Department of Transport and Main Roads

Queensland Guide to Road Safety

Part 2: Safe Roads

July 2025

Queensland Government

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Feedback

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About this document

Austroads' *Guide to Road Safety* Part 2: *Safe Roads* is designed to help practitioners minimise the risk of road crashes including run-off-road, intersection and head-on crashes and to implement countermeasures to achieve a safe road system.

It contains practical, hands-on advice to help practitioners investigate and treat locations on the road system which are experiencing crashes, including identifying crash locations, diagnosing the crash problem and its causes, selecting a countermeasure which targets the problem, designing a safe remedial treatment and establishing its cost-effectiveness.

It also provides information on sources of road crash data and how engineering improvements fit into an overall road safety strategy.

How to use this document

The Department of Transport and Main Roads has agreed to adopt the standards published in Austroads Guides 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.

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, this Part of the *Queensland Guide to Road Safety* (QGRS) takes precedence over the Austroads *Guide to Road Safety* Part 2: *Safe Roads* except where the Austroads *Guide* is accepted without changes.

This Part is designed to be read and applied together with Austroads *Guide to Road Safety* Part 2: *Safe Roads*. Readers must have access to the Austroads *Guide* to understand its application in Queensland.

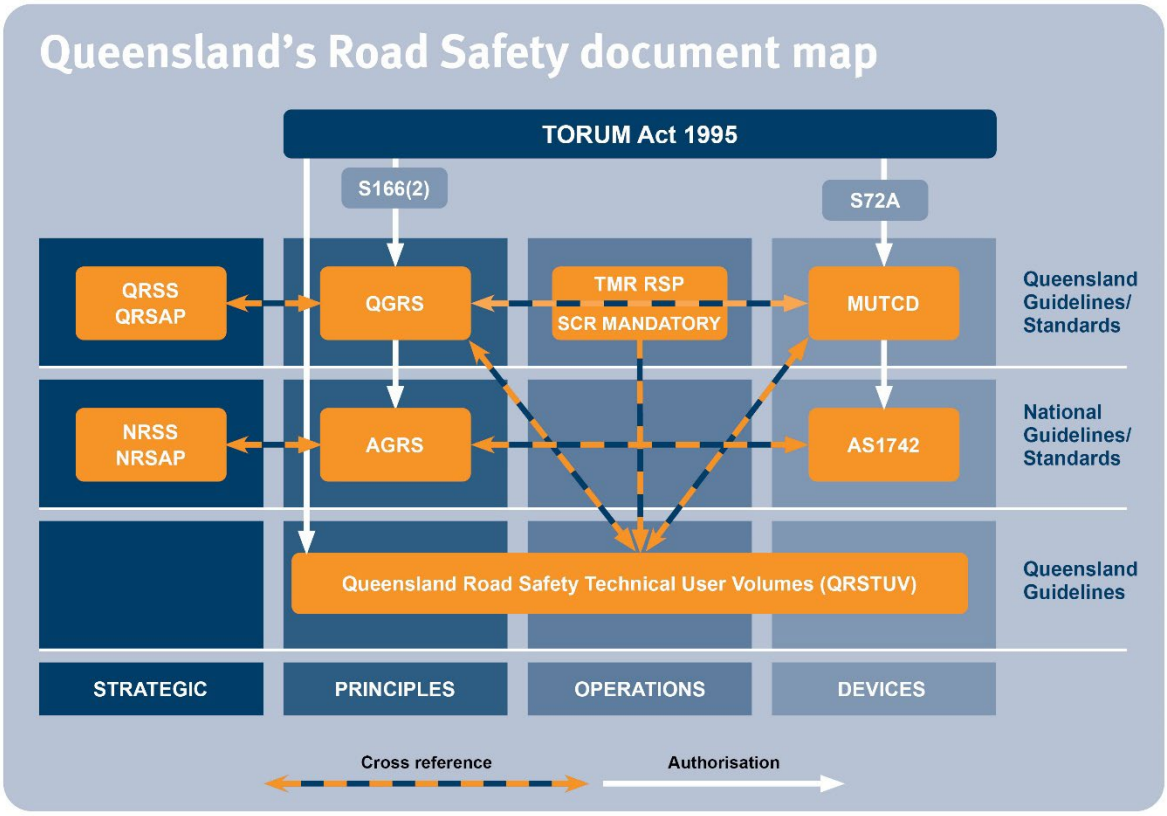
This document:

- sets out how the Austroads *Guide to Road Safety* Part 2: *Safe Roads* applies in Queensland
- has precedence over the Austroads *Guide to Road Safety* Part 2: *Safe Roads* when applied in Queensland, and
- has the same section numbering and headings as the Austroads *Guide to Road Safety* Part 2: *Safe Roads*.

The following table summarises the relationship between the Austroads *Guide to Road Safety* Part 2: *Safe Roads* and this document:

Applicability	Meaning
Accepted	The Austroads *Guide* section is accepted.
Accepted, with amendments	Part or all of the Austroads *Guide* section has been accepted with additions, deletions or differences.
New	There is no equivalent section in the Austroads *Guide*.
Not accepted	The Austroads *Guide* section is not accepted and does not apply in Queensland.

A summary of the documents relevant to road safety in Queensland, and their links follows.



Definitions

The following general amended definitions apply when reading the *Queensland Guide to Road Safety* Part 2: *Safe Roads*.

Term	Definition
AGRS Part 2	Austroads *Guide to Road Safety* Part 2: *Safe Roads*, as amended by this document; for example, a reference to AGRS Part 2 means the reader must refer to the Austroads *Guide to Road Safety* Part 2: *Safe Roads*, and the *Queensland Guide to Road Safety* Part 2: *Safe Roads* (QGRS Part 2). Throughout AGRS Part 2, references are made to other Parts of the AGRS (for example, when reading AGRS Part 2, the reader may be referred to AGRS Part 3 for further information.) In such cases, the reader must refer to the equivalent Part within the *Queensland Guide to Road Safety* first. Check the applicability of the equivalent QGRS Part before referring to the referenced AGRS Part. Similarly, references may be made to other Austroads Guides (for example, when reading AGRS Part 2, the reader may be referred to the *Guide to Traffic Management* Part 3: *Transport studies and analysis methods*). In such cases, the reader must refer to the equivalent Queensland Guide first, where such exist. Check the applicability of the equivalent Queensland Guide before referring to the referenced Austroads Guide Part.
AGRS	Austroads *Guide to Road Safety*
AS 1742	Australian Standard AS 1742 *Manual of Uniform Traffic Control Devices*
NRSS	National Road Safety Strategy

Term	Definition
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*
Queensland MUTCD	Queensland *Manual of Uniform Traffic Control Devices*
RPDM	*Road Planning and Design Manual 2nd Edition*
RSP	Queensland Department of Transport and Main Roads *Road Safety Policy*
TORUM Act 1995	*Transport Operations (Road Use Management) Act 1995* (Qld)
TRUM	Volume 2 of the *Traffic and Road Use Management* manual preceded this Part of the Queensland Guide to Road Safety and was withdrawn on publication of the corresponding QGRS Part.

References

QGRS section	Reference
All	www.legislation.qld.gov.au

Relationship table

Section		Title	Queensland application	Dept contact*
1.	**Introduction**		Accepted	Safer Roads
	1.1	Purpose of this Guide	Accepted with amendments	Safer Roads
2.	**The Role of Infrastructure in a Zero Harm Future**		Accepted	Safer Roads
	2.1	The Zero Planning Approach	Accepted with amendments	Safer Roads
	2.2	The Safe System Approach	Accepted	Safer Roads
	2.2.1	*How are Things Different under a Safe System?*	Accepted	Safer Roads
	2.3	How Infrastructure Influences Safety Conditions	Accepted	Safer Roads
	2.3.1	*Safe System Boundary Conditions*	Accepted	Safer Roads
	2.3.2	*Approaches to Improving Road Safety with Infrastructure*	Accepted	Safer Roads
3.	**Risk Identification and Analysis**		Accepted	Safer Roads
	3.1	Understanding the Road Safety Problem	Accepted	Safer Roads
	3.2	Key Crash Types	Accepted	Safer Roads
	3.3	Network Analysis	Accepted with amendments	Safer Roads
	3.3.1	*Reactive Approaches*	Accepted with amendments	Safer Roads
	3.3.2	*Proactive Approaches*	Accepted	Safer Roads
	3.3.3	*Systemic Approaches*	Accepted	Safer Roads
4.	**Hierarchy of Treatment for Infrastructure Interventions**		Accepted	Safer Roads
	4.1	Primary Treatments	Accepted	Safer Roads
	4.2	Supporting Treatments – Stepping Towards Safe System	Accepted	Safer Roads
	4.3	Supporting Treatments – Other	Accepted	Safer Roads
	4.4	Non-Safe System Treatments	Accepted	Safer Roads
	4.5	Implementation Approach	Accepted with amendments	Safer Roads
5.	**Addressing High-Speed Lane Departures**		Accepted	Safer Roads
	5.1	What do we know?	Accepted	Safer Roads
	5.1.1	*Head-On Crashes*	Accepted	Safer Roads
	5.1.2	*Road Departure Crashes*	Accepted	Safer Roads
	5.2	Treatment Hierarchy	Accepted	Safer Roads
	5.3	Primary Treatment	Accepted	Safer Roads

Section		Title	Queensland application	Dept contact*
	5.4	Supporting Treatment – Step Towards: Head-On Crash Risk	Accepted	Safer Roads
	5.4.1	*Median (central) Barrier*	Accepted	Safer Roads
	5.4.2	*Wide Centreline*	Accepted	Safer Roads
	5.5	Supporting Treatment – Step Towards: Roadway Departure Crash Risk	Accepted	Safer Roads
	5.5.1	*Roadside Barrier*	Accepted	Safer Roads
	5.5.2	*Clear Zones*	Accepted with amendments	Safer Roads
	5.5.3	*Speed management*	Accepted	Safer Roads
	5.5.4	*Queensland Specific Supporting Treatments – Other*	New	Safer Roads
	5.6	Wide Sealed Shoulders with Audio-Tactile Line Marking (ATLM)	Accepted	Safer Roads
6.	**Addressing Intersection Safety**		Accepted	Safer Roads
	6.1	What do we know?	Accepted	Safer Roads
	6.1.1	*Determinants of Injury at Intersections*	Accepted	Safer Roads
	6.2	Treatment Hierarchy	Accepted	Safer Roads
	6.3	Primary Treatments	Accepted	Safer Roads
	6.3.1	*Grade Separation*	Accepted	Safer Roads
	6.3.2	*Roundabouts*	Accepted	Safer Roads
	6.3.3	*Raised Safety Platforms*	Accepted	Safer Roads
	6.4	Supporting Treatments – Step Towards	Accepted	Safer Roads
	6.4.1	Banning Selected Movements	Accepted	Safer Roads
	6.4.2	Intersection Speed Zones	Accepted	Safer Roads
	6.5	Supporting Treatments - Other	Accepted	Safer Roads
7	**Addressing Pedestrian, Cycle and Motorcycle Safety**		Accepted	WACI
	7.1	Facts and Actions to Improve safety for Walking and Cycling	Accepted	WACI
	7.1.1	*Pedestrians*	Accepted with amendments	WACI
	7.1.2	*Cyclists*	Accepted	WACI
	7.1.3	*Treatments for Pedestrians and Cyclists*	Accepted with amendments	WACI
	7.2	Facts and Actions to Improve Safety for Motorcycling	Accepted with amendments	WACI
	7.2.1	*Treatments for Motorcyclists*	Accepted	WACI
	7.2.2	*Barriers and Motorcyclists*	Accepted	WACI

Section		Title	Queensland application	Dept contact*
8.	**Estimating Benefits of Infrastructure Treatments**		Accepted	Safer Roads
	8.1	Establishing Baseline Safety Performance	Accepted	Safer Roads
	8.2	Determining Benefits	Accepted	Safer Roads
	8.2.1	*Crash Modification Factors*	Accepted	Safer Roads
	8.2.2	*Multiple Treatmens*	Accepted	Safer Roads
	8.2.3	*Proactive Evaluation*	Accepted	Safer Roads
	8.3	Economic Appraisal	Accepted	Safer Roads
	8.3.1	*Benefit Cost Analysis*	Accepted	Safer Roads
	8.3.2	*Cost-Effectiveness Analysis*	Accepted	Safer Roads
9.	**Approaches to Developing Infrastructure Programs**		Accepted	Safer Roads
	9.1	Top-Down and Bottom-Up Approaches	Accepted	Safer Roads
	9.2	Safety Performance Indicators (SPI) Approach	Accepted	Safer Roads
	9.3	The Goals Achievement Approach	Accepted	Safer Roads
	9.4	Economic Approaches	Accepted	Safer Roads
	9.5	Network Safety Plan Approach	Accepted	Safer Roads
10.	**Design and Implementation of Infrastructure**		Accepted	Safer Roads
	10.1	Safe System Assessment	Accepted with amendments	Safer Roads
	10.2	Road Safety Audit	Accepted	Safer Roads
	10.3	Safe System Audits	Accepted	Safer Roads
11.	**Monitoring and Evaluation**			Accepted
	11.1	Monitoring and Evaluation Methods	Accepted	Safer Roads
	11.1.1	*Statistical Analysis*	Accepted	Safer Roads
	11.2	Issues for Consideration	Accepted	Safer Roads
	11.2.1	*Plan for monitoring at the Outset*	Accepted	Safer Roads
	11.2.2	*Threats to the Validity of Evaluation*	Accepted	Safer Roads
References			Accepted	Safer Roads
Appendices				
A	Limitations and Accuracy of Crash Data		Accepted	Safer Roads
B	Safe System Aligned Measures for Pedestrians and Cyclists		Accepted	WACI
	B.1	Practical Example 1: Investigation of High Crash Locations	Accepted	WACI
	B.1.1	*At Intersections*	Accepted	WACI
	B.1.2	*Threshold Platforms*	Accepted	WACI

Section		Title	Queensland application	Dept contact*
	B.1.3	*All Way Stop Signs*	Accepted	WACI
	B.1.4	*Signalised Intersections with 'Scramble' Phasing and 30 km/h (or Lower) Speed Limits*	Accepted	WACI
	B.1.5	*Restricted Access*	Accepted	WACI
	B.1.6	*Geo-Fencing Technology on Public Transport Vehicles*	Accepted	WACI
	B.1.7	*Raised Signalised Intersections with 30 km/h (or Lower) Ramps*	Accepted	WACI
	B.1.8	*Signalised Intersections with 30 km/h (or Lower) Platforms*	Accepted	WACI
	B.1.9	*Raised Intersections with 10 km/h or 20 km/h Ramps*	Accepted	WACI
	B.1.10	*Protected Cyclist Intersections*	Accepted	WACI
	B.1.11	*Signalised 'Tennis Ball' Intersections with 30 km/h Geometry (or Lower)*	Accepted	WACI
	B.1.12	*Signalised Roundabout with Separate Phases for Public Transport, Cyclists and Pedestrians*	Accepted	WACI
	B.1.13	*Grade Separation*	Accepted	WACI
	B.2	Between Intersections	Accepted	WACI
	B.2.1	*Footpaths*	Accepted	WACI
	B.2.2	*30 km/h (or Lower) Speed Limits*	Accepted	WACI
	B.2.3	*Shared Use by Cyclists of General Traffic Lanes (with 30 km/h Speed Limit or Lower)*	Accepted	WACI
	B.2.4	*Playground Zones*	Accepted	WACI
	B.2.5	*Limiting Access by Mode*	Accepted	WACI
	B.2.6	*On-Road Cycle Lanes (30 km/h Speed Limit or Lower)*	Accepted	WACI
	B.2.7	*Wombat Crossings (30 km/h or Lower Platforms)*	Accepted	WACI
	B.2.8	*Zebra Crossings (with 30 km/h Speed Limits or Lower)*	Accepted	WACI
	B.2.9	*Kerb Blisters or Road Narrowing*	Accepted	WACI

Section		Title	Queensland application	Dept contact*
	B.2.10	*Speed Platforms*	Accepted	WACI
	B.2.11	*Horizontal Deflection*	Accepted	WACI
	B.2.12	*Road Narrowing*	Accepted	WACI
	B.2.13	*Textured or Coloured Road Pavements*	Accepted	WACI
	B.2.14	*Shared Zones*	Accepted	WACI
	B.2.15	*Fully Segregated Pedestrian Paths*	Accepted	WACI
	B.2.16	*Separated Cycle Facilities*	Accepted	WACI
	B.2.17	*Pedestrian-Operated Signals, Zebras and Wombats in 30 km/h (or Lower) Speed Limits*	Accepted	WACI
	B.2.18	*Car Free Streets*	Accepted	WACI
	B.2.19	*Exposure Reduction or Redirection of Through-Traffic*	Accepted	WACI
	B.2.20	*Medians*	Accepted	WACI
	B.2.21	*Relocation of Tram Stops (from the Centre of Road to the Roadside)*	Accepted	WACI
	B.2.22	*Pedestrian Malls*	Accepted	WACI
	B.2.23	*Grade-Separation of Pedestrians and Cyclists from Vehicular Traffic*	Accepted	WACI

Departmental contacts:

- Safer Roads: Safer Roads Infrastructure, Engineering and Technology, Transport and Main Roads email SaferRoads@tmr.qld.gov.au.
- Road Design: Hydraulics, Design and Spatial, Engineering and Technology, Transport and Main Roads email ET_HDS_RD_Design_Services@tmr.qld.gov.au.
- WACI: Walking and Cycling Infrastructure, Traffic Engineering Technology & Systems, Engineering and Technology, Transport and Main Roads email CyclePedTech@tmr.qld.gov.au.

Contents

Tables

1 Introduction

1.1 Purpose of this Guide

Addition

In addition to the above, the *Queensland Guide to Road Safety,* Part 2: *Safer Roads* contains insights into the Queensland road safety framework, practices and references to specific technical guidance for practicioners where applicable. The Role of Infrastructure in a Zero Harm Future.

2 The Role of Infrastructure in a Zero Harm Future

2.1 The Zero Planning Approach

Addition

Following consultation with internal and external stakeholders, including local councils and the Queensland Government Architect, Transport and Main Roads has developed the *Movement and Place Policy* and *Movement and Place Practitioner Guidance*, which provide a framework to guide decision making in the planning, design and operation of our state-controlled transport network and infrastructure investment. Refer to the department's website for further detail.

3 Risk Identification and Analysis

3.3 Network Analysis

Addition

In Queensland, Transport and Main Roads maintains the view that the response to road safety risks will need to consider both proactive and reactive approaches. In situations where high number and/or severity crashes persist, reactive approaches priortising timely and cost efficient interventions are generally used to address the demonstrated crash risk (whether at points or along routes). Transport and Main Roads also implements proactive techniques for broader, network wide assessment focused on treating systemic road risks and driving Safe System outcomes for all road users.

3.3.1 Reactive Approaches

Addition

For details of the process used to identify and treat high risk locations based on crash data in Queensland, refer to Part 1 of TN214 *Guide to Road Safety Part 2: Safer Roads Supplementary Guidance*.

The technique contained in the guidance uses crash data to identify and address risk, although this does not mean that a crash needs to have occurred at a specific location before improvements can be made.

Although the guidance details on the appropriate processes to be undertaken when addressing demonstrated crash risks at defined locations, there is also reliance at all stages upon road safety experts who will often be called upon to use their professional judgement.

4 Hierarchy of Treatment for Infrastructure Interventions

4.5 Implementation Approach

Addition

Refer to the department's *Road Planning and Design Manual 2nd Edition* (RPDM), Volume 3 for design guidance regarding the road safety countermeasures discussed throughout this Part of the *Queensland Guide to Road Safety* (QGRS).

In particular, refer to the following parts:

- RPDM, Volume 3, Part 3: *Geometric Design*
- RPDM, Volume 3, Part 6: *Roadside Design, Safety and Barriers*.

5 Addressing High-Speed Lane Departures

5.5 Supporting Treatment – Step Towards: Roadway Departure Crash Risk

5.5.2 Clear Zones

Addition

Clear Zones alone are no longer considered Safe System supporting countermeasures to road departure risks in Queensland.

For additional guidance regarding clear zone theory in Queensland, refer to Transport and Main Roads' RPDM, Volume 3, Part 6: *Roadside Design, Safety and Barriers*.

5.5.4 Queensland Specific Supporting Treatments – Other

New

This section details other supporting treatments in Queensland that are considered to be effective at mitigating the risks of all types of lane departures. These treatments should routinely be applied in all scenarios where appropriate. Ideally these treatments should be used to complement more sustantial safe system supporting or primary treatments.

5.5.4.1 Wide Centreline Treatments (WCLT)

New

Wide centrelines shall only be deployed as a complete Wide Centeline Treatment (WCLT).

A WCLT is a system comprising of widened painted centre line marking with edge lines and Audio-Tactile Line Marking (ATLM) supplementing all traditional line marking. Retro-reflective Raised Pavement Markers (RRPMs) must also be installed adjacent to line marking.

Technical Guidance for WCLTs in Queensland:

- Refer to the RPDM, Volume 3, Part 6: *Geometric Design* for jurisdictional requirements involving WCLT.
- Refer to the RPDM, Volume 3, Part 3: *Geometric Design* for design guidance regarding WCLT.
- Refer to the Queensland *Manual of Uniform Traffic Control Devices* (Queensland MUTCD) Part 2: *Traffic Control Devices for General Use* for delineation requirements regarding WCLT.

5.5.4.2 Audio Tactile Line Marking (ATLM)

New

ATLM is considered a Safe System supporting countermeasure for lane departure risks, enhancing painted deleneation by providing audible and tactile feedback to errant vehicles departing their lane(s) of travel. It is most effective, but not limited to mitigating the likelihood of lane departure crashes (both cross median and off-carriageay, depending on location). As such, ATLM is typically used to supplement longitudinal line marking (such as edge lines and barrier lines) and is a also mandatory component of a Wide Centreline Treatment (WCLT).

Although the audible feedback generated by audio-tactile line markings can usually be heard inside passenger vehicles, it is harder to hear in large vehicles, and is often not easy to hear in heavy vehicle. As such, ATLM alone should not be relied upon, to provide adequate audible warning to heavy vehicle drivers departing lane. Note that this consideration is not as applicable to the vibration component of ATLM feedback.

Technical Guidance for ATLMs in Queensland:

- Refer to the RPDM,Volume 3, Part 6: *Geometric Design* for jurisdictional requirements involving ATLM.
- Refer to the Queensland MUTCD Part 2: *Traffic Control Devices for General Use* for guidance on the installation of ATLM.

7 Addressing Pedestrian, Cycle and Motorcycle Safety

7.1 Facts and Actions to Improve safety for Walking and Cycling

7.1.1 Pedestrians

Difference

Replace the following text:

> “Intoxicated pedestrians still present a considerable challenge and account for about a third of pedestrian fatalities.”

with

> Intoxicated pedestrians still present a considerable challenge and account for about a third of pedestrian fatal interactions with motor vehicles.

Replace the following text:

> “Right turns and filtering left turns at traffic signals remains a significant pedestrian safety issue.”

with

> Motor vehicles turning right and filtered left turns at traffic signals remains a significant threat to pedestrian safety.

Replace the following text:

> "Low-speed environments (30 km/h or less) are amenable to pedestrian and vehicle interaction and need to be considered in the planning of future urban areas."

with

> Low-speed environments (30 km/h or less) are safer for pedestrian and vehicle interactions. 30 km/h should be considered maximum motor vehicle interaction speed in the design and operation of areas where pedestrian and motor vehicles mix in a frequent and planned manner, except where strong evidence exists that higher motor vehicle speeds can be accomodated safely.

Replace the following text:

> "Where a low-speed environment cannot be achieved pedestrians should be segregated and conflict minimised."

with

> Where a low-speed environment cannot be achieved pedestrians should be provided paths for physical separation and conflict minimised via time separation or grade separation.

7.1.3 Treatments for Pedestrians and Cyclists

Difference

Replace the following:

> Table 7.1 and 7.2 (they are inconsistenct with the visual examples in Appendix B in the Austroads publication)

with

Table 7.1.3(a) – Safe System aligned treatments for pedestrians and cyclists at intersections

Section	At intersections	Injury severity	Crash likelihood	Exposure to conflicts
B.1.1	Roundabouts with wombat crossing	✓✓✓	✓✓✓	
B.1.2	Threshold platforms	✓✓✓	✓✓	
B.1.3	All-way stop signs	✓✓	✓✓	
B.1.4	Signalised intersections with 'scramble' phasing and 30 km/h (or lower) speed limits	✓✓✓	✓✓	
B.1.5	Restricted access	✓✓✓	✓✓	✓✓
B.1.6	Geo-fencing technology on public transport vehicles	✓✓✓	✓✓	✓
B.1.7	Raised signalised intersections with 30 km/h (or lower) ramps	✓✓✓	✓✓	✓
B.1.8	Signalised intersections with 30 km/h (or lower) platforms	✓✓✓	✓✓	✓
B.1.9	Raised intersections with 10 km/h or 20 km/h ramps	✓✓✓	✓✓✓	✓

Section	At intersections	Injury severity	Crash likelihood	Exposure to conflicts
B.1.10	Protected cyclist intersections	✓✓	✓✓	✓
B.1.11	Signalised 'tennis ball' intersections with 30 km/h geometry (or lower)	✓✓	✓✓	
B.1.12	Signalised roundabout with separate phases for public transport, cyclists and pedestrians	✓✓✓	✓✓✓	
B.1.13	Grade separation		✓✓✓	

Table 7.1.3(b) – Safe System aligned treatments for pedestrians and cyclists between intersections

Section	Between intersections	Injury severity	Crash likelihood	Exposure to conflicts
B.2.1	Footpaths	✓	✓✓	✓
B.2.2	30 km/h (or lower) speed limits	✓✓✓	✓✓	✓
B.2.3	Shared use by cyclists of general traffic lanes (with 30 km/h speed limit or lower)	✓✓✓	✓✓	
B.2.4	Playground zones	✓✓✓	✓✓	✓
B.2.5	Limiting access by mode			✓✓
B.2.6	On-road cycle lanes (30 km/h speed limit or lower)	✓✓✓	✓✓	✓
B.2.7	Wombat crossings (30 km/h or lower platforms)	✓✓✓	✓✓	✓
B.2.8	Zebra crossings (with 30 km/h speed limits or lower)	✓✓✓	✓	✓
B.2.9	Kerb blisters or road narrowing	✓	✓✓	✓
B.2.10	Speed platforms	✓✓✓	✓✓	✓
B.2.11	Horizontal deflection	✓✓	✓✓	✓
B.2.12	Road narrowing	✓✓✓	✓✓	✓
B.2.13	Textured or coloured road pavements	✓	✓✓	
B.2.14	Shared zones	✓✓✓	✓✓	✓
B.2.15	Fully segregated pedestrian paths		✓✓✓	
B.2.16	Physically separated cycle facilities		✓✓✓	
B.2.17	Pedestrian-operated signals, zebras and wombats in 30 km/h (or lower) speed limits	✓✓✓	✓✓	✓
B.2.18	Car-free streets			✓✓✓

Section	Between intersections	Injury severity	Crash likelihood	Exposure to conflicts
B.2.19	Exposure reduction or redirection of through-traffic			✓✓
B.2.20	Medians	✓	✓✓	
B.2.21	Relocation of tram stops (from the centre of road to the roadside)		✓✓	
B.2.22	Pedestrian malls			✓✓✓
B.2.23	Grade-separation of pedestrians and cyclists from vehicular traffic		✓✓✓	

7.2 Facts and Actions to Improve Safety for Motorcycling

Addition

What do we know?

- Motorcyclists require contact with a consistent pavement surface delivering sufficient friction supply to remain stable and in control.

What does this mean?

- Pavement deformations, gravel intrusion and steel lacking adequate friction supply located on the road surface may all impact motorcyclist safety more than users of other motor vehicles.
- Co-location of such defects with steeper road gradients, curvature, intersections, roundabouts, crossings or other scenario requiring longitudinal and/or accelerations should be be considered as higher priority for treatment.

10 Design and Implementation of Infrastructure

10.1 Safe System Assessment

Addition

Transport and Main Roads has developed the *Queensland Road Safety Technical User Volumes* (QRSTUV)*: Guide to Safe System Assessment* to provide guidance for any organisation or road authority involved with, or seeking information about, undertaking a Safe System Assessment.

The QRSTUV: *Guide to Safe System Assessment* has been developed to provide guidance to project managers, planners, designers, and the broader industry on the process of undertaking a Safe System Assessment (SSA) in Queensland. The document provides guidance to enable a Safe System Assessment to be applied consistently across Queensland.

Refer to the department's website for further details.