speed limit, based on all factors considered. If the engineer considers the assessed speed limit to be suitable for the context, that shall be the recommended speed limit.

The reasons for the recommendation are to be documented.

Additionally, the recommendation may include:

- programming of works to improve the overall safety of the speed zone, and/or
- undertaking speed management activities to support alignment of prevailing vehicle speeds (refer to Section 6.1).

Once a Speed Limit Review has been completed, the engineer undertaking the Speed Limit Review shall forward the recommendation to the road authority's responsible officer. This requirement applies equally to reviews where the recommendation is to 'do nothing', that is, the recommendation is to retain an existing speed limit and undertake no additional works.

A recommendation from the engineer shall contain a checklist, or similar process to record the review undertaken, (refer to Appendix D and Appendix E) completed to a stage required to support a recommendation, and the following documents, where relevant:

a) a plan showing physical features of the road, existing development, traffic control devices present and existing speed limits

b) details of crashes

c) traffic volumes

d) results of a speed survey

e) pedestrian movements, and

f) a copy of the relevant portion of the road hierarchy plan.

Note: A complete file may not always contain all of these documents listed.

8.1 Responsible officer review

The responsible officer shall forward the engineer's recommendation and relevant documentation to the Speed Management Committee (SMC), if the responsible officer is satisfied that:

- the Speed Limit Review has been conducted by a suitably qualified engineer, or under the direct supervision of an RPEQ, and
- the Speed Limit Review has been conducted in accordance with the procedure described in this document.

If the responsible officer needs clarification or has reason to believe the engineer may not have followed the process set out in this document, the responsible officer may seek further advice from the engineer before submitting the Speed Limit Review to the SMC.

It is noted that a speed limit desktop review undertaken for a road section does not have to be submitted to the SMC as it does not constitute a full Speed Limit Review.

9 Approve and Implement

Stage 8 of the Speed Limit Review process (Figure 3.5) is approval and implementation of the Speed Limit Review findings, including those that recommend no change.

9.1 Speed Management Committee

All Speed Limit Reviews conducted by all road authorities shall be submitted to the local Speed Management Committee (SMC) for endorsement, even if the recommendation is to retain the existing speed limit. This is intended to ensure that the interests of all road users are considered before a speed zone is established and to ensure that speed zones throughout Queensland are consistent and credible. A speed zone can be established only after the SMC endorses the recommendation of the road authority.

A speed limit desktop review does not need to go to the SMC as it does not constitute a full Speed Limit Review.

9.1.1 Role of the Speed Management Committee

The role of the SMC is to endorse or not endorse, with explanation, the recommended speed limit from a Speed Limit Review.

The SMC is to deliberate thoroughly on all issues in relation to the recommendation of the road authority including, but not necessarily limited to, safety, uniformity, consistency and credibility. The SMC shall also be satisfied that the Speed Limit Review process was followed in accordance with this document.

9.1.2 Membership of Speed Management Committee

SMCs are expected to draw relevant membership from the local Traffic Advisory Committee (TAC), including members from other local government authorities or regional councils. In urban area, SMCs are based on a single local government while, in rural areas, SMCs may be based on a group of local governments. Committees are formed exclusively with the following membership:

a) engineering representative from the local government or representing local government

b) engineering representative from the relevant Transport and Main Roads office

c) Queensland Police Service representative, and

d) Transport and Main Roads, Road Safety Advisor or Road Safety Manager.

An SMC may have non-member observers attend a meeting, excluding elected officials, although the observer shall not have a role in the endorsing or not endorsing of a Speed Limit Review. It is up to the discretion of the SMC member as to which observers may attend an SMC meeting.

9.1.3 Meetings of Speed Management Committee

Meetings may be called only if there are Speed Limit Reviews to discuss, which includes school zones. SMC meetings may be chaired by the responsible officer of the road authority that has conducted the Speed Limit Review(s).

In some instances, it may not be necessary for the SMC to meet formally and members of the SMC may forward their endorsement / comments to the road authority. In this case, the road authority shall collate and summarise all feedback and circulate to all members of the SMC prior to endorsement of a recommendation.

The road authority which chaired the SMC, or conducted the Speed Limit Review(s), is responsible for recording, collating and summarising all relevant documentation associated with deliberations of the SMC.

9.1.4 Endorsement by Speed Management Committee

Endorsement by the SMC requires a majority decision by the SMC members.

The majority decision of the SMC, which may be to endorse the recommendation of the engineer or otherwise, shall be returned in writing, together with the minutes of all relevant SMC meetings, to the responsible officer for action.

Where the SMC has endorsed the recommendation, the responsible officer shall implement the recommendation.

Where the SMC has not endorsed the recommendation of the engineer, the responsible officer shall require the engineer to reconsider the recommendation, together with documentation from the SMC that explains its reasons for not endorsing the recommendation (refer to Section 9.2).

9.2 Review of endorsement by Speed Management Committee

The engineer shall review the SMC's reasons for not endorsing the recommendation and either:

- amend the Speed Limit Review recommendation in response to the SMC feedback, or
- provide further information to the SMC that addresses the SMC feedback and justifies the original recommendation.

The responsible officer shall submit the engineer's recommendation and any supporting information to the SMC again. Where the SMC endorses the recommendation, the responsible officer shall implement the recommendation.

If the SMC continues to **not** endorse the recommendation, the responsible officer shall refer the Speed Limit Review and all relevant documentation to the Chairperson of the Speed Limit Review Panel (SLRP) for its review, investigation and advice (refer to Section 9.3).

9.3 Speed Limit Review Panel

The Speed Limit Review Panel (SLRP) will undertake independent assessment of any referred recommendations by the responsible officer and will make appropriate recommendation back to the responsible officer for determination. The SLRP will be chaired by Transport and Main Roads' Director (Safer Roads).

9.3.1 Membership of Speed Limit Review Panel

The SLRP is composed of the following Transport and Main Roads officers:

1. Director (Safer Roads) – Chairperson
2. Manager (Safer Roads)
3. Director (Road Design)
4. Director (Traffic Engineering), and
5. Principal Engineer (Safer Roads).

The Chairperson may invite relevant experts or officers from Transport and Main Roads and/or local government to participate in the independent assessment of the Speed Limit Review.

9.3.2 Meetings of Speed Limit Review Panel

Meetings of the SLRP shall be called only when there are referrals to discuss. Each member of the Panel will be provided with the report and other information required for review and decision at least 10 working days in advance of the meeting. At the meeting, the SLRP will either:

- draft advice on the matter for the responsible officer to make a final decision, or
- identify additional actions and further information and schedule a second meeting to complete the independent assessment.

9.3.3 Time for Speed Limit Review assessment

Depending on the nature of the issues to be considered (for example, technical complexity, community's involvement, local or regional significance), the SLRP will endeavour to complete its assessment within one month of referral by the responsible officer. Additional information from the responsible officer may be requested in the process of the independent assessment. The assessment period may be extended if further information is requested.

9.3.4 Obligations of road authorities

Road authorities are obliged to supply additional information to the SLRP when requested within a reasonable timeframe as deemed appropriate. The SLRP will not be obliged to provide its independent assessment if the road authorities do not supply requested information in a timely manner. Transport and Main Roads Districts and Regions and/or local governments are expected to cooperate fully with requests for any additional information for an independent assessment.

9.3.5 Speed Limit Review assessment report

The SLRP Chairperson will submit a brief report with the SLRP's findings and recommended actions to the relevant road authority's responsible officer.

9.4 Approval

The ultimate authority to approve any recommendation lies with the responsible officer. It is also the responsibility of the responsible officer to maintain a Speed Limit Review file which may contain:

- documentation prepared by the engineer (refer to Section 8)
- documentation generated by the SMC (refer to Section 9.1), and
- documentation generated by the SLRP (refer to Section 9.3).

9.5 Implementation

The ultimate recommendation shall be implemented once approved by the responsible officer.

9.6 Record keeping

It is the responsibility of the responsible officer to keep a record of the outcome and implementation of the Speed Limit Review.

Any signage or pavement marking changes are to be implemented in accordance with Section 1.4.

The responsible officer shall provide a copy of the documentation that supported a Speed Limit Review to speedlimitreview@tmr.qld.gov.au, or through the approved online system.

9.7 Communication

There is a need to consider what communication strategy will be adopted, based on the outcome of the Speed Limit Review process. The jurisdiction should consider working with communication experts to help determine the best way to communicate the Speed Limit Review, which will vary depending on the outcomes and likely impacted stakeholders and community.

10 Monitor and evaluate

Stage 9 of the Speed Limit Review process (Figure 3.5) is the monitoring and evaluation of the speed limit set.

Speed limits should be programmed for review on a regular basis. Where a speed limit has been altered, the outcome shall be assessed – ideally, three months after the physical implementation.

Speed limits should desirably be programmed for speed limit desktop review every five years. This is to ensure that any changes in traffic conditions, speed environment including land use or increase in casualty crashes which may influence the speed limit can be determined, as identified in Section 3.5.1.1.

Where the speed limit desktop review shows that there is a change in traffic characteristics or the speed environment, including land use, or an increase in casualty crashes, a full Speed Limit Review, in accordance with the process described in this document shall be conducted.

Where the speed limit desktop review shows that there is negligible change in traffic characteristics or the speed environment and there is no increase in casualty crash rates, a full Speed Limit Review may not be required.

A record of all speed limit desktop reviews undertaken shall be retained.

11 Speed limit signs

11.1 General

Refer to the Queensland MUTCD Part 4 for guidance on the signs used in the application of various types of speed control.

11.1.1 Signs for linear speed zones and general speed limits

Refer to the Queensland MUTCD Part 4 for guidance.

11.1.2 Signs for area speed zones

Refer to the Queensland MUTCD Part 4 for guidance.

11.1.3 Signs for school zone speed limits

Refer to the Queensland MUTCD Part 4 for guidance.

11.1.4 Signs for speed limits for particular classes of vehicles

Refer to the Queensland MUTCD Part 4 for guidance.

11.1.5 Speed Limit AHEAD sign (G9-79)

Refer to the Queensland MUTCD Part 4 for guidance.

11.1.6 Repeater signs

Refer to the Queensland MUTCD Part 4 for guidance.

11.2 Sign size

Refer to the Queensland MUTCD Part 4 for guidance.

11.3 Uniformity of location

Refer to the Queensland MUTCD Part 4 for guidance.

11.4 Means of displaying Variable Speed Limits

Refer to the Queensland MUTCD Part 4 for guidance.

12 Pavement markings

12.1 General

Refer to the Queensland MUTCD Part 4 for guidance.

12.2 Marking details

Refer to the Queensland MUTCD Part 4 for guidance.

13 Guidance for implementing speed limits

This section provides guidance for implementing speed limits.

13.1 Sign application

13.1.1 General

Refer to the Queensland MUTCD Part 4 for guidance.

13.1.2 Built-up area and non-built-up area limit areas

Refer to the Queensland MUTCD Part 4 for guidance.

13.1.3 Linear speed zones

Refer to the Queensland MUTCD Part 4 for guidance.

13.1.4 Area speed zones

Refer to the Queensland MUTCD Part 4 for guidance.

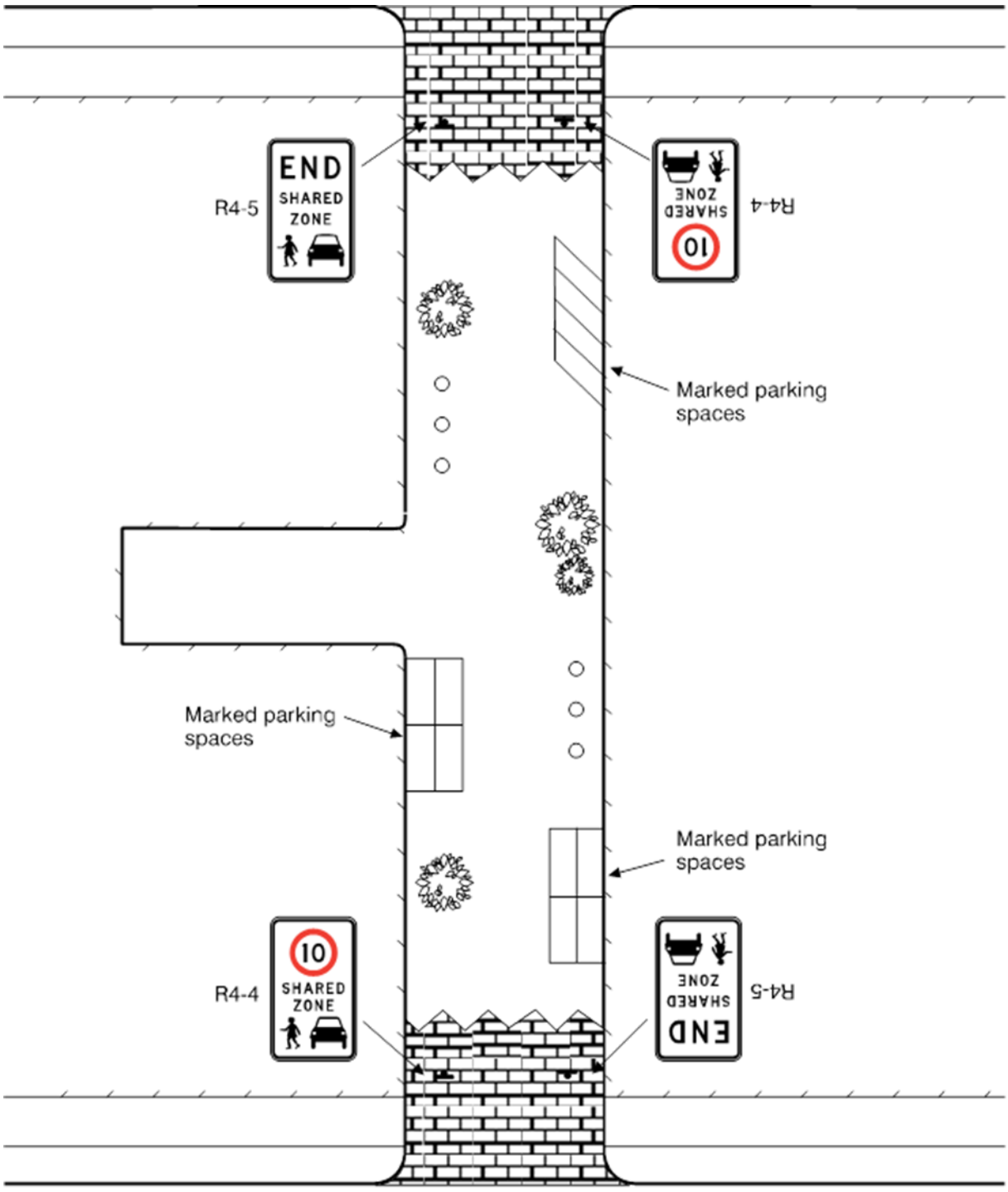
13.1.5 Buffer zones

Refer to the Queensland MUTCD Part 4 for guidance.

13.2 Shared zone

The SHARED ZONE (R4-4) and END SHARED ZONE (R4-5) signs are required to establish a shared zone. A typical shared zone treatment is shown in Figure 13.2. Refer to the Queensland MUTCD Part 4 for guidance.

Figure 13.2 – Typical signage layout for a shared zone



13.3 School zones

13.3.1 Time of operation

13.3.1.1 Standard times of operation

To achieve a high level of voluntary compliance to school zone speeds by motorists, it is essential that motorists are clear on what times school zones are in operation. For this. standard times of operation for school zones are in place for Queensland, unless exemptions or extensions to school zone hours are approved by Transport and Main Roads. Where school zone times differ from the standard school zone times, the school zone shall commence and finish either on the hour or half hour.

Standard times of operation of school zones in Queensland are on school days during the following time periods:

a) Morning standard time – 7am to 9am, and

b) Afternoon standard time – 2pm to 4pm.

Standard times of operation are mandatory for school zones in south-east Queensland (SEQ). Local governments within SEQ include:

1. Brisbane City Council
2. City of Gold Coast Council
3. Ipswich City Council
4. Logan City Council
5. City of Moreton Bay Council
6. Noosa Shire Council
7. Redland City Council
8. Scenic Rim Regional Council, and
9. Sunshine Coast Regional Council.

These listed local government areas within SEQ that are ineligible for exemptions to standard operating times, are also shown at Appendix F.

The standard times are recommended for school zones in regional Queensland, unless more suitable set times of operation need to be established for a local government jurisdiction. Local governments in regional Queensland may apply for an exemption to the standard times of operation (see Section 13.3.1.2).

13.3.1.2 Exemption to standard times of operation (not applicable to SEQ)

Exemption to the standard times of operation for school zones may be considered for local governments within regional Queensland. Exemptions are not applicable to school zones within SEQ.

For a local government area in regional Queensland, an exemption to the standard times of operation (Section 13.3.1.1) may be considered where the morning and/or afternoon standard times are found to be unsuitable for most schools within the local government area. To determine suitable times of operation for a local government area, it should be identified when significant school related activity (Section 7.1.2.2) is occurring within school zones during typical school days.

Times may be amended to cater for local and regional requirements by the relevant road authority in consultation with Transport and Main Roads regional officers, the Department of Education, Skills and Employment, Education Queensland, the school community, Queensland Police Service and other members of a school's Safe School Travel committee.

The local government may, after consultation with all schools within its jurisdiction, apply to Transport and Main Roads for an exemption to change the morning and/or afternoon times of operation to suit the majority of schools within its jurisdiction using form F4936 *Local Government School Speed Zone Time Adjustment Application*.

Approved changes to the school zone times of operation for a local government shall apply to all school zones within the local government area. As per Section 13.3.1.4, all school zones with extended time of operation must align with the start and finish times approved for their local government area.

Refer to Appendix G for exemption criteria and process for obtaining approval.

13.3.1.3 All-day operation

All-day operation shall be implemented at school zones at split-campus schools (Section 7.1.3.1).

All-day operating times shall align with the normal morning start and afternoon finish operating times for school zones in the local government area (for example, 7am to 4pm in SEQ).

13.3.1.4 Extended time of operation

Extended time of operation for a school zone may be considered for sites in both SEQ and regional Queensland jurisdictions. There may be instances when individual schools require their school zone to operate beyond the normal morning and afternoon times of operation for schools in their local government area.

Where there is a need to extend school zone times beyond normal times of operation, the school shall make a formal written request to the relevant road authority (local government or Transport and Main Roads) with its requirements. The road authority shall apply to Transport and Main Roads using form F4935 *School Speed Zone Time Adjustment Application* to seek approval of the proposed extended times of operation the school zone.

Each school that requires approval to extend their school zone times shall make a separate request to the relevant road authority. The school zone operation times shall only be increased upon written approval from Transport and Main Roads.

Refer to Appendix H for the criteria and process for obtaining approval to extend school zone operating times.

13.3.2 School zone signs

School zone signs approved for use in Queensland include the following.

Standard (static) signs:

- School zone sign (R4-Q01).
- School zone sign – with double arrow (R4-Q04 and R4-Q12).
- School zone ahead sign (R4-Q03).

Enhanced (flashing light) signs:

- Enhanced (flashing light) school zone speed limit sign (R4-Q10) – for school zones located within posted speed limits of 50 km/h or greater.
- Enhanced (flashing light) school zone speed limit sign (R4-Q11) – for school zones located within 40 km/h posted speed limit zones.

Refer to Queensland MUTCD Part 4 and MUTCD Q-series signs for school zone signs approved for use in Queensland.

13.3.2.1 Enhanced (flashing light) school zone speed limit signs (R4-Q10 & R4-Q11)

Enhanced school zone speed limit signs provide an increased level of warning to motorists of the presence of a school zone speed limit. Enhanced signs are programmed to be active during school zone operating times indicated on the sign.

Enhanced signs may be installed at any school zone location where there is evidence of the location being a high safety risk for school children. For example, enhanced signs may be used at school zones where there is poor driver compliance to the school zone speed limit, or where there the school zone is unexpected to motorists.

Enhanced signs shall be installed at the following locations:

a) at school zones on multilane roads (see Section 13.3.2.2), or

b) at split campus schools where school zones operate and children cross the road during the school day between the campuses, or

c) where the school zone times are extended to operate outside of the normal school zone times for the local government area.

Enhanced signs shall be installed at locations b) and c) above unless the following is applicable:

- traffic calming has been installed that provides a low-speed environment of 40 km/h or less within the school zone, or
- the school zone is installed on a cul-de-sac not exceeding 500 m in length and the road services residential properties only.

Enhanced signs may be installed at any school zone at a site that would potentially benefit from a more conspicuous signage treatment.

There are two types of enhanced school zone speed limit signs approved for use in Queensland:

- R4-Q10– for school zones located in road sections with a posted speed limit of 50 km/h or greater outside of school zone operating times.
- R4-Q11– for school zones located in road sections with a 40 km/h posted speed limit at all times.

Refer to Queensland MUTCD Part 4 and MUTCD Q-series signs for school zone signs approved for use in Queensland.

13.3.2.2 Signage requirements for school zones on multilane roads

Enhanced school zone speed limit signs (R4-Q10 or R4-Q11) shall be installed to indicate the start of a school zone on multilane roads. Signs for school zones on multilane roads shall be installed as outlined in Table 13.3.2.2 below.

Table 13.3.2.2 – School zone speed limit signs at school zones on multilane roads

	Undivided or divided (median width < 1.5 m)	**Divided (median width > 1.5 m)**
Start of school zone – kerbside	Enhanced	Static / Enhanced*
Start of school zone – median	Not applicable	Static / Enhanced*
Repeater signs within school zone (school zone < 500 m in length)	Static	Static
Repeater signs within school zone (school zone > 500 m in length)	Enhanced	Enhanced

Note:

1. 'B' size school zone sign shall be installed at school zones on multilane roads.
2. In exceptional circumstances, where it is not practical to install 'B' size signs (trees cannot be cleared due to environmental concern, need for existing property demolition or need to maintain safety clearance with power cables), 'A' size sign may be considered.
3. In exceptional circumstances, where it is not practical (for example, due to shade, low clearance with power line) to install a flashing school zone sign at the beginning of a school zone, a static sign shall be installed and a flashing school zone sign shall be installed as close as practicable to the start of the school zone.

* Only one Enhanced school zone speed limit sign (R4-Q10 or R4-Q11) is necessary.

Where the installation of an enhanced school zone sign at the start of the school zone on an undivided multilane road is not effective in achieving driver compliance, other measures such as the threshold treatment or duplication of the school zone sign (R4-Q01) on the right hand side of the road should be considered.

13.3.3 Threshold treatments

Threshold treatments may be provided at entrances to school zones as a supplementary speed management treatment to school zone signage. Threshold treatments create a change in driver perception of the speed environment. In the absence of a school zone, threshold treatments may also be used to define the school precinct.

The purpose of threshold treatments is to reinforce to road users that they are entering a school environment and that they should modify their driving behaviour and reduce their speed accordingly.

Threshold treatments around schools may provide the greatest benefits at school zones where it is difficult for drivers to identify the need to reduce speed, for example, on wide, open straight roads or where the school is set back from the edge of the road.

Where used at school zones, threshold treatments shall be located adjacent to the school zone signs.

Where used at school zones, threshold treatments shall include the words SCHOOL ZONE.

Threshold treatments shall comply with the provisions set out in Queensland MUTCD Part 4. A typical threshold treatment for a school zone is shown on Figure 13.3.3.

Figure 13.3.3 – Typical threshold treatment for a school zone

Note: The word ‘SCHOOL’ is used where a threshold treatment is installed at a school without a school zone.

13.3.4 Management of speeding in school zones

The installation of appropriate signs and infrastructure should ensure that motorists slow to the school zone speed limit.

The change to make school zone times consistent throughout south-east Queensland and across local government areas in regional Queensland removes confusion about school zone times so motorists do not encounter different school zone times at different schools. Where compliance with school zone speed limit is low, the following measures should be considered:

a) upgrade signs (regulatory and warning) to current standards

b) install additional school zone signs as repeater signs

c) install threshold treatment with the words SCHOOL ZONE

d) change the road environment by installing edge lines

e) remove the centreline marking on local streets with a centreline (if appropriate), and/or

f) install nodal traffic calming devices.

Where these treatments have been implemented and found to be ineffective in improving compliance with the school zone speed limit, enhanced school zone signs should also be considered.

Where the enhanced flashing school zone signs alone are not effective in reducing vehicle speeds within the school zone threshold treatment, a threshold treatment should be installed at the start of the school zone on the lanes of traffic entering the school zone.

13.4 Black Links speed zone signage

Refer to the Queensland MUTCD Part 4 for signage guidance for Black Links speed zone, as described in Section 7.6 of this document.

13.4.1 Lengths of Black Links speed zones

The minimum length of Black Links speed zones where speed limits have been reduced shall meet the requirements given in Table 13.3.1.

Table 13.3.1 – Length of Black Links speed zones

Speed limit after reduction (km/h)	Minimum length of speed zone (km)
90	5
80, 70	2

13.5 Speed reduction on approaches to controlled high speed rural intersections

Refer to the Queensland MUTCD Part 4 for signage guidance for speed reductions on approaches to high-speed rural intersections, as described in Section 7.7 of this document.

13.5.1 Implementation on approaches to controlled high-speed rural intersections

Refer to the Queensland MUTCD Part 4 for guidance.

13.6 Arterial roads through rural towns

Refer to the Queensland MUTCD Part 4 for guidance on speed application on arterial roads through rural towns, as described in Section 7.5 of this document.

13.6.1 Length of speed zones

The minimum length of the speed zone through a rural town is 200 m for all speed limits less than 60 km/h.

Figures 13.6.1(a) and 13.6.1(b) show examples of the preferred sites for the application of a 50 km/h speed zone in rural towns.

Figure 13.6.1(a) – Possible application of a 50 km/h speed zone for a commercial area

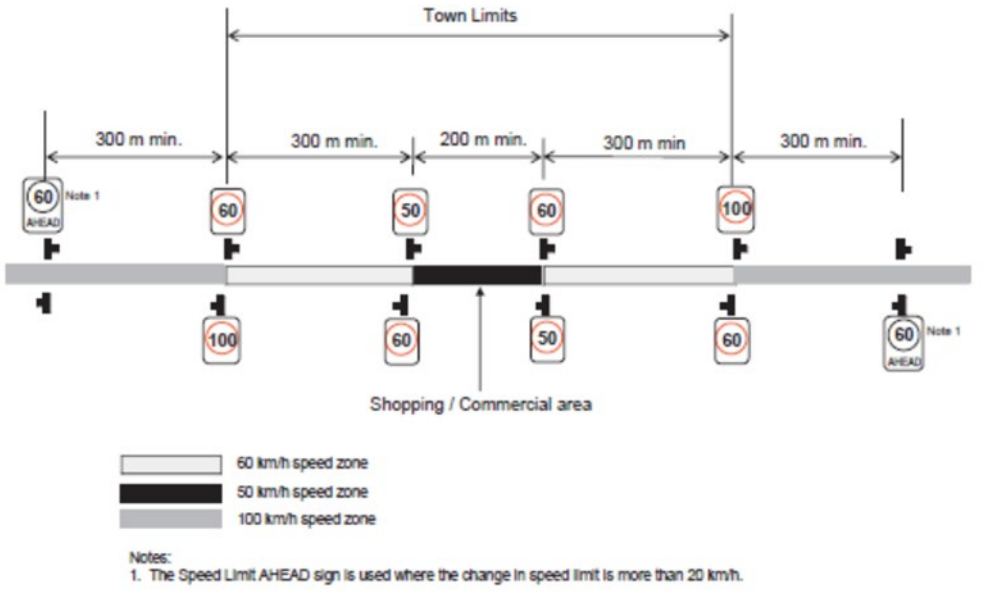
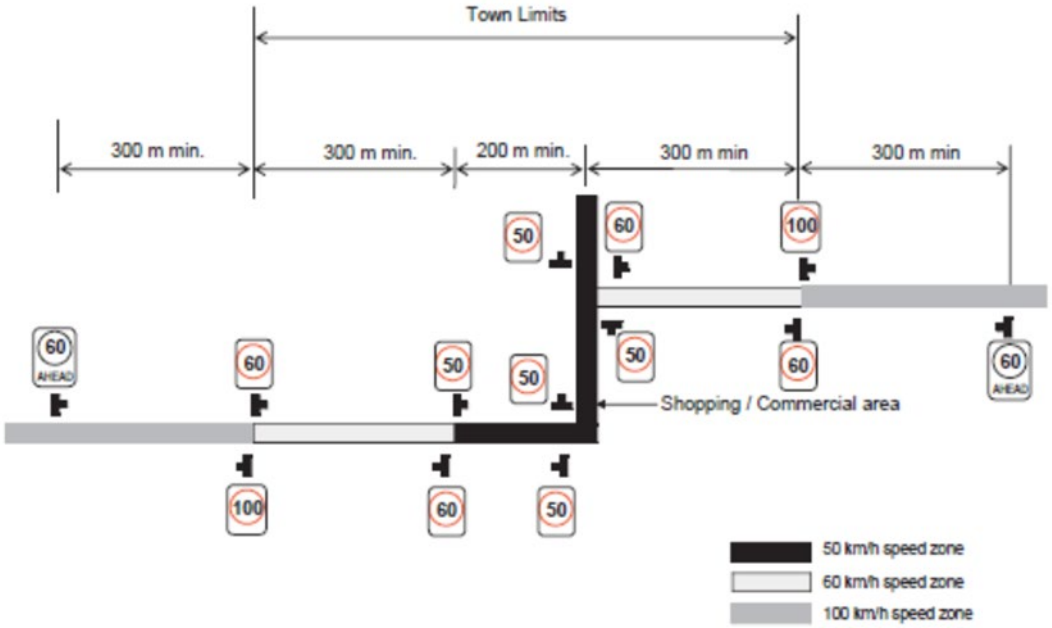


Figure 13.6.1(b) –Possible application of a 50 km/h speed zone for a commercial area



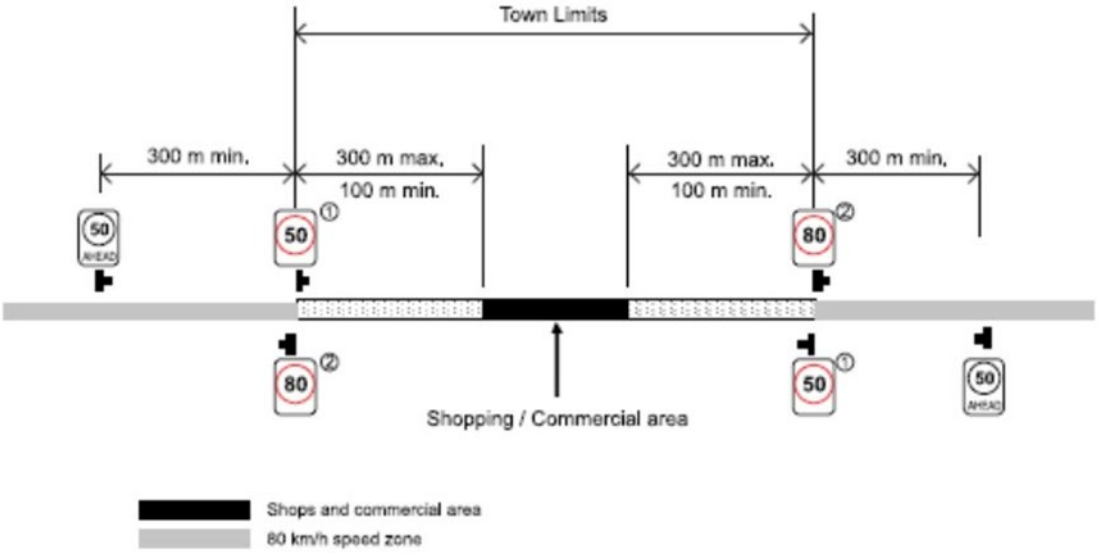
13.6.2 Alternative treatment for small towns

Where the following exists, it may be appropriate to extend the lower speed zone to include the full length of the road within the town limits:

- there are no other 60 km/h speed zones within the town
- the shopping or commercial area extends to within 300 m of the town limits, and
- the lower speed zone will be at least 200 m long.

Figure 13.6.2 shows the application example of a 50 km/h speed zone for small towns.

Figure 13.6.2 – Alternative application of a 50 km/h speed zone for a commercial area in small rural towns only



Notes:

1. 50 km/h repeater signs may be required, depending on the length of the 50 km/h speed zone and the presence of major side roads.
2. In some cases it may be necessary to extend the 80 km/h sign to opposite the 50 AHEAD sign.

13.7 Hospital zone

Refer to the Queensland MUTCD Part 4 for guidance.

13.8 110 km/h speed zones

Refer to the Queensland MUTCD Part 4 for guidance on signing of 110 km/h speed zones that comply with special requirements as specified in Section 7.8 of this document.

13.9 Speed limits at bridges or floodway due to structural deficiencies

Refer to the Queensland MUTCD Part 4 for signage guidance.

The speed zone shall commence a minimum of 100 metres before the bridge on the approach side and extend to minimum of 100 metres on the departure side of the bridge to encourage compliance with the reduced speed limit by drivers. Compliance with the minimum length requirements of Table 3.4 in this document is not required.

13.10 Motorway ramp zones

Refer to the Queensland MUTCD Part 4 for signage guidance on motorway ramp zones speed application.

13.11 Placement of speed limit awareness signs on local streets

The speed of vehicles in local streets in a built-up area is often raised as a concern by communities. An initiative to combat speeding on local streets is the use of placing speed limit awareness signs on wheelie bins on local streets. This initiative was trialled successfully by Ipswich City Council in 2006.

The default speed limit in built-up areas is 50 km/h and this generally applies to streets with a local access function. The speed limit in these streets is not generally posted as the speed limit applies by default.

Some Councils have advised that residents often complain of drivers speeding on their local streets. Studies have shown that there is a greater compliance with the speed limit if the speed environment is compatible with the speed limit.

Local streets which have long unbroken sections and wide pavements often have a lower level of compliance with the speed limit. In such cases, engineering treatment, such as changing priority at intersections, kerb extensions, installing chicanes or threshold treatments to change the speed environment, should be considered.

In situations where other measures to reduce the speed of vehicles have previously been implemented without success and the speed of vehicles in local streets is raised as a concern by communities, the road authority may consider implementation of speed limit awareness signs on wheelie bins.

The following criteria apply to the installation of speed awareness signs on wheelie bins:

- signs shall only be installed on local streets with a speed limit of 50 km/h
- signs should only be used on streets that have an upper limit of 15 km/h pace in the range of 58–65 km/h, and
- the ADT on the street should not exceed 1000 vehicles per day.

Refer to Queensland MUTCD Part 4 for information related to appropriate signage governance.

The speed limit awareness signs are intended to remind drivers of the speed limit. It is not necessary to install signs on every wheelie bin in the street.

It is essential that the signs are not overused as this will reduce their effectiveness. It is recommended that the signs be installed on wheelie bins in selected local streets in a precinct that will have the largest impact on speed awareness. Where approved, the following requirements apply for sign installation:

1. all signs shall be installed by a person authorised by the Council to install official traffic signs
2. only one sign shall be installed per wheelie bin
3. the sign shall be placed on the side of the bin facing oncoming traffic
4. signs shall not be installed on wheelie bins of houses that are at a junction or intersection, and
5. signs shall not be installed on wheelie bins of houses that are within a school zone or within a speed zone of less than 50 km/h.

If roadworks are being conducted on a local street with speed limit awareness signs and the speed limit has been reduced, it is the responsibility of the authority conducting the roadworks to minimise confusion of the speed limit.

To ensure that motorists are aware of the reduced roadwork speed limit, it may be necessary to install additional regulatory speed limit signs with roadworks signs along the length of the roadwork.

Speed surveys should be conducted prior to and after the use of the signs to monitor performance and effectiveness.

If, after a period of six months of installation, there is only minimal impact on driver compliance with the speed limit, other engineering solutions should be considered.

13.12 New limit signage

Refer to the Queensland MUTCD Part 4 for guidance on new limit signage application.

Appendix A: Guidelines for conducting speed surveys

A1 Objective

The objective of vehicle speed surveys is to determine the speed at which drivers generally prefer to travel under expected conditions.

The resulting distribution of observed speeds should be characteristic of the road function and its general environment. As far as possible, this distribution should be free of the influence of any external factors such as:

a) roadworks

b) adverse weather conditions, and

c) special events or incidents.

Avoiding external factors will provide more reliable data, and enable comparisons of speed distributions between roads and between time periods on the same road.

A2 Site characteristics

Vehicle speed survey sites should be selected based on the following characteristics.

Geometry and alignment

Speed survey sites should be located on sections of road which are representative of the speed zone under investigation; for example, if the speed zone under consideration generally has restricted horizontal geometry, then it would not be appropriate to collect data at an isolated straight section of road. Similarly, if a road has an isolated section with substandard geometry, the survey site should be located away from the substandard section of road.

Intersections

Survey sites should not be in close proximity (for example, within 200 m) to major access / egress points, traffic signals and roundabouts, where acceleration or deceleration of vehicles is likely, unless this is representative of the overall road section.

Impact of measuring equipment

Drivers may tend to slow down upon sighting the use of radar devices to measure vehicle speeds. Consequently, speed surveys that are as unobtrusive as possible should be conducted. Presence of a manual counter can bring bias on speed data.

Equipment limitations

Whilst the limitations of automated speed data collection (for example, VDAS, ARCHER and so on) equipment is generally well understood by speed zoning practitioners, the limitations and use of radar devices are less well understood; for example, significant metallic or highly dense objects that can distort any readings of vehicles can reflect radar. For further advice on the use of radar or LIDAR devices, advice should be sought from the local Queensland Police Service Road Policing Command Branch.

Safety

When conducting speed surveys, the safety of survey staff should not be compromised by poor site selection; for example, sites with severely restricted sight distances or lateral clearances should be avoided.

A3 Survey conditions

Vehicle speed surveys should be designed as follows, although it is noted that, due to site consideration, it may be appropriate to extend the lengths of time or days undertaken, to get better representation of the road section's use:

Day of week:

Monday to Friday (inclusive).

Time of day:

6:00am to 6:00pm.

Environmental conditions:

Good weather, dry pavement.

Non typical events:

Avoid non typical events such as roadworks, unexpected traffic congestion, major holidays, local happenings or incidents. Speed surveys with small samples should not be collected during traffic congested periods.

A4 Sample characteristics

Speed data may be collected various forms, which may include, but is not limited to:

- collection from probe speed data
- collection from tube counters
- collection from video imagery counts
- collection from manual counts

A sample of vehicle speeds should be obtained with the following characteristics:

Travel direction:

Each direction of travel should be sampled individually.

Recommended sample size:

Speed surveys are desirably based on a minimum sample size of 200 observations; however, where it is difficult to achieve this sample size, the sample sizes shown in Table A4 may be adopted.

Table A4 – Minimum sample sizes

Existing speed limit (km/h)	10	20	30	40	50	60	70	80	90	100	110
Minimum sample size	55	55	55	55	65	85	95	110	130	155	200

Sample vehicle type:

Include all vehicle types in the survey sample (for example, cars, trucks, motorcycles, bicycles and buses). As far as practicable, major vehicle types should be sampled in proportion to their relative numbers in the traffic stream.

Pedestrian sample size:

It is necessary when measuring the volume of people walking to record all pedestrian movements over the same observational period used to select the vehicle speed surveys. All pedestrian movements includes any people walking along the road section or crossing the road. Some examples of what constitutes a pedestrian movement includes, but are not limited to:

- a person on a scooter or other PMD
- a person walking on a footpath or across the road
- a person leaving a vehicle to enter a property or business
- a person on a mobility scooter using a road crossing, and
- a person alighting a bus and crossing the road mid-block, away from a crossing.

It may be appropriate to limit the hours of collection of pedestrian data, if this can be clearly justified.

Data recording:

Individual speeds to the nearest 1 km/h, in 1 km/h bin ranges, should be collected and analysed to give an accurate representation of traffic behaviour.

Appendix B: Speed data analysis

Figure B(a) – Typical plan and data sheet for determination of speed zones

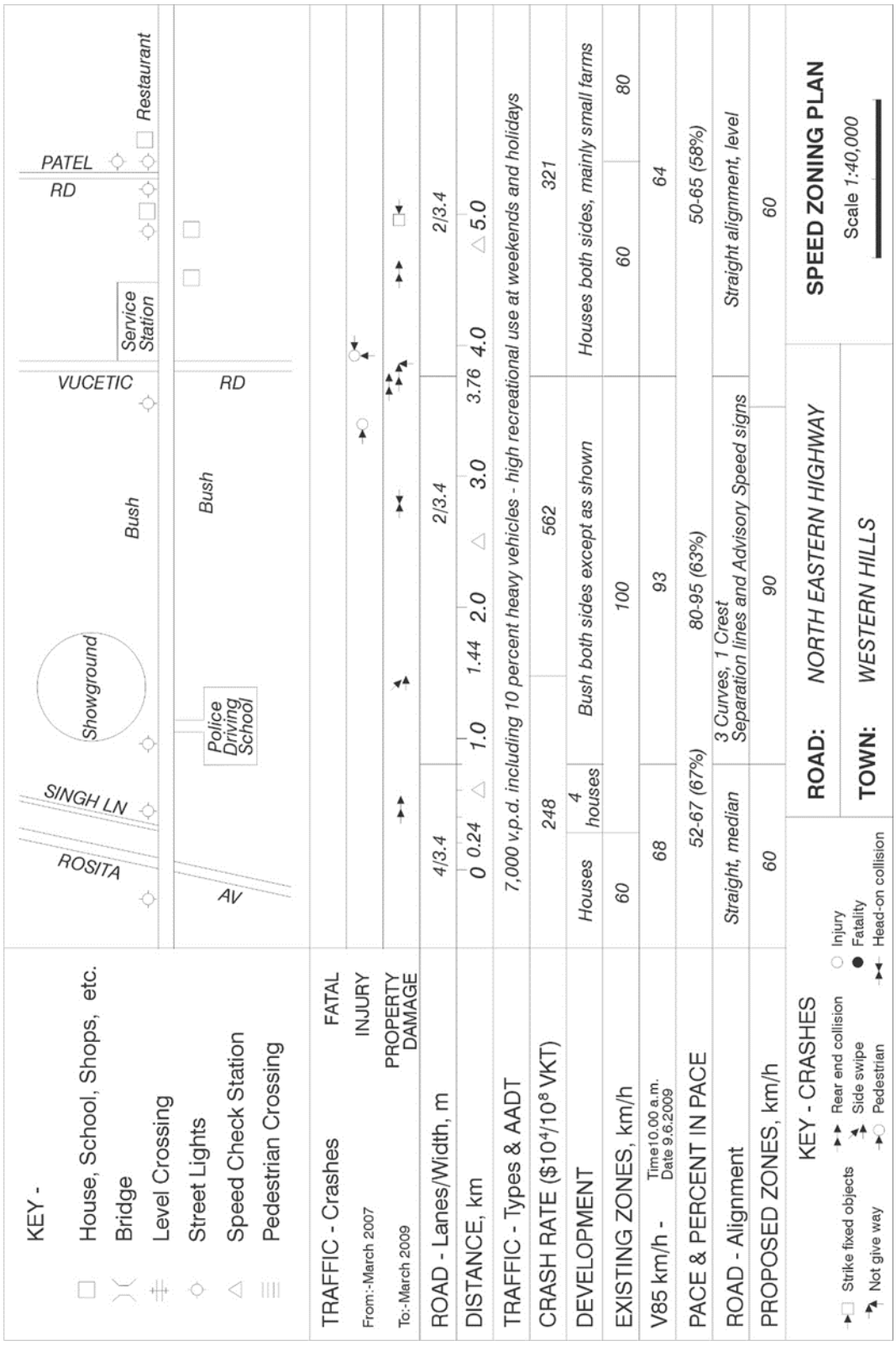


Figure B(b) – Sample speed survey field sheet

SPEED, km/h	Passenger Cars	Total	Trucks	Total	Busses	Total	TOTAL
0-30							
> 30-40							
> 40-45	//	2		0			2
> 45-50	////	4	//	2			6
> 50-55	卌 卌 卌 卌 卌 卌 ////	34	////	4			38
> 55-60	卌 卌 卌 卌 卌 卌 卌 卌 //	42	////	4			46
> 60-65	卌 卌 卌 卌 卌 卌 卌 /	36	//	2			38
> 65-70	卌 卌 卌 卌 卌 卌 ///	33	//	2			35
> 70-75	卌 卌	10					10
> 75-80	卌 //	7					7
> 80-90							
> 90-120							

LOCAL GOVERNMENT: WESTERN HILLS DATE: 9-6-2009 DAY OF WEEK: TUESDAY

ROAD: NORTH EASTERN HIGHWAY WEATHER: FINE SPEED LIMIT: 60 KM/H

LOCATION: BIRDWOOD AVE - BURRINGBAR RD DURATION OF COUNT: 10 AM - 10.30 AM

DIRECTION OF TRAFFIC: OUTBOUND SIGNATURE:

STATION: 1

*Note that 1 km/h bin ranges should be used, not larger ranges.

Figure B(c) – Sample speed survey calculation

Bin Range (km/h)	Mid Point of bin range (km/h)	No. of samples in bin (vehicles)	% of sample in bin (% of total)	3-bin moving sum (% of total)	Speed (Upper limit of bin ranges) (km/h)	% less than or equal to speed	(2) * (3)
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
0 - 30	15	0	0	0	30	0	0
>30 - 40	35	0	0	0	40	0	0
>40 - 45	42.5	2	1.1	1.1	45	1.1	85
>45 - 50	47.5	6	3.3	4.4	50	4.4	285
>50 - 55	52.5	38	20.9	25.3	55	25.3	1995
>55 - 60	57.5	46	25.3	49.5	60	50.6	2645
>60 - 65	62.5	38	20.9	67.1	65	71.5	2375
>65 - 70	67.5	35	19.2	65.4	70	90.7	2362.5
>70 - 75	72.5	10	5.5	45.6	75	96.2	725
>75 - 80	77.5	7	3.8	28.5	80	100	542.5
>80 - 90	85	0	0	9.3	90	100	0
>90 - 120	105	0	0	3.8	120	100	0
	TOTALS	182	100				11015

Mean Speed

$$\bar{x} = \frac{\sum \text{column 8}}{\sum \text{column 3}} = \frac{11015}{182} = 60.5 \text{ km/h}$$

15 km/h Pace

1. Calculate the three point moving sum of Column 4 in Column 5.
2. Percentage in Pace is the maximum value in Column 5 = 67.1 %
3. Upper limit of Pace is corresponding value in Column 6 = 65 km/h.

85th percentile speed

1. Use values in columns 6 and 7 to plot a cumulative frequency graph - Figure C4.
2. The 85th percentile speed is the speed corresponding to a cumulative frequency of 85% = 68 km/h.

LOCAL GOVERNMENT: WESTERN HILLS

ROAD: NORTH EASTERN HIGHWAY

LOCATION: BIRDWOOD AVE - BURRINGBAR RD

DIRECTION OF TRAFFIC: OUTBOUND

STATION: 1

DATE: 9-6-2009

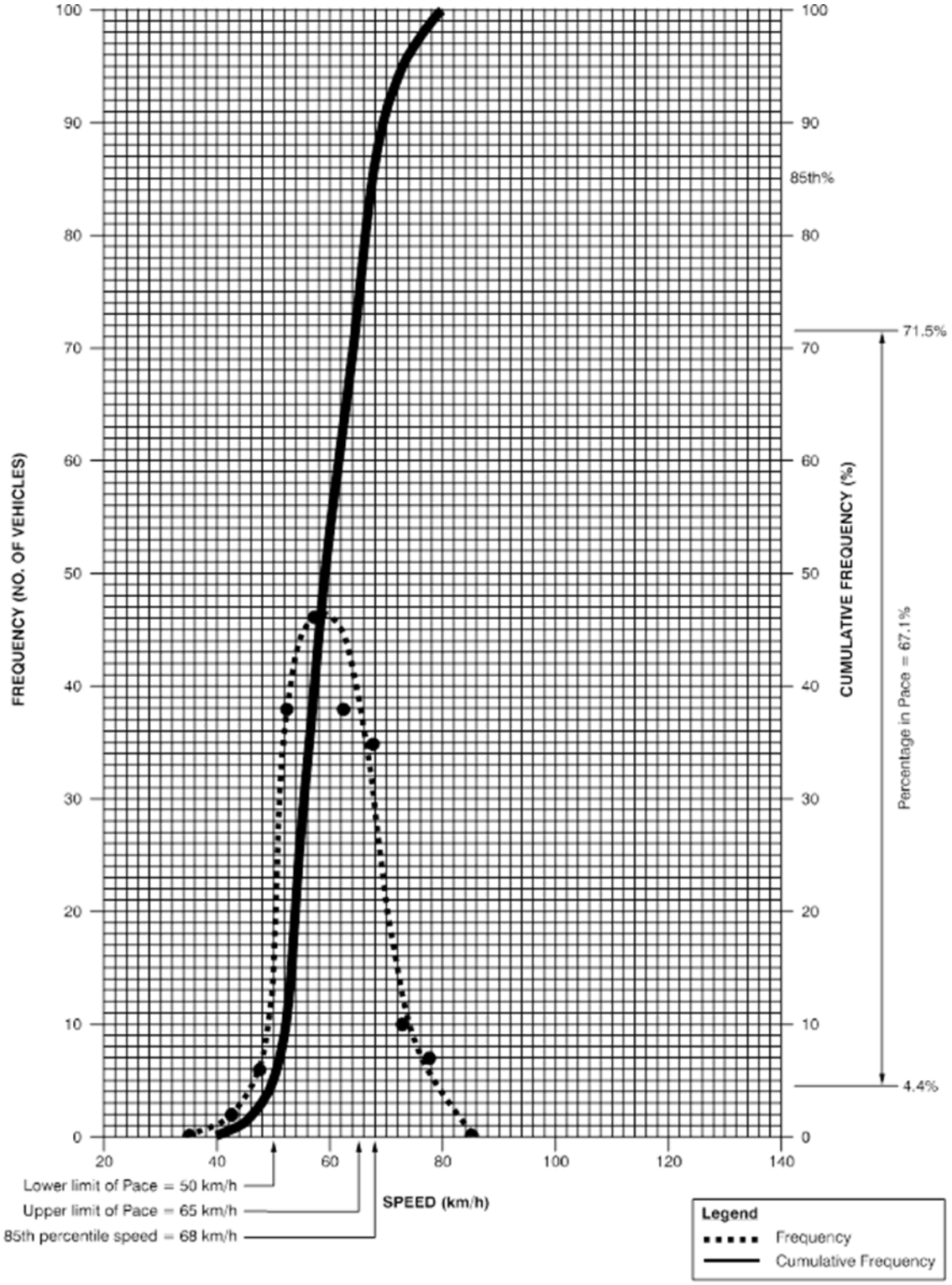
DAY OF WEEK: TUESDAY

DURATION OF COUNT: 10 AM - 10.30 AM

SIGNATURE:

*Note that 1 km/h bin ranges should be used, not larger ranges.

Figure B(d) – Sample frequency distribution curves sheet



LOCAL GOVERNMENT: WESTERN HILLS

ROAD: NORTH EASTERN HIGHWAY

LOCATION: BIRDWOOD AVE - BURRINGBAR RD

DIRECTION OF TRAFFIC: OUTBOUND

STATION: 1

DATE: 9-6-2009

DAY OF WEEK: TUESDAY

DURATION OF COUNT: 10 AM - 10.30 AM

SIGNATURE:

Appendix C: Analysis of crash data

C1 General

This Appendix provides guidance on the analysis of crash data to determine the CRR (see Section 5.1.2).

Crash data should be collected for the preceding five year period. These data should be plotted at the locations of occurrence by each severity category considered in the analysis.

C2 Evaluation of crashes

Crashes should be evaluated according to the following procedure:

- calculate the crash rate for the speed zone being reviewed (refer to Section C3)
- identify any crash concentrations (that is, Black Spots), and
- compare the crash rate to the CRR thresholds in Table C4 (refer to Section C4) to determine the CRR band.

C3 Calculating the crash rate

For the purpose of speed zoning, it is recommended that the crash rate be computed from the following formula:

$$Est.FSI = \frac{\sum_{t=1}^{21}(SI_t \times A_t)}{M}$$

where:

$Est.FSI$ = Estimated Fatal and Serious Injury Casualty Rate

t = DCA Code Group (1–21) (see Table C3)

SI_t = Severity Index of an injury crash in a DCA Code Group (see Table C3)

A_t = Number of crashes in DCA Group t over five year period

M = Measure of crash exposure in vehicles kilometres travelled (expressed as 10^8 VKT) and is calculated from the following formula:

$$M = \frac{(S \times Y \times 5 \times 365)}{100{,}000{,}000}$$

where:

S = Length of road segment (km)

Y = ADT over segment

Table C3 – Definitions for Coding Accidents Code Groups and crash risk scores

DCA Code Group	DCA Codes	Description	FSI Index (< 80 km/h)	FSI Index (≥ 80 km/h)
Two vehicle crashes				
1	100–109	Intersection, from adjacent approaches	0.46	0.73
2	201, 501	Head on	0.85	1.44
3	202–206	Opposing vehicle turning	0.53	0.84
4	301–303	Rear end	0.25	0.37
5	305–307, 504	Lane change	0.34	0.42
6	308, 309	Parallel lanes, turning	0.36	0.59
7	207, 304	U turn	0.39	0.57
8	401, 406–408	Entering roadway	0.38	0.71
9	503, 505, 506	Overtaking, same direction	0.50	0.65
10	402, 404, 601, 602, 604, 608	Hit parked vehicle	0.43	0.81
11	903	Hit railway train	1.07	0.9
Single vehicle crashes				
12	001–009	Pedestrian	0.60	0.98
13	605	Permanent obstruction on carriageway	0.28	0.53
14	609, 905	Hit animal	0.53	0.55
15	502, 701, 702, 706, 707	Off carriageway on straight	0.54	0.7
16	703, 704, 708, 904	Off carriageway on straight, hit object	0.60	0.66
17	705	Out of control on straight	0.55	0.73
18	801, 802	Off carriageway on curve	0.65	0.59
19	803, 804, 808	Off carriageway on curve, hit object	0.65	0.71
20	805, 806, 807	Out of control on curve	0.67	0.66
Other				
21	000, 200, 300, 400, 500, 600, 700, 800, 900, 901, 906, 907, 403, 405, 606, 607, 610	Other	0.51	0.63

C4 Determining Crash Risk Rating Bands

The crash rate (estimated in Section C3) is converted into a CRR band as identified in Table C4 following.

Table C4 – Crash Risk Rating Bands

CRR Band	Urban (Est. FSI per 10^8 VKT)	Rural (Est. FSI per 10^8 VKT)
High Risk	> 31.3	> 22.0
Medium Risk	14.5–31.3	9.2–22.0
Low Risk	< 14.5	< 9.2

NOTE: The definition of rural and urban as identified in Table C4 are based on the definitions supplied in Section 3.5 (specifically Table 8) of *the Infrastructure Risk Rating Manual*.

Appendix D: Speed Limit Review checklist

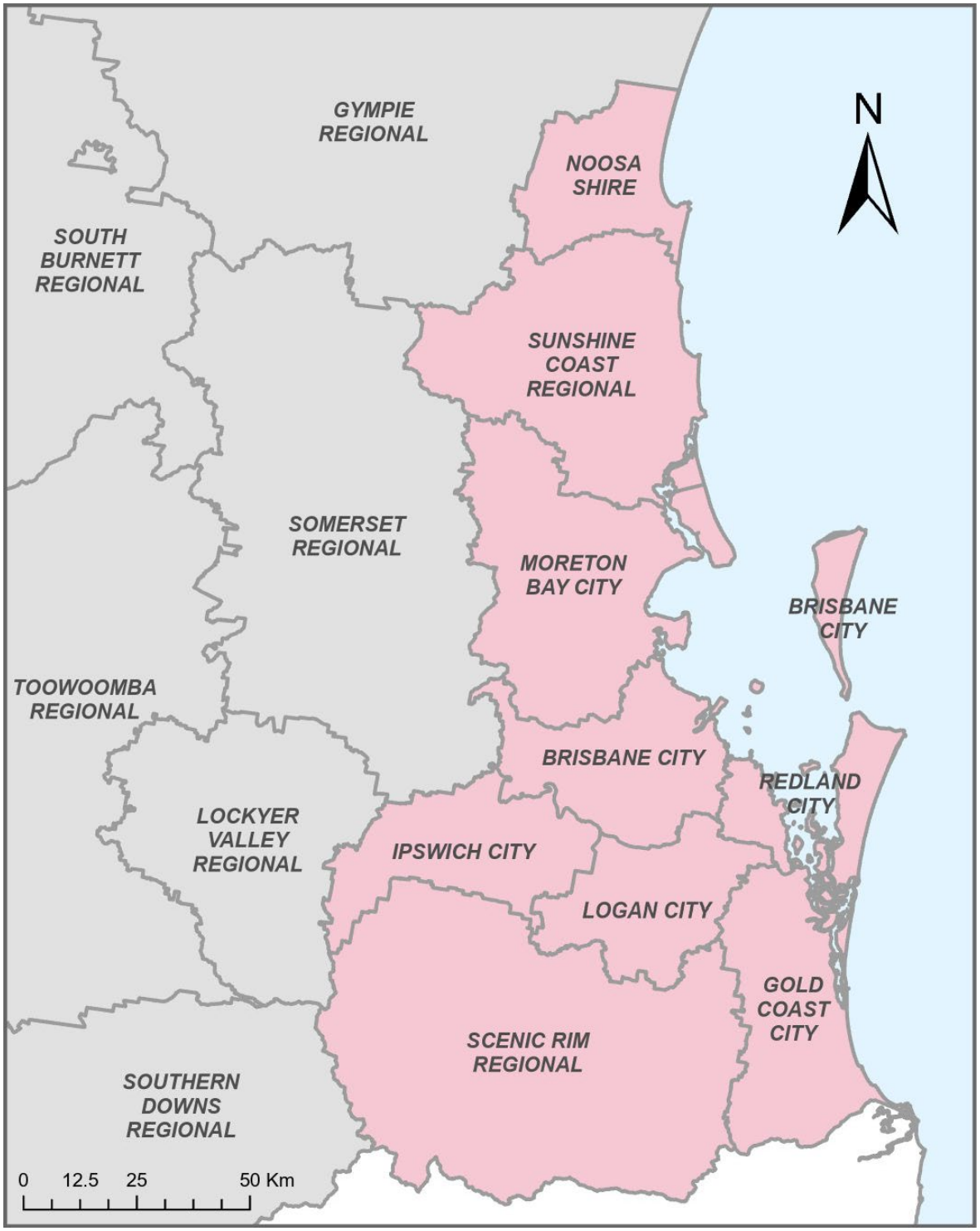
The *Speed Limit Review checklist* is available on the departmental website.

Appendix E: Case studies

Speed Limit Review Case Studies are available on the departmental website.

Appendix F: Local government in south-east Queensland where school zones operate between 7am–9am and 2pm–4pm

Figure F – Local government in south-east Queensland where school zones operate between 7am–9am and 2pm–4pm



Councils where mandatory 7am–9am and 2pm–4pm school zone times apply: Brisbane City Council, City of Gold Coast, Ipswich City Council, Logan City Council, City of Moreton Bay Council, Noosa Shire Council, Redland City Council, Scenic Rim City Council, Sunshine Coast Regional Council.

Appendix G: Exemption criteria for school zone operating hours for regional Queensland

It is mandatory for local governments to implement uniform school zones times that apply to all schools within their jurisdiction. This change in policy is to increase compliance with the school zone speed limits and improve safety for school children in the vicinity of schools.

Other local governments not listed in Section 13.3.1.1 may either adopt the mandatory times of 7am–9am and 2pm–4pm or seek approval from Transport and Main Roads for an exemption to apply to school zone times to all schools through their local government area. Applications shall be made using the form F4936 *Local Government School Speed Zone Time Adjustment Application*.

Local governments shall consult with schools and Transport and Main Roads Districts and Regions (for schools on state-controlled roads) before seeking exemption to the school zone times.

School zone times at any school within a jurisdiction shall not be less than the standard school zone times approved for that jurisdiction; for example, if a local government has adopted the school zone times as 7.30am–9am and 2.30pm–4pm, then no other school within that jurisdiction can have a school zone time that is less than these times – that is, a school in that jurisdiction cannot have school zone times as 8am–9am and 2.30pm–4pm.

Applications for exemptions shall be submitted to the Director (Safer Roads) at the address listed in Appendix H Section H3.

Appendix H: Criteria to extend school zone operating times

H1 Criteria to extend school zone times at individual schools (applies to all local governments)

Some schools may require extended school zone times to cater for different start or finish times to other schools. Section H2 provides criteria for extended hours for individual schools. Section H3 provides the procedure that road authorities shall follow to seek approval for extending the school zone operating times within their jurisdiction.

H2 Criteria to extend school zone times at individual schools (applies to schools in all local government areas)

School zone times may be extended beyond the mandatory times for local governments listed in Section 13.3.1 or beyond the standard school zone times for other local governments if the following conditions are met on any school day:

a) school commences before or after the standard school zone time for that local government area in the morning

b) school finishes before or after the standard school zone time for that local government in the afternoon, or

c) school provides either before or after school care and children arrive or depart outside the standard school zone times.

H3 Procedure for seeking approval to extend school zone times at individual schools

The following procedure will apply to road authorities seeking approval to extend the school zone operating times at individual schools:

a) the school Principal or delegate should contact the road authority (council or Transport and Main Roads District or Regional office) and provide justification for seeking the extension

b) the road authority will make a decision to either support or reject the request

c) if the road authority supports the request of the school, it will complete the prescribed form F4935 *School Speed Zone Time Adjustment Application* and submit to:

The Director (Safer Roads)
Department of Transport and Main Roads
PO Box 2595
Brisbane QLD 4001

or email the form to saferroads@tmr.qld.gov.au.

i. all prescribed forms shall be duly completed and signed as required

ii. the Director (Safer Roads), or their delegate, will assess the request for an extension to the school zone operating time and advise the road authority in writing of their decision, and

iii. sites with approved extended school zone operating times will be reviewed on an annual basis. The review will follow the same procedure, including submission of the updated form F4935 to the Director (Safer Roads) not more than 12 months later than the previous decision.

H4 Signage requirements for schools with extended school zone times

At schools where extended school zone times apply, Enhanced School Zone Speed Limit (flashing light) (R4-Q10) signs shall be installed to flash for the full duration when the school zone time is in operation, including during the time that is extended.

Appendix I: Selection of speed management activities

Table I – Speed management activities matrix

Speed Management Activity		*Engineering*																		*Enforcement*								*Education*							
		Vertical Deflection Devices				Horizontal Deflection Devices		Static signage			Feedback signs		Perceptual countermeasures						Other		Cameras & Radar				Police presence				Communication mediums							
Road classification		Road humps	Raised mid-block platforms	Raised intersection platforms	Road Cushions	Slow Points	Centre Blister Treatments	Repeater speed limit signs	New Speed Limit Signs	Black link signage	Radar Speed	Vehicle Activated Signs	Lane narrowings	Converging chevron linemarking	Transverse lines, bars or optical	Urban landscaping	Shared spaces	RRPMs (inside of edgeline)	Township Entry Treatment	Pavement texturing & colouring	Fixed speed cameras	Mobile speed cameras	Point-to-point speed cameras	Combined red light and speed	General patrol movements	Speed enforcement patrol	Multi-purpose	Shared speed/crash database	Targeted social media	Television advertisements	Billboards	Local press / news	Letterbox drops	Fact sheets / posters	Variable message signs	Rubbish bin stickers
Access / local street		✓	✓	✓	✓	✓	✓	×	✓	×	✓	✓	✓	×	×	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	×	✓	✓	✓	×	✓	✓	✓	✓	✓
Collector street / Collector road		✓	✓	✓	✓	×	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Trunk collector road		✓	✓	✓	×	×	×	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Sub-arterial, arterial road / Arterial road		×	×	×	×	×	×	✓	✓	✓	×	×	✓	✓	✓	×	×	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	×	×	✓	×
Motorway, freeway, expressway		×	×	×	×	×	×	✓	✓	✓	×	×	✓	✓	✓	×	×	×	✓	×	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	×	×	×	✓	×
Speed limit (km/h)	≤40	✓	✓	✓	✓	✓	✓	✓	✓	×	✓	✓	✓	×	×	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	50	✓	✓	✓	✓	×	✓	✓	✓	×	✓	✓	✓	✓	×	✓	×	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	60	✓	✓	✓	✓	×	×	✓	✓	✓	✓	✓	✓	✓	✓	✓	×	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	70	×	✓	✓	✓	×	×	✓	✓	✓	✓	✓	✓	✓	✓	✓	×	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	80	×	×	×	×	×	×	✓	✓	✓	✓	✓	✓	✓	✓	×	×	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	90	×	×	×	×	×	×	✓	✓	✓	✓	✓	✓	✓	✓	×	×	×	✓	×	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	×	×	✓	×
	100	×	×	×	×	×	×	✓	✓	✓	×	✓	✓	✓	✓	×	×	×	✓	×	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	×	×	✓	×
	110	×	×	×	×	×	×	✓	✓	✓	×	×	✓	✓	✓	×	×	×	✓	×	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	×	×	✓	×
Effectiveness of speed management activity	Speed reduction	High	Medium	Medium	Medium	Medium	Medium	Low	Medium	Medium	High	Low	Medium	Low	Low	Low	Medium	Low	Low	Low	Medium	Medium	High	Medium	Low	Low	Low	Low	Low	Low	Medium	Low	Low	Low	Medium	Low
	Safety improvement	High	High	High	High	High	Medium	-	Low	Medium	High	Medium	Medium	Medium	Medium	Low	High	Low	Medium	Low	Medium	Medium	High	Medium	Low	Low	Low	Low	Medium	Low	Medium	Low	Low	Low	Medium	Low
	Community acceptance	High	High	High	High	High	High	High	High	Medium	High	High	Medium	Medium	Medium	High	High	High	High	Medium	Medium	Medium	Medium	Medium	High	High	High	High	High	High	High	Medium	Medium	High	High

Note: This table does not contain specifications or methods for implementation of speed management activities. Practitioners should refer to relevant design guides and subject matter experts for further guidance

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