

Queensland Guide to Traffic Management

Part 10: Transport Control – Types of Devices (2020)

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Feedback

Please send your feedback regarding this document to: tmr.techdocs@tmr.qld.gov.au

About this document

Austrroads' *Guide to Traffic Management Part 10: Transport Control – Types of Devices* is concerned with the tools that are required for traffic management and traffic control within a network. It covers the various control devices used to regulate and guide traffic, including signs, traffic signals, pavement markings, delineators and traffic islands. Other devices and technologies that convey information and guidance to road users while they are active in traffic are also included.

Part 10 provides guidance on the design and use of particular traffic control devices that are applied to achieve or implement traffic management and control measures. It provides advice on the functions, suitability and correct use of devices to create a more efficient and safer road traffic environment for all users in permanent or temporary situations.

How to use this document

The Department of Transport and Main Roads has agreed to adopt the standards published in Austrroads *Guides* as part of national harmonisation. The department seeks to avoid duplicating information addressed in national guidance and has developed supplements instead that provide Queensland-specific advice while following the structure established in Austrroads *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 Traffic Management* takes precedence over the *Austrroads Guide to Traffic Management Part 10: Transport Control – Types of Devices* except where the *Austrroads Guide* is accepted without changes.

This Part is designed to be read and applied together with *Austrroads Guide to Traffic Management Part 10: Transport Control– Types of Devices*. Readers must have access to the *Austrroads Guide* to understand its application in Queensland.

This document:

- sets out how the *Austrroads Guide to Traffic Management Part 10: Transport Control – Types of Devices* applies in Queensland
- has precedence over the *Austrroads Guide to Traffic Management Part 10: Transport Control– Types of Devices* when applied in Queensland
- has the same section numbering and headings as the *Austrroads Guide to Traffic Management Part 10: Transport Control – Types of Devices*.

The following table summarises the relationship between the *Austrroads Guide to Traffic Management Part 10: Transport Control – Types of Devices* and this document:

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

Definitions

The following general amended definitions apply when reading the *Queensland Guide to Traffic Management Part 10: Transport Control – Types of Devices*.

Reference to...	Means
AGTM Part 10	<p><i>Austrroads Guide to Traffic Management Part 10: Transport Control – Types of Devices</i>, as amended by this document; for example, a reference to AGTM Part 10 means the reader must refer to the <i>Austrroads Guide to Traffic Management Part 10: Transport Control – Types of Devices</i>, and the <i>Queensland Guide to Traffic Management Part 10: Transport Control – Types of Devices</i> (QGTM Part 10).</p> <p>Throughout AGTM Part 10, references are made to other Parts of the AGTM (for example, when reading AGTM Part 10, the reader may be referred to AGTM Part 3 for further information).</p> <p>In such cases, the reader must refer to the equivalent Part within the QGTM first. Check the applicability of the equivalent QGTM Part before referring to the referenced AGTM Part.</p> <p>Similarly, references may be made to other Austrroads Guides (for example, when reading AGTM Part 10, the reader may be referred to the <i>Guide to Road Safety Part 3: Speed Limits and Speed Management</i>).</p> <p>In such cases, the reader must refer to the equivalent Queensland Guide first, where such exists. Check the applicability of the equivalent Queensland Guide before referring to the referenced Austrroads Guide Part.</p>
TRUM	The <i>Traffic and Road Use Management</i> manual preceded this <i>Queensland Guide to Traffic Management</i> and TRUM Parts were withdrawn on publication of the corresponding QGTM Part.
MUTCD	Queensland <i>Manual of Uniform Traffic Control Devices</i>
TORUM	<i>Transport Operations (Road Use Management) Act 1995</i>
After hours	During the hours when work is suspended: that is, after construction time
Buffer	A speed zone, of minimal length and intermediate value between two speed limits that differ by 20 km/h or more
MRTS02	The Principal's <i>Technical Specification</i> for Provision of Traffic
MRTS260	The Principal's <i>Technical Specification</i> for Temporary Variable Speed Limit Signs
MUTCD Part 3	The Queensland <i>Manual of Uniform Traffic Control Devices Part 3 Traffic control for works on roads</i> , including amendments published on the Department of Transport and Main Roads website
Principal	The State of Queensland acting through the Department of Transport and Main Roads
RSCS Software	As per MRTS260 definition
Site Supervisor	Person responsible for activities within a work site; this person will be the primary contact for onsite personnel
STREAMS	The Principal's traffic management system and primary user interface to ITS field devices
SRC	As per MRTS260 definition
TVSL	Temporary Variable Speed Limit
TVSL sign	TVSL sign is a general term covering the complete TVLS sign unit: the TVSL sign is a non-fixed, trailer or pole mounted, transportable device

Reference to...	Means
TGS	As per the MUTCD Part 3 definition
TMC	The Principals' Traffic Management Centre (using STREAMS)
TMP	Traffic Management Plan which outlines how the works are integrated into the operation of the road network, identifies and considers all foreseeable risks, and assesses the impact on all road users
Work area	As per the MUTCD Part 3 definition
Work site	As per the MUTCD Part 3 definition

References

QGTM section	Reference
All	www.legislation.qld.gov.au
Pedestrian wayfinding and signage guidance	Transport and Main Roads Active transport user guidelines
Cane haulage signs	Transport and Main Roads MUTCD Q-series and Traffic Control (TC) Signs
Service and tourist signing guides	Transport and Main Roads' Tourist and service signs guideline
Wine tourism signing guidelines	Transport and Main Roads' Tourist and service signs guideline
Engine compression braking	<ul style="list-style-type: none"> Transport Operations (Road Use Management—Road Rules) Regulation 2009 Transport and Main Roads MUTCD Q-series and Traffic Control (TC) Signs
Support selection for roadside signs and other equipment	Transport and Main Roads <i>Support selection for roadside signs and other equipment guideline</i>
Non-Transport and Main Roads variable message sign installation applications on state-controlled roads for displaying road and traffic condition information	Transport and Main Roads Technical Specification MRTS202 Variable Message Signs
Bicycle activated warning signs	Transport and Main Roads <i>Bicycle activated warning signs guideline</i>
Guidelines for the permanent placement of variable speed limit and lane control signs for motorways, long bridges and tunnels	Transport and Main Roads <i>Permanent placement of variable speed limit and lane control signs for motorways, long bridges and tunnels guideline</i>
Collocation of gantry-mounted variable speed limit signs with static and monochrome variable message signs	Transport and Main Roads <i>Collocation of gantry-mounted variable speed limit signs with static and monochrome variable message signs guideline</i>
Use of temporary variable speed limit signs in construction and maintenance work areas on motorways	Queensland Guide to Temporary Traffic Management

QGTM section	Reference
Determination of centre line markings adjacent to property access	<ul style="list-style-type: none"> • Austroads Guide to Road Design: <ul style="list-style-type: none"> – Part 3 <i>Geometric Design</i> – Part 4A <i>Unsignalised and Signalised Intersections</i>. • Transport Operations (Road Use Management—Road Rules) Regulation 2009.
Bicycle Awareness Zones	Transport and Main Roads <i>Bicycle awareness zones guideline</i>
Coloured surface treatments for bicycle lanes	Transport and Main Roads <i>Coloured surface treatments for bicycle lanes</i>
Bicycle lane separation devices	Transport and Main Roads <i>Bicycle lane separation devices</i>
Implementation of internet-enabled video cameras	<ul style="list-style-type: none"> • Austroads Guide to Traffic Management Part 10 Transport Control – Types of Devices • Transport and Main Roads Road Planning and Design Manual 2nd edition Volume 5 <i>Intelligent Transport Systems</i>.
Tactile Ground Surface Indicators	Australian Standard AS 1428.4.1

Relationship table

Section	Title	Queensland application	Dept contact
1.	Introduction		
	1.1	Purpose	Accepted
	1.2	Intended user	Accepted
	1.3	How to use	Accepted
	1.4	Scope	Accepted
	1.5	Out of scope	Accepted
2.	Traffic control and communication devices and the Safe System	Accepted	
3.	Standards and Road Rules relating to transport control devices		
	3.1	Australian / New Zealand Standards	Accepted
	3.2	Road Rules and traffic control devices	Accepted
4.	Principles and application		
	4.1	Uniformity	
	4.1.1	<i>Importance</i>	Accepted
	4.1.2	<i>Areas of desirable uniformity</i>	Accepted
	4.2	Factors affecting performance	Accepted
	4.2.1	<i>Inappropriate use</i>	Accepted
	4.2.2	<i>Maintenance</i>	Accepted
	4.2.3	<i>Environmental factors</i>	Accepted
	4.2.4	<i>Site conditions</i>	Accepted
	4.2.5	<i>Road user factors</i>	Accepted
	4.2.6	<i>Design of road or facility</i>	Accepted
	4.2.7	<i>Redundant signs</i>	Accepted
	4.3	Signs and markings	
	4.3.1	<i>General principles</i>	Accepted
	4.3.2	<i>Considerations for older road users and people with disabilities</i>	Accepted
	4.4	Alignment with the national ITS architecture	Accepted

Section	Title	Queensland application	Dept contact	
5.	Signing and marking schemes	Accepted		
	5.1	Need for signing and marking schemes	Accepted	
	5.2	Principles for preparation of schemes	Accepted	
	5.3	Complex and closely spaced intersections	Accepted	
	5.4	Traffic management plans	Accepted	
	5.5	Route plans for direction signs		
	5.5.1	<i>General</i>	Accepted	
	5.5.2	<i>Route overview plans</i>	Accepted	
	5.5.3	<i>Intersection direction sign layouts</i>	Accepted	
	5.5.4	<i>Reassurance direction signs plan</i>	Accepted	
	5.6	Route planning and directional and wayfinding signage for bicyclists	Accepted	
	5.7	Wayfinding for pedestrians	Accepted with amendments	VRU
	5.8	Route audits	Accepted	
	5.9	Schemes for parking signs on roads	Accepted	
	5.10	Signs and markings for local area traffic management	Accepted	
5.11	Signs and markings for roadworks and temporary situations	Accepted		
5.11.1	<i>Pedestrian facilities at roadworks and building construction sites</i>	Accepted		
6.	Traffic signs	Accepted		
	6.1	Development of new signs	Accepted	
	6.2	Types of signs	Accepted with amendments	TEP
	6.2.1	<i>Regulatory signs</i>	Accepted	
	6.2.2	<i>Warning signs</i>	Accepted	
	6.2.3	<i>Guide signs</i>	Accepted	
	6.2.4	<i>Other signs and markings</i>	Accepted with amendments	VRU TEP
	6.3	Design of sign faces		
	6.3.1	<i>General</i>	Accepted	
	6.3.2	<i>Numbering of signs</i>	Accepted	
	6.3.3	<i>Colour of signs</i>	Accepted	
	6.3.4	<i>Standard signs (pre-set graphics)</i>	Accepted	
	6.3.5	<i>'Made-to-measure' signs</i>	Accepted	
	6.3.6	<i>Standard alphabets for road signs</i>	Accepted	
	6.3.7	<i>Letter size and legibility</i>	Accepted	

Section	Title	Queensland application	Dept contact
6.3.8	<i>Arrows and symbols</i>	Accepted	
6.4	Sign materials and illumination	Accepted	
6.4.1	<i>Retroreflective materials</i>	Accepted	
6.4.2	<i>Illumination</i>	Accepted	
6.5	Location and placement of signs	Accepted with amendments	TEP
6.5.1	<i>General</i>	Accepted	
6.5.2	<i>Longitudinal placement</i>	Accepted	
6.5.3	<i>Lateral placement and height</i>	Accepted with amendments	TEP
6.5.4	<i>Road layout, environment and topography</i>	Accepted	
6.5.5	<i>Orientation of signs</i>	Accepted	
6.5.6	<i>Collocation with electronic signs</i>	Accepted	
6.5.7	<i>Location and placement of signs for pedestrians</i>	Accepted	
6.6	Maintenance	Accepted	
6.6.1	<i>Performance degradation</i>	Accepted	
6.6.2	<i>Inspection</i>	Accepted	
6.6.3	<i>Routine maintenance</i>	Accepted	
6.6.4	<i>Repair of damaged signs</i>	Accepted	
7.	Electronic signs	Accepted	
7.1	Variable message signs	Accepted	
7.1.1	<i>General principles</i>	Accepted	
7.1.2	<i>Applications</i>	Accepted with amendments	MPI
7.2	Sign faces		
7.2.1	<i>General characteristics</i>	Accepted	
7.2.2	<i>Legibility</i>	Accepted	
7.3	VMS messages		
7.3.1	<i>Types of messages and symbols</i>	Accepted with amendments	MPI
7.3.2	<i>Abbreviations</i>	Accepted with amendments	MPI
7.4	Message content and format	Accepted with amendments	MPI
7.4.1	<i>Problem statements</i>	Accepted	
7.4.2	<i>Location statements</i>	Accepted	
7.4.3	<i>Effect statements</i>	Accepted	
7.4.4	<i>Attention statements</i>	Accepted	
7.4.5	<i>Action statements</i>	Accepted	
7.4.6	<i>Message load and exposure times</i>	Accepted	
7.4.7	<i>Number of frames and display changes</i>	Accepted	

Section	Title	Queensland application	Dept contact
7.4.8	<i>Time and date information</i>	Accepted	
7.4.9	<i>Message compatibility and credibility</i>	Accepted	
7.5	Location and spacing	Accepted	
7.5.1	<i>Longitudinal placement</i>	Accepted	
7.5.2	<i>Lateral placement and height</i>	Accepted	
7.5.3	<i>VMS orientation</i>	Accepted	
7.5.4	<i>Collocation with other signs</i>	Accepted	
7.6	Applications of VMS		
7.6.1	<i>General</i>	Accepted	
7.6.2	<i>Driver information signs</i>	Accepted	
7.6.3	<i>Lane control signals / signs</i>	Accepted	
7.6.4	<i>Weather warning systems</i>	Accepted	
7.6.5	<i>Reversible lanes</i>	Accepted	
7.6.6	<i>Incident management</i>	Accepted	
7.6.7	<i>Over-height systems</i>	Accepted	
7.6.8	<i>Speed indicator systems</i>	Accepted	
7.6.9	<i>Vehicle activated intersection and road geometry signs</i>	Accepted with amendments	VRU
7.6.10	<i>Public transport</i>	Accepted	
7.6.11	<i>Parking guidance</i>	Accepted	
7.7	Electronic speed limit signs	Accepted with amendments	ANO
7.7.1	<i>Motorways</i>	Accepted	
7.7.2	<i>Arterial and local roads</i>	Accepted	
7.7.3	<i>ESL sign size, brightness and annulus requirement</i>	Accepted	
7.8	Portable / temporary VMS	Accepted with amendments	TEP
8.	Pavement markings		
8.1	General	Accepted	
8.1.1	<i>Use of markings</i>	Accepted	
8.1.2	<i>Limitations of markings</i>	Accepted	
8.2	Colour and reflectorisation		
8.2.1	<i>Colour</i>	Accepted	
8.2.2	<i>Reflectorisation</i>	Accepted	
8.3	Line marking materials	Accepted	
8.3.1	<i>Types of longitudinal lines</i>	Accepted	
8.3.2	<i>Dividing lines</i>	Accepted	
8.3.3	<i>Barrier lines</i>	Accepted with amendments	TEP

Section	Title	Queensland application	Dept contact
8.3.4	<i>Lane lines</i>	Accepted	
8.3.5	<i>Transition lines</i>	Accepted	
8.3.6	<i>Continuity lines</i>	Accepted	
8.3.7	<i>Edge lines</i>	Accepted	
8.3.8	<i>Special lane lines</i>	Accepted	
8.4	Transverse lines	Accepted	
8.4.1	<i>Stop lines</i>	Accepted	
8.4.2	<i>Give-way lines</i>	Accepted	
8.4.3	<i>Limit lines</i>	Accepted	
8.4.4	<i>Pedestrian crossing markings</i>	Accepted	
8.5	Other markings		
8.5.1	<i>Turn lines</i>	Accepted	
8.5.2	<i>Diagonal and chevron markings</i>	Accepted	
8.5.3	<i>Off-road path markings</i>	Accepted	
8.5.4	<i>Yellow box markings</i>	Accepted	
8.5.5	<i>Messages on pavements</i>	Accepted	
8.5.6	<i>Roundabout markings</i>	Accepted	
8.5.7	<i>Kerb markings</i>	Accepted	
8.5.8	<i>Zig-zag markings</i>	Accepted	
8.5.9	<i>Bicycle awareness zones in Queensland</i>	New	VRU
8.6	Use of coloured pavements	Accepted with amendments	VRU
8.7	Raised pavement markers		
8.7.1	<i>Types</i>	Accepted	
8.7.2	<i>Raised retroreflective pavement markers</i>	Accepted	
8.7.3	<i>Non-retroreflective pavement markers</i>	Accepted	
8.7.4	<i>Guidelines for use</i>	Accepted	
8.7.5	<i>Illuminated and other pavement markers</i>	Accepted	
8.8	Rumble strips		
8.8.1	<i>Types and application</i>	Accepted	
8.8.2	<i>Use of rumble strips</i>	Accepted	
8.8.3	<i>Tactile ground surface indicators</i>	Accepted	
8.8.4	<i>Emerging areas – perceptual countermeasures</i>	Accepted	

Section	Title	Queensland application	Dept contact
9.	Guide posts and delineators	Accepted with amendments	VRU
	9.1	Features of guide posts	Accepted
	9.2	Location and spacing	Accepted
	9.3	Delineators	Accepted
	9.4	Colour of guide post and delineators	Accepted
	9.5	Snow poles	Accepted
10.	Traffic signals	Accepted	
	10.1	Types of displays and their meanings	Accepted
	10.1.1	<i>Circular aspects</i>	Accepted
	10.1.2	<i>Arrow aspects</i>	Accepted
	10.1.3	<i>Pedestrian aspects</i>	Accepted
	10.1.4	<i>Bicycle aspects</i>	Accepted
	10.1.5	<i>Special vehicle aspects</i>	Accepted
	10.1.6	<i>Combination of aspects</i>	Accepted
	10.2	Signal face layouts	
	10.2.1	<i>Vehicle signal face layouts</i>	Accepted
	10.2.2	<i>Face layouts with right-turn arrow aspects</i>	Accepted
	10.2.3	<i>Face layouts with left-turn arrow aspects</i>	Accepted
	10.2.4	<i>Permitted layouts</i>	Accepted
	10.3	Display sequences	
	10.3.1	<i>Basic sequence</i>	Accepted
	10.3.2	<i>Sequences with arrow aspects</i>	Accepted
	10.3.3	<i>Right-turn sequences</i>	Accepted
	10.3.4	<i>Left-turn sequences</i>	Accepted
	10.3.5	<i>Sequences for two-aspect columns</i>	Accepted
	10.3.6	<i>Pedestrian signals</i>	Accepted
	10.3.7	<i>Bicycle signals</i>	Accepted
10.3.8	<i>Special vehicle signals</i>	Accepted	
10.3.9	<i>Signal start-up and failure displays</i>	Accepted	

Section	Title	Queensland application	Dept contact
10.4	Location of signal faces	Accepted	
10.4.1	<i>Designation of signal faces</i>	Accepted	
10.4.2	<i>Signal face functions</i>	Accepted	
10.4.3	<i>Signal face site requirements</i>	Accepted	
10.4.4	<i>Positioning of signal equipment</i>	Accepted	
10.4.5	<i>Collision risk reduction</i>	Accepted	
10.4.6	<i>Lantern mounting heights</i>	Accepted	
10.4.7	<i>Clearances from power lines</i>	Accepted	
10.4.8	<i>Lantern aiming</i>	Accepted	
10.4.9	<i>Unusual geometry or site features</i>	Accepted	
10.4.10	<i>Other street furniture</i>	Accepted	
10.4.11	<i>Visors</i>	Accepted	
10.4.12	<i>Louvres</i>	Accepted	
10.5	Special uses	Accepted	
10.5.1	<i>Advance warning signals</i>	Accepted	
10.5.2	<i>Railway level crossings</i>	Accepted	
10.5.3	<i>Emergency vehicle facilities</i>	Accepted	
10.5.4	<i>Public transport priority</i>	Accepted	
10.5.5	<i>Bicycle facilities</i>	Accepted	
10.5.6	<i>Roundabout metering signals</i>	Accepted	
10.5.7	<i>Metering signals at sign-controlled intersections</i>	Accepted	
10.5.8	<i>Special intersection treatments</i>	Accepted	
10.5.9	<i>Paired intersections</i>	Accepted	
10.5.10	<i>Intersections with more than four legs</i>	Accepted	
10.5.11	<i>Overhead lane control signals</i>	Accepted	
10.5.12	<i>Single-lane operation and portable signals</i>	Accepted	
10.5.13	<i>Left turn on red</i>	Not accepted	TEP SRI
10.6	Ramp metering signals	Accepted	
10.7	Pavement markings at signals	Accepted	
10.7.1	<i>Longitudinal lines</i>	Accepted	
10.7.2	<i>Transverse lines</i>	Accepted	
10.7.3	<i>Painted medians and islands</i>	Accepted	
10.7.4	<i>Pavement messages and symbols</i>	Accepted	
10.7.5	<i>Raised pavement markers</i>	Accepted	

Section		Title	Queensland application	Dept contact
	10.8	Signs used with traffic signals	Accepted	
	10.8.1	<i>General requirements</i>	Accepted	
	10.8.2	<i>Signs at signal installations</i>	Accepted	
11.	Traffic islands		Accepted	
	11.1	Flush medians and islands	Accepted	
	11.1.1	<i>Pedestrians and flushed medians and islands</i>	Accepted	
	11.1.2	<i>Wide centreline treatments</i>	Accepted	
	11.2	Flush islands with pavement bars	Accepted	
	11.3	Moveable medians, islands and barriers	Accepted	
12.	Communication devices			
	12.1	General	Accepted	
	12.2	Technologies and applications	Accepted	
	12.2.1	<i>Radio rebroadcast and CB radio break-in</i>	Accepted	
	12.2.2	<i>Emerging technologies</i>	Accepted	
	12.3	Tactile ground surface indicators	New	VRU
Appendices				
A	Route planning and directional and wayfinding signage for bicyclists			
	A.1	Introduction	Accepted	
	A.1.1	<i>Application of the guidelines</i>	Accepted	
	A.1.2	<i>Signing routes with and without cycle infrastructure</i>	Accepted	
	A.2	Sign designs	Accepted	
	A.3	Directional pavement markings	Accepted	
	A.4	Cycle route types	Accepted	
	A.5	Developing a directional sign plan	Accepted	
	A.5.1	<i>Identify cycle routes</i>	Accepted	
	A.5.2	<i>Create a focal point map</i>	Accepted	
	A.5.3	<i>Identify any named facilities</i>	Accepted	
	A.5.4	<i>Identify any numbered routes</i>	Accepted	
	A.5.5	<i>Identify any branded routes</i>	Accepted	
	A.5.6	<i>Conduct a pre-sign risk assessment</i>	Accepted	
	A.5.7	<i>Design sign layouts for route junctions</i>	Accepted	
	A.5.8	<i>Create sign schedules</i>	Accepted	
	A.5.9	<i>Prepare sign artwork for manufacture</i>	Accepted	
A.6	Signing complex intersections	Accepted		

Section		Title	Queensland application	Dept contact
	A.7	Sign installation	Accepted	
	A.7.1	<i>Sign mounting and clearances</i>	Accepted	
	A.7.2	<i>Sight distances and sign visibility</i>	Accepted	
	A.7.3	<i>Sign legibility and lighting</i>	Accepted	
	A.7.4	<i>Sign stack mounting order</i>	Accepted	
	A.7.5	<i>Integration with existing path signs</i>	Accepted	
	A.7.6	<i>Post-installation check and review</i>	Accepted	
	A.8	Sign maintenance	Accepted	
	A.8.1	<i>Sign defect reporting systems</i>	Accepted	
	A.9	Alternative sign design options	Accepted	
B	Operational guideline for the determination of sight distances to direction signs		Accepted	
C	Abbreviations for use on VMS			
	C.1	Recommended abbreviations to use with VMS	Accepted with amendments	MPI
	C.2	Standard VMS abbreviations used in conjunction with other words	Accepted	
D	VMS message statements			
	D.1	Recommended VMS problem statements	Accepted with amendments	MPI
	D.2	Recommended VMS location statements	Accepted with amendments	MPI
	D.3	Recommended VMS effect statements	Accepted with amendments	MPI
	D.4	Recommended VMS attention statements	Accepted with amendments	MPI
	D.5	Recommended VMS action statements	Accepted with amendments	MPI
	D.6	Recommended VMS time and date statements	Accepted	
E	Generic message set		Accepted with amendments	MPI
Commentaries				
C1	Commentary 1		Accepted	
	C1.1	Main Roads Western Australia (MRWA)	Accepted	
	C1.2	Department of Planning, Transport and Infrastructure South Australia (DPTI)	Accepted	
	C1.2.1	<i>Small to medium size signs</i>	Accepted	
	C1.2.2	<i>Large size signs</i>	Accepted	
	C1.3	Roads ACT	Accepted	
	C1.4	Department of Transport and Main Roads Queensland (TMR)	Accepted with amendments	TEP
C2	Commentary 2		Accepted	

Section		Title	Queensland application	Dept contact
C3	Commentary 3		Accepted	
	C3.1	Traverse rumble strip spacing	Accepted	
	C3.2	Traverse rumble strip dimensions	Accepted	

Departmental contacts:

- ANO: Active Network Operations, Traffic Engineering Technology & Systems, Engineering and Technology, Transport and Main Roads email ET_TETS_ANO_Allstaff@tmr.qld.gov.au.
- MPI: Mobility Policy & Insights, Traffic Engineering Technology & Systems, Engineering and Technology, Transport and Main Roads email TIManagement@tmr.qld.gov.au.
- SRI: Safer Roads Infrastructure, Engineering and Technology, Transport and Main Roads email saferroads@tmr.qld.gov.au.
- TEP: Traffic Engineering Practice, Traffic Engineering Technology & Systems, Engineering and Technology, Transport and Main Roads email TrafficEngineering.Support@tmr.qld.gov.au
- VRU: Vulnerable Road Users, Traffic Engineering Technology & Systems, Engineering and Technology, Transport and Main Roads, email CyclePedTech@tmr.qld.gov.au.

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5 Signing and marking schemes

5.7 *Wayfinding for pedestrians*

Addition

Wayfinding and signage in Queensland for people walking

See [Wayfinding and signage for people walking guideline](#). This guideline is issued as an approved notice under the *Transport Operations (Road Use Management) Act 1995*.

6. Traffic signs

6.2 Types of signs

Addition

Cane haulage signs

This section outlines the recommended signing practice for erection of cane haulage signs on all roads in the vicinity of cane haulage operations during the cane haulage and crushing season.

The G9-Q03 sign illustrated in Figure 6.2(a) is used as an area-wide advisory sign, to be displayed during harvest seasons at entrances to sugar cane growing areas, to advise motorists of possible cane hauling activities. It should incorporate hinges for folding the sign during the non-harvest season. Repeater signs may be erected within the larger cane growing areas at intervals of approximately 1 km.

Figure 6.2(a) – G9-Q03



G9-Q03

W5-Q07 CANE HAULING AHEAD is a temporary warning sign, with black letters on yellow fabric background. An alternative is a hinged sign, [TC9757 CANE HAULING NEXT ... km](#), which has a black legend and border on yellow reflectorized background. These signs are illustrated in Figure 6.2(b).

Figure 6.2(b) – W5-Q07 and TC9757



W5-Q07



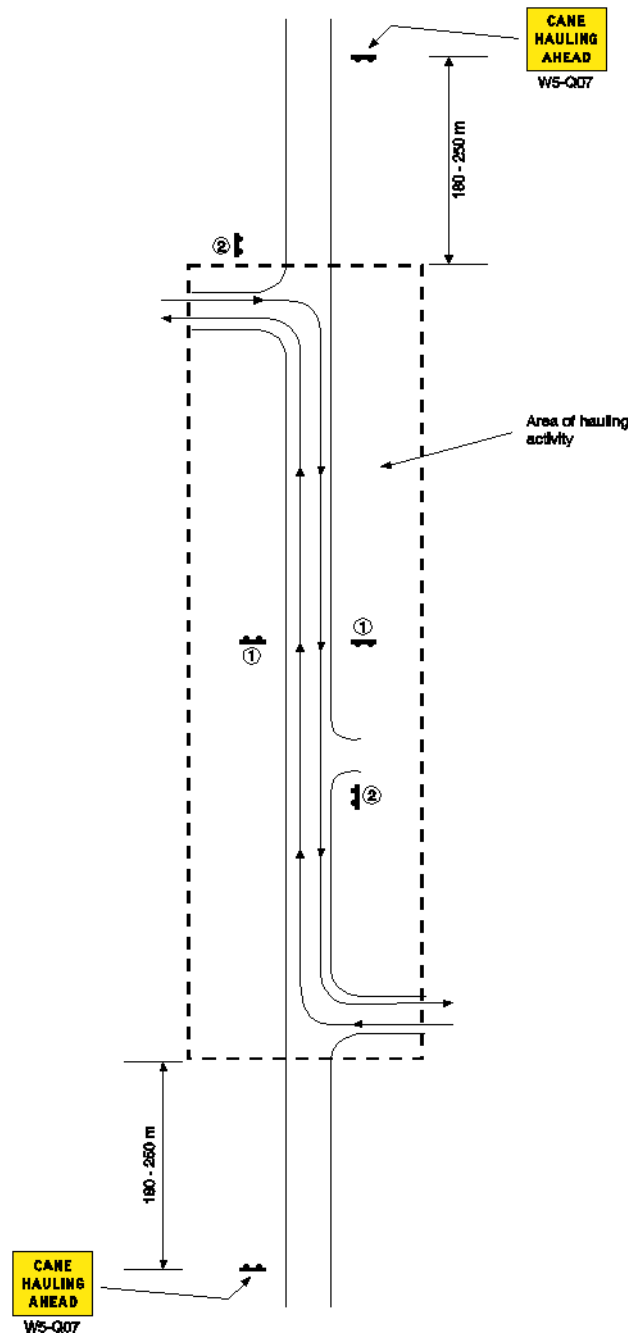
TC9757

W5-Q07 is a temporary flag type sign made of PVC-coated nylon, with wooden handles at the top and bottom. These are used to warn motorists of actual cane hauling in progress. These signs are only displayed immediately in advance of cane hauling activities and are to be removed when no hauling activities are in progress.

TC9757 is a fixed warning sign that can be used in lieu of the use of temporary sign W5-Q07 on sections of roads where extensive and regular haulage occurs. The signs should be removed or covered at the end of haulage.

Figure 6.2(c) shows a typical layout where these signs are used.

Figure 6.2(c) – Location of CANE HAULING AHEAD signs



Notes:

1. Provide additional CANE HAULING AHEAD signs where section exceeds 1 km in length. Signs should be provided such that spacing between signs does not exceed 1 km.
2. Additional CANE HAULING AHEAD signs are also required at intersections within the area of cane hauling activity.

Transport and Main Roads will, at its cost, install and maintain the area-wide advisory signs (G9 Q03).

The temporary warning sign W5-Q07 requires a post or a suitable frame for erection. The installation of a post or the siting of a frame shall not be carried out without approval from Transport and Main Roads or the appropriate local government. On Queensland roads, approved facilities will be installed

to departmental standards, by the department, at the user's expense. The current standard is shown on [drawing TC9308](#) for supporting posts. The fabric signs are not supplied by the department but may be purchased from sign suppliers. Advice of suitable suppliers can be obtained from Transport and Main Roads District Offices or TrafficEngineering.Support@tmr.qld.gov.au.

An alternative to the use of posts for the fabric signs is to use appropriate supporting frames. These require special fittings and advice should be obtained from the department before purchase.

The warning sign TC9757 can be installed at sites agreed upon by Transport and Main Roads, and the relevant mill, providing that:

- the user will pay all costs
- TC9757 will be more effective than temporary signs
- all warning signs are removed or covered at the end of haulage.

The area-wide sign G9-Q03 is to be covered or the message appropriately hidden during the non-harvest season. Responsibility for folding and securing of these signs rests with the respective mill. Sugar cane haulage should not occur before the signs are open, nor continue after the signs are closed.

The fabric signs (W5-Q07 CANE HAULING AHEAD) are to be displayed only when cane hauling is in progress and at no other time. It will be the responsibility of the user to display and dismantle this type of sign. The same applies to any TC9757 signs. The mill should have agreed arrangements with the cane growers to reinforce the department's conditions of use or local government requirements.

For more information on application, approval and conditions of use regarding cane haulage signs, see [Other matters requiring approval: Road corridor permits](#) on the departmental website.

Addition

Service and tourist signing guides

Refer to [Tourist and service signs guideline](#) available on the Transport and Main Roads website. This guideline is issued as an approved notice under the *Transport Operations (Road Use Management) Act 1995*.

Addition

Wine tourism signing guidelines

Refer to [Tourist and service signs guideline](#) available on the Transport and Main Roads website. This guideline is issued as an approved notice under the *Transport Operations (Road Use Management) Act 1995*.

6.2.4 Other signs and markings

Addition

Behavioural signage for paths

A signage system to encourage path users to behave in a predictable and cooperative manner has been developed (see Figure 6.2.4(a)).

Guidance signs to communicate four key behavioural messages to path users can be used singly or in groups relevant to site specific conditions:

1. keep left when using the path
2. warn other path users on approach and overtaking
3. move off the path when stopped, and
4. walkers control your dogs.

These four key messages are recommended to be implemented in an incremental approach as shown in Table 6.2.4(a).

Choosing the appropriate level of path signage requires an understanding of the types of path user and some information on the predominant types of conflicts and their locations.

The incremental approach aims to avoid excessive signing and visual clutter which reduces message effectiveness. Excessive signing and pavement markings can also introduce unintended safety consequences (hazards adjacent to the path, slip resistance issues on the path) can result in unnecessary capital costs, maintenance costs and injury claims.

It is recommended that an incremental 'bottom up' approach be used when installing the signs. Behavioural messages begin with Level 1. Level 1 messages may be sufficient to significantly improve user behaviour and reduce conflicts to an acceptable level. Allow path users to get used to the Level 1 messages and, if necessary, make some observations or obtain feedback from path users. If further education of path users is required, consider introducing a Level 2 approach and then, if appropriate, site specific Level 3 messages addressing known issues targeted at path 'hot spots'.

Table 6.2.4(a) – Behavioural sign level increments

Level	Level of usage	Recommended installation
Level 1	Low use and few reported conflicts.	Path centreline and pavement symbols. See Queensland MUTCD Part 9 for path pavement marking recommendations.
Level 2	Moderate path use and number of reported conflicts.	As for Level 1 plus group signs (Figure 6.2.4(a) Items (e) or (g)) at key locations and sign columns (f)).
Level 3	High path use and number of reported conflicts	As for Level 2 plus additional single or grouped behavioural signs according to the type and level of reported and observed conflicts.

Figure 6.2.4(a) – Behavioural signage for use on paths

TC2306_1
(a) Keep Left sign

TC2306_2
(b) Warn When Approaching

TC2306_3
(c) Move Off Path When Stopped sign encourages path users to keep the path clear

TC2306_4
(d) Control Your Dog sign

Above sign sizes: 250mm W x 330mm H

(e) Preferred group sign for path entry or major path access points. Recommended for Level 2 behavioural messages. Where space is limited, use example (g) layout below.

(f) Level 2 sign column installed at intermediate locations (500m intervals)

(g) Alternate layout of group sign for path entry or major path access points. Recommended for Level 2 behavioural messages. Note other behavioural signs may be used.

Addition

Engine compression braking signs

The objective of this section is to minimise noise levels from trucks and heavy vehicles while travelling through residential areas. See [Transport Noise Management Code of Practice](#) for related information.

Many heavy vehicles are fitted with engine compression brakes to relieve the loads exerted on traditional braking systems working at the wheels.

Most states and territories have produced guidelines for the use of engine brake signage, but most see signage as a short-term measure that will only be used until effective regulation of engine noise is implemented.

Trucks are defined as those vehicles that are Class 3 or above in the Austroads Vehicle Classification system.

Truck noise signs may be installed on roads where

- the posted speed limit is 80 km/h or less – generally, signs should not be required on roads with a speed limit above 80 km/h, but may be considered in special circumstances
- abutting areas are predominantly residential rather than commercial and adjoining built-up area as defined in the [Transport Operations \(Road Use Management—Road Rules\) Regulation 2009](#)
- the 12-hour truck volume is at least 60 at night (7pm–7am) or at least 500 during the day (7am–7pm). and/or
- in advance of a requirement for traffic to stop or slow (for example, signals, roundabout, pedestrian crossing STOP or GIVE WAY signs, curves, or road sections commonly subject to congestion) or steep downgrades.
- Further requirements are given in the [traffic control signs](#) TC9709 and TC2350 that have been developed for use.

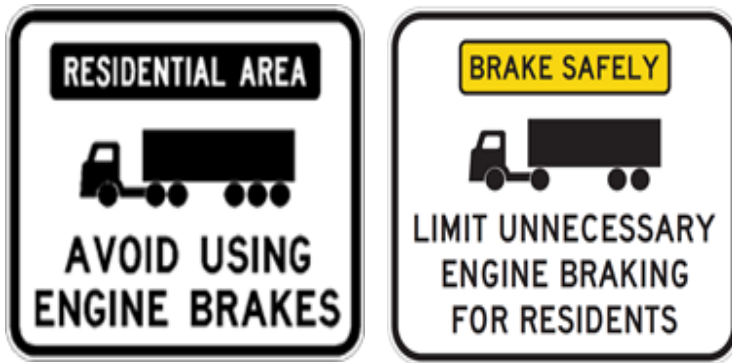
Sites shall not be selected on the basis of managing an individual complainant at a specific location.

- Signs shall be installed 300 metres or more in advance of a built-up area.
- Signs shall be installed 300 metres or more in advance of a requirement for traffic to stop or slow (for example, signals, roundabout, pedestrian crossing STOP or GIVE WAY signs, curves, or road sections commonly subject to congestion) or steep downgrades.
- Signs shall be sited at least 5 kilometres apart on a particular route, for each direction of travel or at least 10 kilometres apart where the route is in excess of 20 kilometres.
- Only one sign should be used on each entrance to a rural town.

Details of the truck noise advisory signs are given on [drawing TC9709 and TC2350](#).

RESIDENTIAL AREA is a white legend on a black patch.

Figure 6.2.4(b) – TC9709



6.5 Location and placement of signs

Addition

Advisory speeds on roundabout diagrammatic signs

The purpose of this section is to introduce the use of a supplementary advisory speed information panel, in conjunction with advance direction signs at isolated roundabouts on high-speed roads.

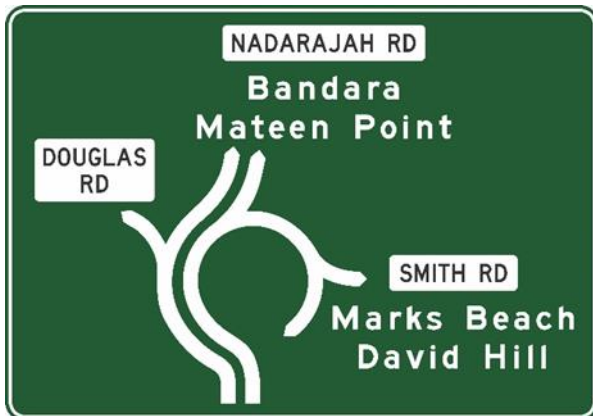
Advance roundabout direction signs are used to indicate to drivers the presence of a roundabout on the road ahead and the layout of the roads intersecting at the roundabout.

The advance roundabout direction sign may take the form of a standard advance direction sign for simple roundabout layouts, for example, G1-5 type as shown in Figure 6.5(a).

Figure 6.5(a) – Standard advance roundabout direction sign



Where the geometry of a multi-lane roundabout is such that selection of the correct lane is not clearly apparent to drivers with a standard advance roundabout direction sign, a special advance direction sign indicating the lane(s) to be used is usually provided as shown in Figure 6.5(b).

Figure 6.5(b) – Special advance roundabout direction sign

At isolated roundabouts on high-speed roads in rural and outer metropolitan areas, drivers may not perceive the need to reduce speed in sufficient time to slow down and negotiate the roundabout in safety.

The supplementary advisory speed information panel has been introduced to assist in addressing this need. It is based on practice in Victoria which, for some years, has used the advisory speed panel to supplement roundabout advance direction signing for this purpose.

The supplementary advisory speed information panel is used to inform drivers of the 'safe' speed at which vehicles should travel through the roundabout.

The supplementary advisory speed information panel for use, in conjunction with advance roundabout direction signs, is only used on rural and outer metropolitan roads where typical approach speeds are higher than 80 km/h.

The supplementary advisory speed information panel is shown in Figure 6.5(c).

Figure 6.5(c) – Supplementary advisory speed information panel

The advisory speeds shown on the supplementary advisory speed information panel apply to through movements only as it is reasonable to assume that drivers of vehicles turning at a roundabout would already be aware of the need to slow down to turn.

In view of this, the supplementary advisory speed information panel is not normally used where drivers are approaching a T-intersection roundabout along the 'stem' or terminating road approach. In this case, an alternative information panel REDUCE SPEED NOW, as shown in Figure 6.5(d), may be used where there is an existing or potential safety concern. This alternative information panel may also be considered for use on an approach which does not have a clearly defined through movement, but where at least one movement at the roundabout might not be perceived by drivers as a turn movement requiring substantial speed reduction.

Figure 6.5(d) – Alternative REDUCE SPEED NOW information panel

The advisory speed for a particular roundabout approach is determined in the same manner as advisory speed signing on curves along rural roads. A ball bank indicator or other suitable means is used to determine the advisory speed in accordance with procedures in Part 2 of the Queensland MUTCD. Calculated speed values are then rounded to the nearest multiple of 10 km/h for display as the 'safe' speed on the supplementary panel.

Where there is more than one lane available for through movements on the circulating carriageway for the particular approach to the roundabout, the 'safe' speed is determined for each lane and the lower speed shown on the supplementary panel. In this case, the car must remain in one lane as it passes through the roundabout, rather than changing lanes through the roundabout to drive the path of least deflection.

The supplementary advisory speed information panel, for example, SLOW TO 40 km/h and the alternative information panel REDUCE SPEED NOW will be designed as part of the advance roundabout diagrammatic direction sign, with letter heights consistent with the balance of the sign, but with a white legend on red background.

Examples of supplementary advisory speed information panels are shown in Figure 6.5(e) and Figure 6.5(f). Examples of alternative information panel REDUCE SPEED NOW are shown in Figure 6.5(g).

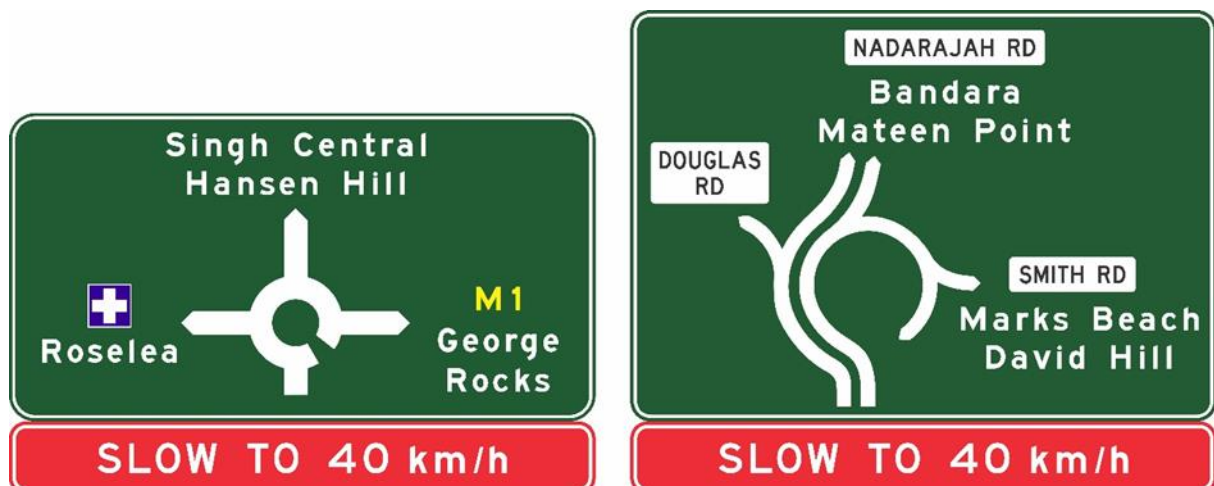
Figure 6.5(e) – Example of supplementary advisory speed information panel fitted as a separate panel under an existing sign

Figure 6.5(f) – Examples of supplementary advisory speed information panel incorporated into the direction sign (preferred option)

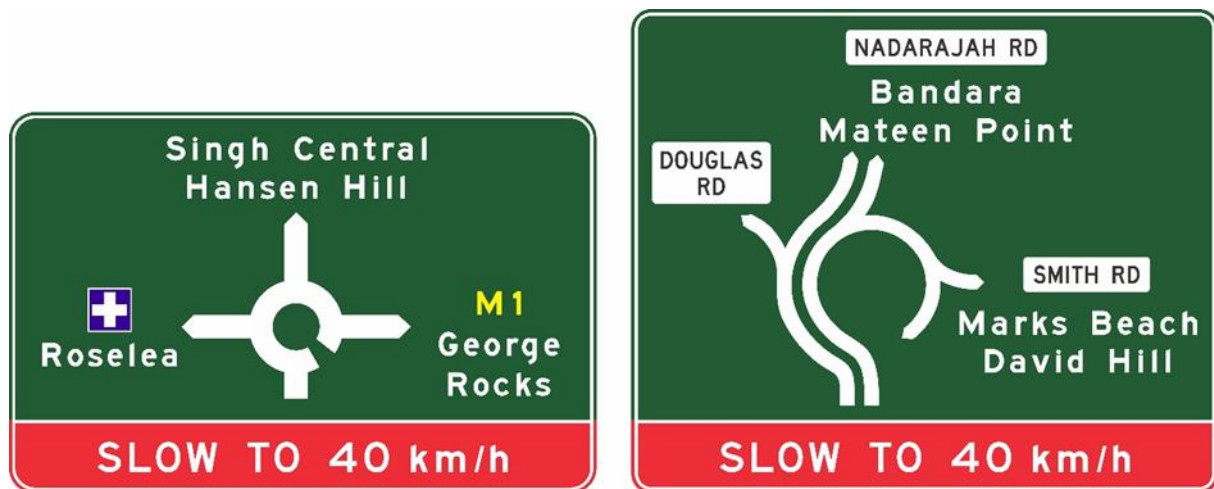


Figure 6.5(g) – Examples of alternative information panel REDUCE SPEED NOW incorporated into the direction sign (preferred option)



Addition

Erection of clearance signs

This section provides advice on signing requirements at locations with restricted vertical clearances.

The [Heavy Vehicle \(Mass, Dimension and Loading\) National Regulation](#) nominates the height restrictions for vehicles.

These limits may be exceeded only with the prior written permission of the Superintendent of Traffic (Queensland Police Service) or performance guidelines issued by the Chief Executive (Transport and Main Roads) and subject to compliance with any conditions of such permission or guidelines. The limits apply to the motor vehicle, together with its loading and equipment.

The signing requirements at underpasses are set out in Part 2 of the Queensland [Manual of Uniform Traffic Control Devices](#). Clearances are specified in metres to one decimal place.

To determine the appropriate clearance height to be shown on the sign, the minimum clearance above the carriageway (or lane as appropriate) is measured to two decimal places, and then rounded to the nearest 0.1 m below the measured height. A carriageway is that portion of the road devoted particularly to the use of vehicles, inclusive of shoulders and auxiliary lanes.

In determining the minimum clearance, care must be taken to measure it at the correct point, taking account of road cross fall and bridge grade and geometry. On two-way undivided carriageways, only one value for minimum clearance is to be posted. On divided carriageways, the minimum clearance applicable to each direction is to be posted for viewing on the approach side only. It may also be necessary to allow for a sag vertical alignment correction.

Where it is necessary to make allowance for any sag curvature in the roadway under the structure, the following table can be used to determine the amount by which the measured clearance should be reduced because of the curvature. In such cases, the procedure is:

- a) measure minimum height clearance to two decimal places
- b) read the sag correction, using Table 6.5 following – subtract the sag correction from the measured minimum clearance, and
- c) round down to nearest 0.1 m below this figure.

Table 6.5 – Sag correction table

Minimum radii of sag V.C. (metres)	Sag correction (metres) 1. All routes except over-dimension vehicle routes	Sag correction (metres) 2. Over-dimension vehicle routes
800	0.01	0.03
500	0.02	0.05
300	0.04	0.09
200	0.06	0.13
130	0.09	0.20
70	0.16	0.37

Notes:

1. Based on a maximum effective wheelbase component of 9.5 m and covers all single unit vehicles, medium combination vehicles and road trains
2. Based on a maximum effective wheelbase component of 14.4 m and covers low loaders and extendible semi-trailers.

In the following situations, it will be necessary to measure the sag correction using a tape 9.5 m long (14.4 m for an over-dimension vehicle route) stretched tightly between longitudinal points on the road surface (the correction is the maximum height of the tape above the road surface):

- a) the radius of the vertical curve is unknown
- b) the radius is less than 70 m, and
- c) the vertical alignment under the structure is a combination of curves and straights.

No allowance is made in the signing for changes in clearance, which may occur from resealing or resheeting of the pavement. Attention to signs should be made if a reseal or resheet reduces the clearance by more than the rounding in previous information on vertical clearance measurement.

Correct clearance must be displayed at all times. In the case of roadworks, a check on the exact clearance should be included in the works:

- new construction – prior to opening to traffic for the first time, and
- resurfacing – prior to reopening to traffic.

No allowance on the signed clearance is made for variations in vehicle height due to vehicle load or atmospheric conditions. It is considered that operators should allow for such variations.

6.5.3 Lateral placement and height

Addition

Support selection for roadside signs and other equipment in Queensland

Refer to [Support selection for roadside signs and other equipment guideline](#). This guideline is issued as an approved notice under the *Transport Operations (Road Use Management) Act 1995*.

7 Electronic signs

7.1 Variable Message Signs

7.1.2 Applications

Addition

Non-Transport and Main Roads variable message sign installation applications on state-controlled roads for displaying road and traffic condition information

The purpose of this section is to provide advice to ensure road safety on Queensland roads is not compromised in the operation of variable message signs (VMS) whilst supporting communication with the local community.

The conditional use of VMS by other state agencies, local government or private road operators on Queensland roads can provide benefits for communities and motorists.

Any state agency, local government or private road operator seeking to purchase and install a VMS device should seek early advice from the relevant Transport and Main Roads office.

Any organisation seeking to install a device within Queensland's state-controlled road network must first apply for a [Road Corridor Permit](#).

The VMS must comply with Transport and Main Roads [Technical Specification MRTS202 Variable Message Signs](#).

It is expected, in providing approval for installation of a VMS device within the Queensland road environment, that all relevant safety related guidelines will be adhered to.

A condition of approval is that the state can access and operate the VMS during times of emergency. To enable this, the sign must be supported* by STREAMS, which is the Transport and Main Roads traffic management system and primary user interface to Intelligent Transport Systems (ITS).

*'supported by STREAMS' means that the VMS device could be connected to the current release of STREAMS without further software development. Any decision to actually connect the sign to STREAMS will be taken by the state at a later time.

The location of a VMS close to an intersection or pedestrian crossing concerns the department due to the proximity of LED traffic lights and the many conflict points between vehicles and pedestrians.

The use of the VMS is restricted to the display of information of community significance and/or of 'state importance' and must not be used for other purposes.

'State importance' is defined as a message that is approved by authorised officers of the Queensland Police Service, the Queensland Fire and Emergency Services or Transport and Main Roads. Any use of VMS is required to be in accordance with this section.

VMS must not be used to for:

- displaying organisation names
- political advertising*
- commercial use, or
- deriving revenue.

*Political advertising is defined as any message which identifies political candidates and/or promotes a political party at local, state or federal elections.

The VMS is to be appropriately branded to identify ownership by the purchasing organisation.

It is acceptable to use VMS to promote local government initiatives (for example, 'Watch every drop').

7.3 Variable message sign messages

7.3.1 Types of messages and symbols

Addition

Queensland-specific advice for message priorities

See *Information for display on variable message signs organisational policy* on the departmental [Engineering Policies webpage](#).

7.3.2 Abbreviations

Addition

Abbreviations – Queensland

See Appendix C for approved Queensland-specific variants on national guidance for abbreviations for use on variable message signs.

7.4 Message content and format

Addition

Variable message sign statements

See Appendix D for approved Queensland-specific variants on national guidance for variable message signs problem statements.

See Appendix E for approved Queensland-specific variants on national guidance for generic messages.

7.6 Applications of VMS

7.6.9 Vehicle activated intersection and road geometry signs

Addition

Bicycle activated warning signs in Queensland

Refer to [Bicycle activated warning signs guideline](#). This guideline is issued as an approved notice under the *Transport Operations (Road Use Management) Act 1995*.

7.7 Electronic speed limit signs

Addition

Variable speed limit and lane control signs in Queensland

Refer to:

- [Permanent placement of variable speed limit and lane control signs for motorways, long bridges and tunnels guideline](#). This guideline is issued as an approved notice under the *Transport Operations (Road Use Management) Act 1995*.
- [Collocation of gantry-mounted variable speed limit signs with static and monochrome variable message signs guideline](#). This guideline is issued as an approved notice under the *Transport Operations (Road Use Management) Act 1995*.

7.8 Portable / temporary variable message signs

Addition

Use of temporary variable speed limit signs in construction and maintenance work areas on motorways

This content has been incorporated into the [Queensland Guide to Temporary Traffic Management](#) (QGTTM) released on 30 November 2020.

8 Pavement markings

8.3 Line marking materials

8.3.3 Barrier lines

Addition

Determination of centre line markings adjacent to property access

The purpose of this section is to provide information that assists in determining the appropriate centre line marking (a single continuous, unidirectional continuous dividing line or a double barrier line) to allow motorists from turning right either into or out of a property access, or to restrict such movement.

Determination of the line marking at the centreline adjacent to a property access is highly susceptible to having adequate sight distance. Adequate sight distance is referred as the capacity for the stationary vehicle to select a gap in oncoming traffic to make the right turn, and also to have sight distance for the vehicles in behind to either stop when they have identified the presence of the stationary vehicle or decelerate and pass to the left of the stationary vehicle.

Adequate sight distance is determined sufficient when standard requirements for Sight distance at property entrances and Stopping sight distance provided in the Austroads [Guide to Road Design](#) (AGRD) are satisfied.

Requirements to sight distance at property entrances are provided in Part 4A of the *Guide to Road Design*.

Requirements of stopping sight distance are provided in Part 3 of the *Guide to Road Design*.

A single continuous or unidirectional continuous dividing line may be installed when sufficient sight distance is present and is determined as adequate sight distance to allow right-turning manoeuvres either into or out of the property access. Where adequate sight distance is not met, a double barrier line may be used to restrict such movement.

Modification to the existing line marking is required when potential safety problems are identified using the methodology outlined in this document. The minimum length of double barrier line that should be marked is 40 m (that is, 20 m each side of the property access). Consideration should also be given to effects on other property accesses, which meet the assessment criteria and the presence of double barrier line marking in the near vicinity (it may be necessary to join new barrier lines with existing lines).

The property owner should be consulted, given that modification of property access line marking from unidirectional to double barrier lines will always result in the restriction of one existing legal movement (for example, marking a double barrier line to restrict right turns into a property access from a road retains the status quo of the right-turn movement into the property, but makes the existing legal right turn movement from the property illegal).

8.5 Other markings

8.5.9 Bicycle awareness zones in Queensland

Addition

Bicycle awareness zones in Queensland

Refer to [Bicycle awareness zones guideline](#). This guideline is issued as an approved notice under the *Transport Operations (Road Use Management) Act 1995*.

8.6 Use of coloured pavements

Addition

Coloured pavement treatments for bicycle lanes in Queensland

Refer to [Coloured pavement treatments for bicycle lanes guideline](#). This guideline is issued as an approved notice under the *Transport Operations (Road Use Management) Act 1995*.

9. Guide posts and delineators

Addition

Bicycle lane separation devices in Queensland

Refer to [Bicycle lane separation devices guideline](#). This guideline is issued as an approved notice under the *Transport Operations (Road Use Management) Act 1995*.

10. Traffic signals

10.5 Special uses

10.5.13 Left turn on red

Not accepted

As per the [Queensland Manual of Uniform Traffic Control Devices](#) Part 1 and Part 14, the following signs are not used in Queensland:

- R2-20 Left Turn on Red Permitted after Stopping.

Left Turn on Red is not permitted in Queensland.

12 Communication devices

12.3 Tactile Ground Surface Indicators

New

Tactile Ground Surface Indicators (TGSIs) provide cues, which, when combined with other environmental information, assist people who are blind or vision-impaired with their orientation. Guidance for the minimum design requirements of TGSIs and their required configuration is provided in AS/NZS 1428.4.1 *Design for access and mobility, Part 4.1: Means to assist the orientation of people with vision impairment - Tactile ground surface indicators*.

This section has been prepared to provide guidance on the selection of TGSIs and the characteristics of different types of TGSIs.

Transport and Main Roads maintains a [list of registered products used for TGSIs](#). The products listed on this register have been assessed and determined as being compliant to AS/NZS 1428.4.1 and other criteria as determined by Transport and Main Roads. This list does not, however, aid practitioners in the selection of the most appropriate product.

This section should be read in conjunction with the following documents:

- Australian Standard AS/NZS 1428.4.1, and
- Transport and Main Roads' compliant product register for TGSIs.

There are three main types of TGSIs, being:

- discrete – TGSIs that are individually installed which provide the same luminance for the sloping sides and upper surface of the truncated cone
- composite discrete – TGSIs that are individually installed and which provide a differing luminance for the sloping sides and upper surface of the truncated cone, and
- integrated – tactile ground surface indicators that are in a defined pattern and which are of the same luminance and material as the base surface.

AS/NZS 1428.4.1 does not stipulate a specific material from which TGSIs shall be constructed; as such, there is a wide variety of materials used in the production of TGSIs. Table 12.3 includes a broad description of some of the various materials used in the construction of TGSIs on Transport and Main Roads' compliant product register.

Table 12.3 – Tactile Ground Surface Indicators

Material	TGSI types	Recommended use
Ceramic	<ul style="list-style-type: none"> • Integrated 	<ul style="list-style-type: none"> • All areas • New works
Concrete	<ul style="list-style-type: none"> • Integrated 	<ul style="list-style-type: none"> • All areas • New works
Plastic	<ul style="list-style-type: none"> • Discrete • Integrated 	<ul style="list-style-type: none"> • Retrofit locations • Temporary traffic management sites • Indoor areas
Resin	<ul style="list-style-type: none"> • Integrated 	<ul style="list-style-type: none"> • Retrofit locations
Stainless steel	<ul style="list-style-type: none"> • Discrete • Composite • Integrated 	<ul style="list-style-type: none"> • Shared paths • Areas with high volume of wheeled devices • New works or retrofit locations

Observations of discrete plastic TGSIs indicate they only have four to five years' service life when placed in areas of high UV before they begin to break down. Restoring these TGSIs to compliance can be a significant maintenance burden on asset owners and can be overlooked in maintenance programs. As TGSIs in the road environment are usually placed on kerb ramps, when the discrete plastic TGSIs break down, the plastic particles generally end up being washed into the stormwater system. The treatment of stormwater prior to reaching a waterway varies greatly from site to site, resulting in degraded TGSIs plastic particles ending up in Queensland waterways and marine environment.

Due to the short service life and the high likelihood that degraded plastic from discrete TGSIs will end up in waterways, discrete plastic TGSIs shall not be used in an external location (outdoors exposed to solar UV rays) on projects with a design life of more than three years.

It is recommended that designers check the register to ensure that products are available in their selected material type.

Luminance contrast requirements are outlined in AS/NZS 1428.4.1. Luminance contrast measures the difference in reflected light between the two surfaces. Luminance contrast does not measure colour contrast. Colour contrast is a very important aspect in the selection of TGSIs. While yellow TGSIs may have less luminance contrast than other colours, yellow has been identified by users as having very good colour contrast. Luminance contrast requirements become more onerous for discrete and composite TGSIs, see AS/NZS 1428.4.1 for further information.

For TGSIs to be added to Transport and Main Roads' compliant product register for TGSIs, they need to meet P4 or P5 classification. Generally, P4 classification is satisfactory, unless the area is steeper than 1 in 14, in which case, the selected TGSIs shall be rated P5.

Kerb ramps are generally steeper than 1:14 (up to 1:8) so P5 should be specified. For kerb ramps designed and constructed with grades of 1:8.5–1:8, warning TGSIs are generally not required, see AS/NZS 1428.4.1 for more details. The slip resistance results for each compliant product is listed in the register.

AS/NZS 1428.4.1 requires that TGSIs shall be slip-resistant and, for TGSIs to be included on Transport and Main Roads compliant product register, they need to have passed two slip resistance tests, the wet pendulum test and the oil wet inclining platform test. These two tests are relevant to pedestrians wearing shoes with a full width sole. Only the top surface of the TGSIs truncated cone is

tested, slip resistance of the section between the tactile cones is not tested. As such, discrete TGSIs should be used on paths which will be used by people cycling or using other wheeled recreational devices with narrow wheels. Integrated tactiles may be acceptable if it can be demonstrated that the surface between the truncated cones provides equivalent skid resistance to the surrounding path surface.

To maintain luminance contrast in areas of heavy use, regular maintenance may be required. The luminance contrast can usually be restored by pressure washing the product or the concrete surrounding the product.

Discrete TGSIs can be difficult to maintain as they each need to be individually removed and replaced. As each TGIS is individually installed, they generally fail one at a time, meaning that it is difficult to select and measure an intervention level for maintenance intervention to maintain compliance. This can result in sites not been adequately maintained.

Appendices

Appendix C – Abbreviations for use on VMS

C.1 Recommended abbreviations to use with VMS

Addition

Abbreviations for use in Queensland on variable message signs

The following is a list of approved Queensland-specific variants to acceptable abbreviations for frequently used words. Abbreviations may be used on VMS messages but where possible should be avoided.

Table C.3 – Approved Queensland-specific variants: abbreviations

Word	Abbreviation
Emergency	EMERGENCY
Highway	HWY
Maintenance	MTCE
Motorway	MWY
Intersection	INTRSECT
Holidays	HOLS

Appendix D – VMS Message Statements

D.1 Recommended VMS Problem Statements

Addition

Approved Queensland-specific variants – problem statements

The following is a list of approved Queensland-specific variants to acceptable problem statements.

Table D.1(a) – Approved Queensland-specific variants: Problem statements

Problem Statement	
CONGESTION DUE TO CRASH (or INCIDENT)	LANE BLOCKED
DANGER	QUEUE
FLAGMAN	ROAD UNDER WATER
FOG	CONDITIONS
GRASS FIRE	WHEN WET
HEAVY TRAFFIC	SMOKE
HIGH CRASH ZONE	SMOKE HAZARD AHEAD
HIGH WIND	VEHICLE BROKEN / DOWN

D.2 Recommended VMS Location Statements

Addition

Approved Queensland-specific variants – location statements

The following is a list of approved Queensland-specific variants to acceptable location statements.

Table D.2(a) – Approved Queensland-specific variants: Location statements

Location definers	Position definers
EXIT RAMP	AFTER
'name' TUNNEL	RIGHT
ON-RAMP	LEFT
OFF-RAMP	CENTRE
T2 LANE	
T3 LANE	
TRANSIT LANE	
'street name' TO 'street name'	

D.3 Recommended VMS Effect Statements

Addition

Approved Queensland-specific variants – effect statements

The following is a list of approved Queensland-specific variants to acceptable effect statements.

Table D.3(a) – Approved Queensland-specific variants: Effect statements

POLICE AHEAD
POLICE CONTROL AHEAD
QFRS AHEAD
QUEUE
SPEED CAMERA AHEAD
SPEED CAMERA NOW ACTIVE
TRAFFIC CONTROL AHEAD

D.4 Recommended VMS Attention Statements

Addition

Approved Queensland-specific variants – attention statements

The attention statement ‘ALL TRAFFIC’ should only be used where drivers may reasonably expect the message to apply only to a particular group of motorists.

The flashing attention statement CHILD ABDUCTION ALERT TUNE TO LOCAL RADIO can only be used when QPS issue an amber alert direct to TMCs.

Table D.4(a) – Approved Queensland-specific variants: Attention statements

VISITORS	T3 VEHICLES
T2 VEHICLES	TRANSIT VEHICLES

D.5 Recommended VMS Action Statements

Addition

Approved Queensland-specific variants – action statements

The following is a list of approved Queensland-specific variants to acceptable action statements.

Table D.5(a) – Approved Queensland-specific variants: Action statements

CRASH AHEAD / DIVERSION IN PLACE	REDUCE SPEED NOW
CRASH AHEAD / REDUCE SPEED	WATCH FOR TRUCKS
SPEED LIMIT REDUCED	

Appendix E – Generic message set

Addition

Approved Queensland-specific variants – generic messages

The following is a list of approved Queensland-specific variants to acceptable generic messages.

Table E(a) – Approved Queensland-specific variants: Generic messages

	Screen 1			Screen 2		
	Line 1	Line 2	Line 3	Line 1	Line 2	Line 3
1	CRASH	EXPECT DELAYS				
2	CRASH	PROCEED	WITH CAUTION			
3	CRASH	DETOUR AHEAD				
4	CRASH	PREPARE TO STOP				
5	CRASH	MAJOR DELAYS		FIND	ALTERNATE ROUTE	
6	CRASH	MAJOR DELAYS		PROCEED	WITH CAUTION	
7	CRASH	MINOR DELAYS		PROCEED	WITH CAUTION	

Commentaries

Commentary 1

C1.4 Department of Transport and Main Roads Queensland (TMR)

Difference

Design guide for roadside signs

Transport and Main Roads updated its [*Design guide for roadside signs*](#) in 2018.

