Department of Transport and Main Roads

Queensland Guide to Road Safety

Part 5: Safe Vehicles

July 2025

Queensland Government

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Feedback

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About this document

Austroads' *Guide to Road Safety* Part 5: *Safe Vehicles* considers the vehicle factors and features that impact safety outcomes on the road network. It covers information relating to the Safer Vehicles element of the Safe System.

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 5: *Safe Vehicles* 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 5: *Safe Vehicles*. Readers must have access to the Austroads *Guide* to understand its application in Queensland.

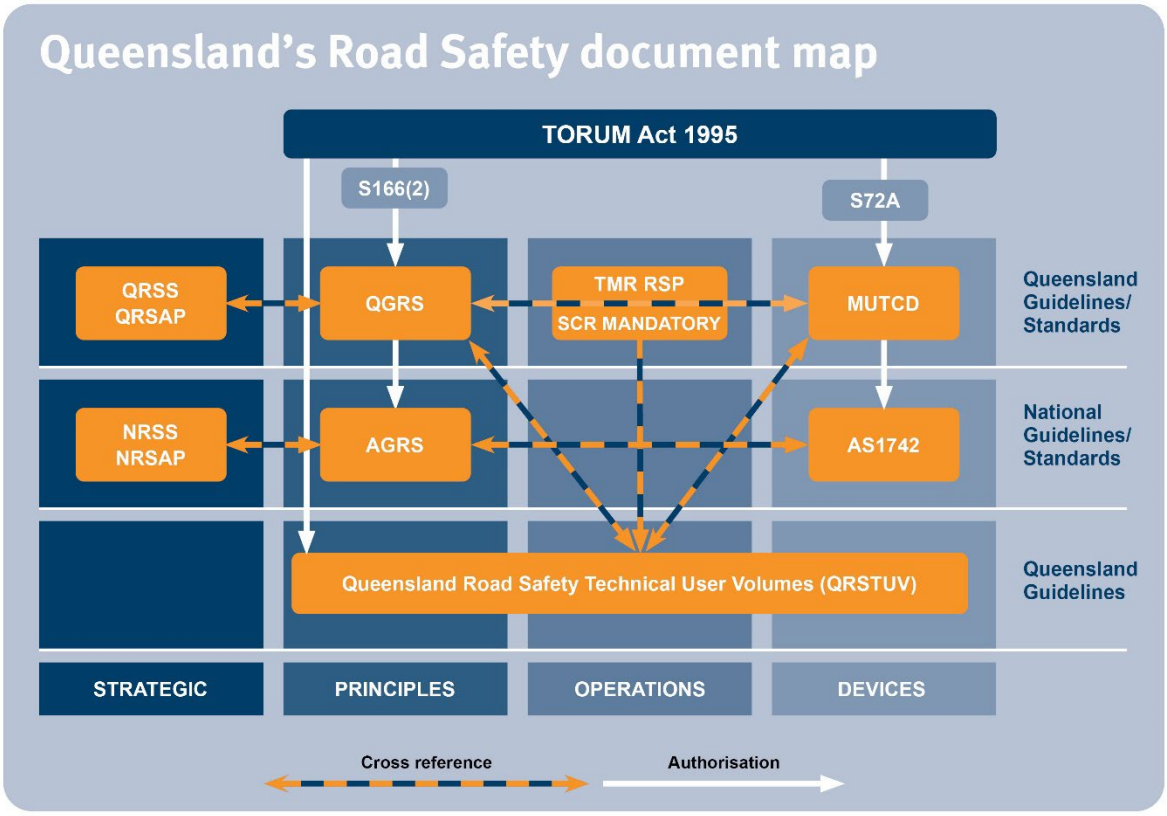
This document:

- sets out how the Austroads *Guide to Road Safety* Part 5: *Safe Vehicles* applies in Queensland
- has precedence over the Austroads *Guide to Road Safety* Part 5: *Safe Vehicles* when applied in Queensland, and
- has the same section numbering and headings as the Austroads *Guide to Road Safety* Part 5: *Safe Vehicles*.

The following table summarises the relationship between the Austroads *Guide to Road Safety* Part 5: *Safe Vehicles* 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 5: *Safe Vehicles*.

Term	Definition
AGRS Part 5	Austroads *Guide to Road Safety* Part 5: *Safe Vehicles*, as amended by this document; for example, a reference to AGRS Part 5 means the reader must refer to the Austroads *Guide to Road Safety* Part 5: *Safe Vehicles*, and the *Queensland Guide to Road Safety* Part 5: *Safe Vehicles* (QGRS Part 5). Throughout AGRS Part 5, references are made to other Parts of the AGRS (for example, when reading AGRS Part 5, 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 5, 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*
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	LTSR
	1.1	Purpose of the Guide	Accepted	LTSR
2.	**Types of Vehicles**		Accepted	LTSR
	2.1	Light Vehicles	Accepted	LTSR
	2.2	Heavy Vehicles	Accepted	LTSR
	2.3	Motorcycles, Mopeds and Motor Scooters	Accepted	LTSR
	2.4	Trailers	Accepted	LTSR
	2.5	Fleet Vehicles	Accepted	LTSR
	2.6	Autonomous Vehicles	Accepted with amendments	CAVI
	2.7	Motorised Mobility Vehicles	Accepted with amendments	LTSR
	2.8	Bicycles	New	WACI
3.	**Safer Vehicle Factors**		Accepted	LTSR
	3.1	Vehicle Age and Safety	Accepted	LTSR
	3.2	Manoeuvrability	Accepted with amendments	LTSR
	3.3	Visibility	Accepted with amendments	LTSR
	3.4	Cornering	Accepted	LTSR
	3.5	Braking	Accepted	LTSR
	3.6	Vehicle Safety Features	Accepted with amendments	LTSR
	3.7	Vehicle Safety Rating Systems	Accepted with amendments	LTSR
	3.8	Fleet Purchasing Policies	Accepted with amendments	LTSR
	3.9	Promoting Safer Vehicles in Regional and Remote Areas	Accepted with amendments	LTSR
4.	**Vehicle Safety Features**		Accepted with amendments	LTSR
	4.1	Electronic Stability Control	Accepted	LTSR
	4.2	Adaptive Cruise Control	Accepted with amendments	LTSR
	4.3	Intelligent Speed Adaption / Assist	Accepted with amendments	LTSR
	4.4	Autonomous Emergency Braking	Accepted with amendments	LTSR
	4.5	Lane Departure Warning / Lane Keeping	Accepted with amendments	LTSR

Section		Title	Queensland application	Dept contact*
	4.6	Fatigue Warning and Monitoring Systems	Accepted with amendments	LTSR
	4.7	Automatic Crash Notification Systems	Accepted with amendments	LTSR
	4.8	Readiness of Roads and Infrastructure for ADAS	Accepted with amendments	LTSR
5.	**Autonomous Vehicles**		Accepted with amendments	CAVI
6.	**Safer Vehicles and Vulnerable Road Users**		Accepted	WACI
References				

Departmental contacts:

- LTSR: Land Transport Safety and Regulation, Transport and Main Roads email ltsr.correspondence@tmr.qld.gov.au.
- CAVI: Cooperative and Automated Vehicle Initiative, Transport and Main Roads email contactcavi@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..

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2 Types of Vehicles

2.6 Autonomous Vehicles

Difference

In Queensland, 'autonomous vehicles' are referred to as 'connected and automated vehicles'.

2.7 Motorised Mobility Vehicles

Difference

In Queensland, motorised mobility vehicles include personal mobility devices (PMDs) and motorised mobility devices (MMDs) vehicles.

Replace this section with the following:

Personal mobility devices (PMDs) such as e-scooters are an emerging form of micromobility. This category encompasses a broad range of devices that share several characteristics. They are designed for use by one person, propelled by an electric motor and have one or more wheels. They must also have an effective stopping system, be no more than 1250 mm in length and weigh no more than 60 kg. A PMD must also have a maximum speed capability of no more than 25 km/h on level ground when propelled by the electric motor.

PMDs have a growing presence on the road network as they offer benefits to the environment, personal health and assist to reduce traffic and parking congestion. Devices are typically limited to operation on footpaths and bicycle facilities in most areas and are not eligible for registration. Users of PMDs are considered pedestrians.

Motorised mobility devices (MMDs) include both motorised wheelchairs and mobility scooters. MMDs provide a range of benefits to people with disabilities and permanent or long-term physical limitations.

Mobility scooters are often used by older people or by people who have a permanent or long-term physical limitation, yet have sufficient mobility to walk short distances. Motorised wheelchairs are designed to carry people with greater mobility needs than users of mobility scooters. Motorised wheelchair users usually have a permanent disability, resulting in the inability to walk at all.

MMDs are predominantly operated on footpaths and other pedestrian infrastructure. A person using an MMD is considered a pedestrian and general pedestrian road rules apply. MMDs can only be taken on the road where there is no footpath, pathway or nature strip available.

2.8 Bicycles

New

Bicycles are defined as vehicles under Australian road rules and have as-of-right access to roads. The definition of *Bicycle* includes a variety of configurations such as tandems, tricycles, quadracycles, cargo bikes and electric assist pedalecs. Bicycles can also include towed units such as child bicycles, child trailers, animal trailers and utility trailers. Most standard safety bicycles have limited suspension and only have two contact points with the ground, making them sensitive to surface roughness and friction supply for stability. Bicycles can have tyres as narrow as 20 mm wide which can be sensitive to gaps in the road / path surface such as drain grates and some bridge expansion joint systems. Bicycles have limited opportunities for the inclusion of restraints, airbags, and crumple zones but have no vehicle body-induced blind spots. The simplicity of human-powered bicycles has typically limited application of rider assist technologies such as ABS and C-ITS. although improvements in mobile phone technology and bikes equipped with onboard batteries for power assistance may enable application of more advanced safety assistance technologies. While people riding bikes are unencapsulated by the vehicle, their low travel speed generally limits severity of single vehicle crashes. Motor vehicles are the primary threat for people riding bicycles.

Bicycles can travel within general purpose lanes, bicycle lanes or on shared, separated or bicycle-only paths. Some jurisdictions permit bicycles to travel in special purpose lanes such as transit lanes or bus lanes. Bicycles tend to operate at lower speeds than motor vehicles, but higher speeds compared to pedestrians, which can result in conflicts between these road users where environments force mixed (shared) use. People riding bikes can be of a variety of ages and abilities and may not be eligible for a driver's licence. Separation from pedestrians and non-frangible objects reduces risks that riders pose to themselves and others on paths. Design of furniture to reduce engagement of bike components or human body parts will also reduce crash severity when contact is made.

3 Safer Vehicle Factors

3.2 Manoeuvrability

Addition

In Queensland manoeuvrability includes vehicle access.

Some roads on the network may not be suitable for all vehicle types and some vehicles may require permits. For more detail refer to Transport and Main Roads' heavy vehicle webpage.

3.3 Visibility

Deletion

This content is deleted as it refers to road design criteria. Refer to Transport and Main Roads' *Road Planning and Design Manual* (RPDM) for road design information.

3.6 Vehicle Safety Features

Deletion

Delete 'passenger' in the first sentence.

3.7 Vehicle Safety Rating Systems

Addition

Two important sources of information about safe vehicles are the Australian New Car Assessment Program (ANCAP) and the *Used Car Safety Ratings* (UCSR) guide. The star ratings provided by these programs define the safe vehicle status of new and second-hand crash involved vehicles in Australasia. They provide important consumer-level information that can be used to guide the purchase of a vehicle by government, corporates and personal buyers alike.

In Queensland, the ANCAP and UCSR systems are promoted via the StreetSmarts SafeCars initiative and the Department of Transport and Main Roads' Vehicle Safety webpage. Historic and current ANCAP ratings can also be found for used cars advertised for sale on Gumtree Australia and Carsales websites, though there are issues with the appropriateness of using historic ratings generated by previous testing criteria. ANCAP ratings similarly provide foundation information for the selection of 5-star vehicles promoted by safe vehicle fleet purchasing policies (see below)..

3.8 Fleet Purchasing Policies

Addition

The Queensland Government's main fleet is supplied through QFleet which leases a wide range of passenger vehicles, light commercial vehicles and light and medium trucks to core Queensland Government departments and other eligible, government-funded entities. Vehicle safety remains a fundamental requirement in Queensland Government's QFleet purchasing policies, along with considerations regarding vehicle emissions.

QFleet provides advice and support to assist departments to achieve and maintain high standards in fleet management and road safety practices. The agency provides new and light commercial vehicles that comply with stringent mandatory safety specifications, ensuring safer vehicles in the government fleet and for the community after resale.

The high-level QFleet customer service charter provides the following: continuous review of the market for the safest vehicles and a focus on 5 start ANCAP rated vehicle options for the Queensland Government fleet; ensuring all vehicle accessories are fit-for-purpose and do not compromise vehicle safety; providing access to safety workshops to increase drivers' awareness of work-related safety issues; and other 'vehicles as a workplace' related education and advice.

3.9 Promoting Safer Vehicles in Regional and Remote Areas

Addition

Add this at the end of the third paragraph:

> In some areas, this may be compounded by access to fewer safer vehicle options offered for sale, including in the case of electric vehicles, access to charging infrastructure than metropolitan residents.
>
> Add these to the list of countermeasures to reduce the prevalence of older vehicles in regional and remote areas:
>
> - increase access to or availability of safer, newer vehicles in regional and remote areas, and
> - increase penetration of reliable, readily available fast charging infrastructure for electric vehicles in regional and remote areas.

4 Vehicle Safety Features

Difference

Replace paragraph with:

> Vehicles are being increasingly fitted with an array of technologies that are intended to reduce the likelihood and severity of crashes. Some technologies are well established such as seat belts and airbags. Other technologies are emerging: some examples follow.

4.2 Adaptive Cruise Control

Deletion

Delete last sentence.

4.3 Intelligent Speed Adaptation / Assist

Deletion

Delete last sentence.

4.4 Autonomous Emergency Braking

Addition

Add cameras in the parantheses after for the sensor types: radar / lidar / cameras.

4.5 Lane Departure Warning / Lane Keeping

Deletion

Delete 'commonly occurring on regional and remote roads'.

Difference

The referenced Austroads report in this section have been superseded by more recent Austroads research. Refer to Austroads report AP-R696-23: Minimum Requirements for Traffic Signs, Traffic Signals and Line Markings. (2023)

The 'Changes for Improvement' discussed in this section have been significantly revised in the new research. They are considered 'Likely Helpful Changes' where previous requirements of specialised recommendations inlcuding higher contrast treatments and line marking width have been ammended.

4.7 Automatic Crash Notification Systems

Deletion

Delete second and fourth paragraph.

Addition

Similar technology has been mandated in Europe since 2018.

4.8 Readiness of Roads and Infrastructure for ADAS

Difference

The referenced Austroads report in this section has been superseded by more recent Austroads research. Refer to Austroads report AP-R696-23: Minimum Requirements for Traffic Signs, Traffic Signals and Line Markings (2023)

The new report reflects 'Advancements in the processing power of camera vision and processing units do not invalidate these previous reports, rather they illustrate the improvement in ADAS, ASS and ADS capabilities over time.'

As such, it demonstrates the readiness requirements of infrastructure is highly dynamic and largely depends on the type of ADAS technologies in use.

Additionally, as in Section 4.5 above, advice for inftrastructure based improvements has been revised.

Practicioners may also refer to the FWHA's MUTCD 11th Edition Part 5 - *Traffic Control Device Considerations for Automated Vehicles* for further information on models in use from other jurisdictions.

5 Autonomous Vehicles

Difference

The referenced Austroads research in this section has been superseded by more recent Austroads research. Refer to Austroads AP-R654-21: *Future Vehicles Forecasts Update* 2031.

The new report reflects Austroad's latest forecasts of technology penetration into the vehicle fleet to assist member agencies and the broader industry in their research and planning for future transport and network operations.