

Queensland Manual of Uniform Traffic Control Devices

Part 7: Railway crossings

March 2023

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About this document

The use of signs, markings and other devices at railway level crossings, based on uniform standards and practices, is essential in the interests of safety for both rail traffic and road users.

This Part of the Queensland *Manual of Uniform Traffic Control Devices* sets out the various controls used at railway, cane railway and combined railway / cane railway level crossings and describes the devices and assemblies, their use and location to achieve these controls.

How to use this document

This document is designed to be read and applied together with AS 1742.7-2016 *Manual of Uniform Traffic Control Devices Part 7* (AS 1742.7-2016 / Amdt 1 2019). You must have access to the Australian Standard to understand what applies in Queensland.

This document:

- sets out how AS 1742.7-2016 / Amdt 1-2019 applies in Queensland
- has precedence over AS 1742.7-2016 / Amdt 1-2019 when applied in Queensland
- has the same section and clause numbering and headings as AS 1742.7-2016 / Amdt 1-2019.

The following table summarises the relationship between AS 1742.7-2016 / Amdt 1-2019 and this document:

Applicability	Meaning
Accepted	The Australian Standard section or clause is accepted.
Accepted, with amendments	Part or all of the section or clause has been accepted with additions, deletions or differences.
New	There is no equivalent section or clause in the Australian Standard.
Not accepted	The Australian Standard section or clause is not accepted.

Definitions

The following general amended definitions apply when reading AS 1742.7-2016 / Amdt 1-2019.

Reference to...	Means
AS 1742.7-2016	AS 1742.7-2016 / Amdt 1-2019, as amended by this document For example, a reference to AS 1742.7-2016 / Amdt 1-2019 means you must refer to the Australian Standard Part 7, and Part 7 of the Queensland <i>Manual of Uniform Traffic Control Devices</i> (Queensland MUTCD). Throughout AS 1742.7-2016 / Amdt 1-2019, references are made to other parts of the Australian Standards (for example, when reading Part 7 you may be referred to Part 3 for further information.) In this case, you must refer to the equivalent Part within the Queensland MUTCD first. Check the applicability of the equivalent Part in the Queensland MUTCD before referring to the referenced Australian Standard Part.
ALCAM	Australian Level Crossing Assessment Model

Relationship table

Section	Clause	Description	Applicability
	Preface		Accepted
	Foreword		Accepted with amendments
1	Scope and general		
	1.1	Scope	Accepted
	1.2	Objective	Accepted
	1.3	Application	Accepted
	1.4	Referenced documents	Accepted
	1.5	Definitions	
	1.5.1	<i>Active control</i>	Accepted
	1.5.2	<i>Downstream</i>	Accepted
	1.5.3	<i>Light rail vehicle / tram (light rail network / tramway)</i>	Accepted
	1.5.4	<i>May</i>	Accepted with amendments
	1.5.5	<i>Passive control</i>	Accepted
	1.5.6	<i>Pedestrians</i>	Accepted
	1.5.7	<i>Railway</i>	Accepted
	1.5.8	<i>Railway crossing</i>	Accepted
	1.5.9	<i>Shall</i>	Accepted with amendments
	1.5.10	<i>Should</i>	Accepted with amendments
	1.5.11	<i>Traffic control device</i>	Accepted
	1.5.12	<i>Upstream</i>	Accepted
	1.5.13	<i>85th percentile speed (V_{v85} km/h) (operating speed)</i>	Accepted
	1.5.14	<i>Registered Professional Engineer of Queensland (RPEQ)</i>	New
1.5.15	<i>Innovative treatment</i>	New	
1.6	Cooperation between road authorities and rail infrastructure managers	Accepted	
1.7	Restricted access road vehicles	Accepted	
1.8	Variation to treatments and Registered Professional Engineer of Queensland certification	New	
2	Signs, devices and assemblies – description and use		
	2.1	General	Accepted with amendments
	2.2	Passive control devices	
	2.2.1	<i>Railway crossing give-way assembly (RX-1)</i>	Accepted
	2.2.2	<i>Railway crossing stop assembly (RX-2)</i>	Accepted

Section	Clause	Description	Applicability
	2.2.3	<i>Railway crossing ahead – Passive control (W7-7, RX-10)</i>	Accepted
	2.2.4	<i>Railway crossing diagrammatic warning assemblies (RX-2-1, RX-3-2 and RX-3-3)</i>	Accepted
	2.2.5	<i>Railway crossing on side road assembly (RX-4)</i>	Accepted
	2.2.6	<i>Diagrammatic warning signs, on side road (W7-12, W7-13, W7-17)</i>	Accepted with amendments
	2.2.7	<i>Stop sign ahead (W3-1)</i>	Accepted
	2.3	Active control devices	
	2.3.1	<i>Railway crossing flashing signal assembly (RX-5)</i>	Accepted with amendments
	2.3.2	<i>Railway crossing gate position sign assembly (RX-6)</i>	Accepted
	2.3.3	<i>Railway crossing flashing signals ahead sign (W7-4)</i>	Accepted
	2.3.4	<i>Railway gate (W7-15)</i>	Accepted
	2.3.5	<i>Railway crossing flashing signals ahead on side road assembly (RX-7)</i>	Accepted
	2.3.6	<i>Railway crossing gate on side road assembly (RX-8)</i>	Accepted
	2.3.7	<i>Active advance warning assembly (RX-11)</i>	Accepted with amendments
	2.3.8	<i>Boom barrier</i>	
	2.3.8.1	General description and placement	Accepted
	2.3.8.2	Design	Accepted
	2.3.8.3	Preventing misuse	Accepted
	2.3.9	<i>Traffic signals at light rail / tramway crossings</i>	Accepted
	2.4	Devices used at either active or passive control crossings	
	2.4.1	<i>(Distance) m (W8-5)</i>	Accepted
	2.4.2	<i>Railway crossing width marker assembly (RX-9)</i>	Accepted
	2.4.3	<i>Chevron alignment marker (D4-6)</i>	Accepted
	2.4.4	<i>KEEP TRACKS CLEAR (G9-67-1, G9-67-2)</i>	Accepted
	2.4.5	<i>TRAMWAY CROSSING position (R6-26)</i>	Accepted
	2.4.6	<i>RAILWAY CROSSING NOT IN USE (G9-74)</i>	Accepted
3	Pavement markings		
	3.1	General	Accepted
	3.2	Railway crossing pavement marking (Rail X)	Accepted
	3.3	Stop line	Accepted

Section	Clause	Description	Applicability
	3.4	Give-way line	Accepted
	3.5	No-overtaking lines	Accepted
	3.6	Yellow box markings	Accepted
4	Application of signs and markings to railway crossings		
	4.1	General	Accepted
	4.2	Passive control treatments	
	4.2.1	<i>Control by give-way and stop signs</i>	Accepted
	4.2.2	<i>Minimum treatment crossings</i>	Accepted
	4.2.3	<i>Inadequate sight distance for passive control</i>	Accepted
	4.3	Active control treatments	
	4.3.1	<i>Flashing signals</i>	Accepted
	4.3.2	<i>Railway crossing gates</i>	Accepted
	4.4	Modified treatments	
	4.4.1	<i>Railway crossing on side road</i>	Accepted
	4.4.2	<i>Crossings in low speed urban environments</i>	Accepted
	4.4.3	<i>Ports and terminals</i>	Accepted
	4.5	Temporary and emergency control	Accepted
	4.6	Railway line not in use	Accepted
	4.7	Railway line closed	Accepted
	4.8	Stop signs at combined road / rail crossings	New
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	5.1	Identifying the problem	Accepted
	5.2	Eliminating the problem	Accepted
	5.3	Managing the problem	Accepted
	5.4	Short stacking	Accepted with amendments
6	Pedestrian and bicycle treatments at railway crossings		
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	6.2	Hierarchy of control	Accepted
	6.3	Crossing elements – design and performance requirements	
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	6.3.2	<i>Provision and alignment of footpaths</i>	Accepted
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	6.3.4	<i>Pedestrian enclosures – functional requirements</i>	Accepted
	6.3.5	<i>Pedestrian enclosures – design elements</i>	Accepted
	6.4	Pedestrian holding markings	Accepted

Section	Clause	Description	Applicability
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	6.5.2	<i>Do not cross while lights are displayed or alarm sounding, (number) tracks (W7-14-6)</i>	Accepted
	6.5.3	<i>Red symbolic standing pedestrian signal assembly (RX-12)</i>	Accepted
	6.5.4	<i>Cyclists dismount (G9-58)</i>	Accepted with amendments
	6.5.5	<i>Audible signals</i>	Accepted
	6.5.6	<i>Emergency escape gate signs</i>	Accepted
	6.6	Facilities for bicycles	Accepted
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	7.2.2	<i>End cane railway crossings (G9-32-Q02)</i>	New
	7.2.3	<i>Cane railway flashing signals</i>	New
	7.2.4	<i>Cane railway level crossing pavement marking (barrier lines and RAIL X)</i>	New
	7.2.5	<i>Combined railway and cane railway crossings</i>	New
	7.2.6	<i>Cane railway crossings near intersections</i>	New
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	A2	<i>General</i>	Accepted
	A3	<i>Means of illumination</i>	Accepted
	A4	<i>Means of reflectorization</i>	Accepted
	A5	<i>Special requirements for signs at crossings</i>	Accepted
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	B2	<i>Uniformity of location</i>	
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	B2.2	Longitudinal placement	Accepted

Section	Clause	Description	Applicability
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	<i>B2.3.2</i>	<i>Lateral placement – rural</i>	Accepted
	<i>B2.3.3</i>	<i>Lateral placement – urban</i>	Accepted
	<i>B2.3.4</i>	<i>Height – rural</i>	Accepted
	<i>B2.3.5</i>	<i>Height – urban</i>	Accepted
	<i>B2.3.6</i>	<i>Overhead mounting</i>	Accepted
	<i>B2.3.7</i>	<i>Signs at pedestrian facilities</i>	Accepted
	B2.4	Tolerances on positioning	Accepted
	B3	Installation	Accepted
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	C1	Scope	Accepted
	C2	Size of signs	Accepted
	C3	General principles for size selection	Accepted
D	Sight distance provision at railway crossings		
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	D2	Control device visibility requirement – all crossing types	Accepted
	D3	Stopping and safe start-up at a passive control crossing	Accepted
	D4	Passive control crossings controlled by give way signs – approach visibility	Accepted
	D5	Sighting angles	Accepted
	D6	Vehicle deceleration factors	Accepted
E	Active advance warning assembly – guides for use, installation and operation (informative)		
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	E2	Guides for use	Accepted
	E3	Location and operational timing	Accepted
	<i>E3.1</i>	<i>General</i>	Accepted
	<i>E3.2</i>	<i>Sight distance to stopped queues</i>	Accepted
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Foreword

Addition

Guidance on when a crossing should progress from one hierarchical step in the type of control to the next can be found in risk assessment models such as ALCAM (Australian Level Crossing Assessment Model).

1 Scope and general

1.5 Definitions

1.5.4 May

Addition

Indicates the existence of an option. Where the word 'may' is used, it indicates that use of the device is conditional, or optional. Usually, no specific requirement for design or application is intended.

1.5.9 Shall

Addition

Indicates that a statement is mandatory. Where certain requirements in the design or application of the device are described with the 'shall' stipulation, it is mandatory that, when an installation is made, these requirements be met.

1.5.10 Should

Addition

Indicates a recommendation. Where the word 'should' is used, it is considered to be recommended usage, but not mandatory. Any recommendation that is not applied must be based on sound traffic engineering judgement and documented.

1.5.14 Registered Professional Engineer of Queensland (RPEQ)

New

A person who is registered as a Registered Professional Engineer of Queensland (RPEQ), under the *Professional Engineers Act 2002* (Qld) with the [Board of Professional Engineers of Queensland](#).

1.5.15 Innovative treatments

New

Innovative treatments that provide improved safety, efficiency, and/or value-for-money outcomes are encouraged. Such treatments may include:

- a) innovative use of current devices
- b) alternative device layouts using existing and/or improved devices, and/or
- c) new devices or practices.

New or improved devices, treatments, or practices require approval by the Department of Transport and Main Roads (see Clause 1.8 for guidance about variations to optimal treatments) prior to their use or adoption.

For trials of new or innovative traffic control devices, treatments, or practices, a submission in accordance with the requirements of the Queensland *Manual of Uniform Traffic Control Devices* (MUTCD) Part 1 Clause 1.13 shall be submitted to TrafficEngineering.Support@tmr.qld.gov.au.

1.8 Variation to treatments and Registered Professional Engineer of Queensland certification

New

This Part of the *Manual* contains mandatory requirements (*shall*), recommendations (*should*) and options (*may*). The application of these mandatory requirements and recommendations is intended to provide the optimal level of safety and traffic efficiency. It is acknowledged that, in some instances, variations to these requirements and recommendations may be necessary and, as such, variations to these requirements and recommendations may be undertaken as follows:

- a) Where recommendations (*should*) are not adopted, a risk assessment shall be undertaken and certified by a Registered Professional Engineer of Queensland (RPEQ).
- b) Where mandatory requirements (*shall*) are not adopted, a risk assessment shall be undertaken and certified by an RPEQ.

Notifications of variations to mandatory requirements (including all relevant information) shall be emailed to TrafficEngineering.Support@tmr.qld.gov.au for information purposes and for the benefit of identifying potential future practice changes – not for approval or endorsement. These variations may include learnings that may be attributed to the variation of a *shall* requirement, such as operational, cost or safety impacts.

- c) Where innovative treatments (see Clause 1.5.15) that are outside the scope of the Queensland MUTCD are proposed to be adopted, a risk assessment shall be undertaken and certified by an RPEQ.
- d) All proposed innovative treatments require approval by Transport and Main Roads prior to their use or adoption. Requests for approval of innovative treatments (including all relevant information) shall be emailed to TrafficEngineering.Support@tmr.qld.gov.au. As part of an approval to use or trial an innovative treatment, Transport and Main Roads may require that the applicant provides a detailed evaluation report on the performance and effectiveness of the treatment. Transport and Main Roads may use the results of the evaluation to identify potential future practice changes to this Part of the *Manual*.
- e) The use of options (*may*) is not a variation to the optimal treatment and does not require certification by an RPEQ.

2 Signs, devices and assemblies – description and use

2.1 General

Addition

The following assemblies may be used in Queensland:

Assembly	Assembly designation	Signs incorporated	Reference Clause
Active Trackside Road Sign	RX-5-Q01	Active state: R6-25, W7-2-2, R6-9 Fail to safe state: R6-25, W7-2-2, R1-1, G9-48	2.3.1
Active Early Warning Sign	RX-11-Q01	Active state: W7-4, W8-27 Fail to safe state: W3-1, W8-27	2.3.7

The following signs may be used in Queensland:

Sign	Sign number	Size, mm
CANE RAILWAY CROSSINGS NEXT ... km	G9-32-Q01	1800 x 750
END CANE RAILWAY CROSSINGS	G9-32-Q02	1800 x 750
GIVE WAY – CANE TRAMS ONLY	R1-2-Q01A R1-2-Q01B R1-2-Q01C	1000 x 1200 1300 x 1600 1600 x 2000
Railway Level Crossing Warning Sign	W7-13-Q01_1 W7-13-Q01_2 W7-13-Q01_3 W7-13-Q01_4 W7-13-Q01_5 W7-13-Q01_6 W7-13-Q01_7	A-600 x 600 B-750 x 750 C-900 x 900
Railway Level Crossing Warning Sign – Short Stacking	W7-Q01_1 W7-Q01_2 W7-Q01_3 W7-Q01_4 W7-Q01_5 W7-Q01_6 W7-Q01_7	1200 x 900 1200 x 1100 1200 x 1200 1200 x 1400 1200 x 1500 1200 x 1400 1200 x 1400
Railway Level Crossing Warning Sign – When Lights Flashing - No Right Turn - Keep Tracks Clear	W7-Q02_1 W7-Q02_2	1800 x 2600
Railway Level Crossing Warning Sign – Limited Clearance to Rails	W7-Q03	2900 x 2100
CANE RAILWAY	W8-Q01A W8-Q01B W8-Q01C	600 x 400 750 x 500 900 x 600

2.2 *Passive control devices*

2.2.6 Diagrammatic warning signs, on side road (W7-12, W7-13, W7-17)

Addition

The following signs may be used in Queensland to warn of railway crossings.



W7-13-Q01_1



W7-13-Q01_2



W7-13-Q01_3



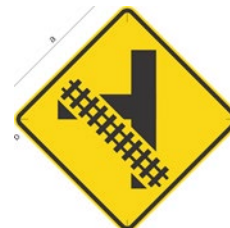
W7-13-Q01_4



W7-13-Q01_5



W7-13-Q01_6



W7-13-Q01_7

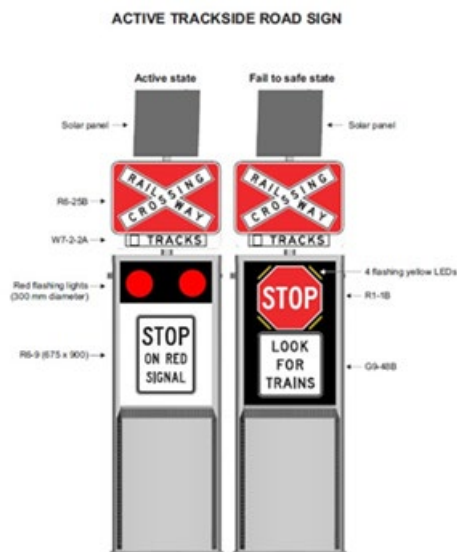
2.3 *Active control devices*

2.3.1 Railway crossing flashing signal assembly (RX-5)

Difference

The RX-5-Q01 assembly may be used at crossings that require flashing signal control instead of the RX-5 assembly.

Attention is drawn to the need for meaningful cooperation on maintenance and safety issues at railway crossings between the relevant road authorities (also known as road managers) and rail infrastructure managers (for example, via level crossing interface agreements where they exist, as per Rail Safety National Law). The safety of railway users is heavily dependent among other things, on the successful control and guidance of road users approaching a crossing. Equally, the safety of road users is dependent on their ability to detect the approach of a train. Although the responsibility for provision and maintenance of various traffic control devices may be split between multiple parties, there needs to be coordination of risk assessment, maintenance and safety audit activities. Any changes in infrastructure or operation contemplated by one party that may increase the risk should be done in consultation with the other.

Figure 2.3.1 –Active trackside road sign (RX-5-Q01)

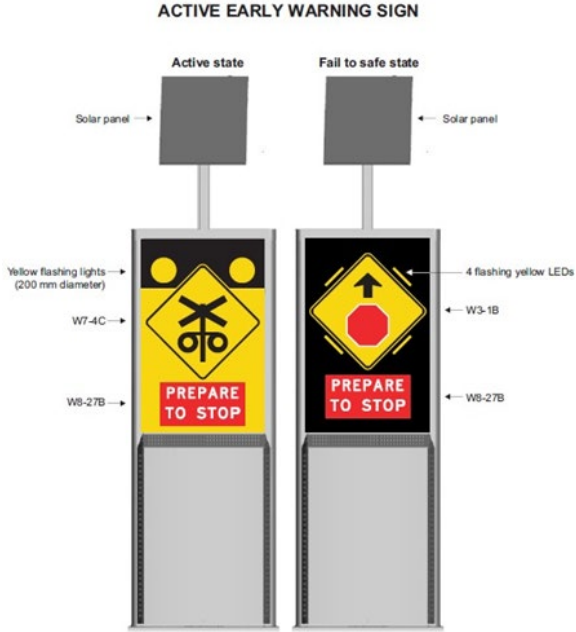
2.3.7 Active advance warning assembly (RX-11)

Difference

The RX-11-Q01 assembly may be used at crossings that require active advance warning assemblies instead of the RX-11 assembly.

Attention is drawn to the need for meaningful cooperation on maintenance and safety issues at railway crossings between the relevant road authorities (also known as road managers) and rail infrastructure managers (for example, via level crossing interface agreements where they exist, as per Rail Safety National Law). The safety of railway users is heavily dependent, among other things, on the successful control and guidance of road users approaching a crossing. Equally, the safety of road users is dependent on their ability to detect the approach of a train. Although the responsibility for provision and maintenance of various traffic control devices may be split between multiple parties, there needs to be coordination of risk assessment, maintenance and safety audit activities. Any changes in infrastructure or operation contemplated by one party that may increase the risk should be done in consultation with the other.

Figure 2.3.7 –Active early warning sign (RX-11-Q01)



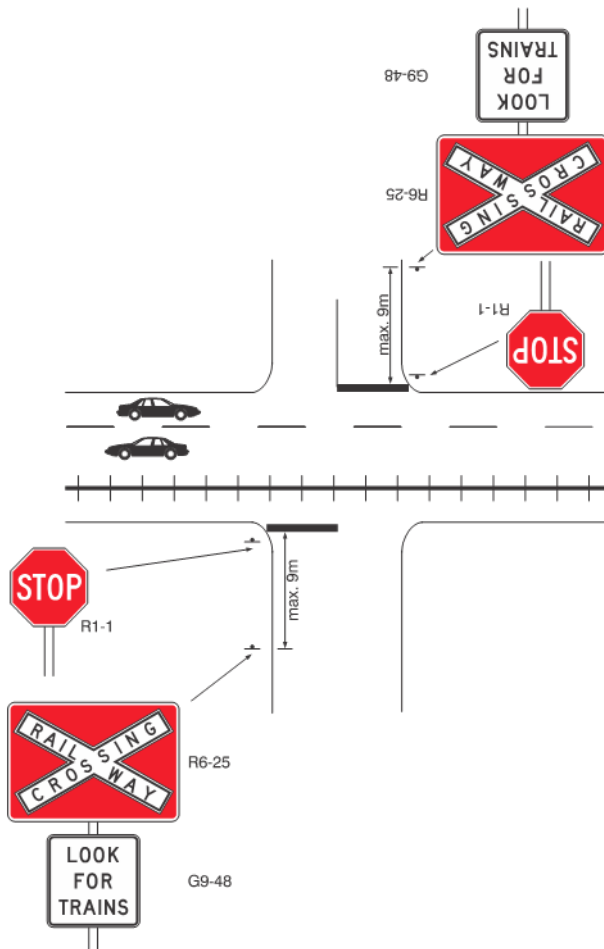
4 Application of signs and markings to railway crossings

4.8 Stop signs at combined road / rail crossings

New

A combined road / rail crossing is where a road crosses another road and a railway line. If stop control is justified as a result of inadequate sight distance, signs shall be provided in accordance with Figure 4.8. This particular arrangement is required to convey the message that motorists approaching the intersection shall give way to both trains and motor vehicles crossing the intersection.

Figure 4.8 – Stop signs at combined road / rail crossings



5 Avoidance of traffic queueing on crossings

5.4 Short stacking

Addition

The following signs may be used at intersections at which there has been a history of problems relating to stacking distance or as risk mitigation where limited storage length exists.



W7-Q01_1



W7-Q01_2



W7-Q01_3



W7-Q01_4



W7-Q01_5



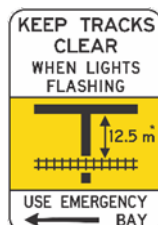
W7-Q01_6



W7-Q01_7



W7-Q02_1



W7-Q02_2



W7-Q03

6 Pedestrian and bicycle treatments at railway crossings

6.5 Signs and signals

6.5.4 Cyclists dismount (G9-58)

Difference

This sign may be used at crossings that are primarily used by pedestrians but may be used by cyclists. If used, it shall be located at the entry to each enclosure on the non-track approach.

Note: This sign is intended to emphasize to cyclists that it would be safer for both pedestrians and cyclists if they were to dismount and not ride across the crossing.

7 Cane railway crossings

7.1 General

New

Cane railway crossings used in sugar growing areas are treated in a similar manner to railway level crossings.

7.2 Signs and devices

New

The signs, pavement markings and devices used in conjunction with cane railway crossings are those used for railway level crossings except for the following signs and devices.

7.2.1 CANE RAILWAY CROSSINGS NEXT ... km (G9-32-Q01)

New

The CANE RAILWAY CROSSINGS NEXT ... km (G9-32-Q01) sign is used to advise drivers of the presence of multiple cane railway crossings along a given length of road.

Three or more cane railway crossings may constitute a group, provided that the distance between any two successive crossings in the group is not more than five kilometres.



G9-32-Q01

7.2.2 END CANE RAILWAY CROSSINGS (G9-32-Q02)

New

The END CANE RAILWAY CROSSINGS (G9-32-Q02) sign shall be erected to face departing traffic at the termination of a group of cane railway crossings.

The sign is only to be used in conjunction with the CANE RAILWAY CROSSINGS NEXT ... km (G9-32-Q01) sign.



G9-32-Q02

7.2.3 Cane railway flashing signals

New

Flashing red signals at a cane railway crossing shall consist of twin red aspects arranged horizontally. These signals are used in lieu of railway level crossing flashing signals, at cane railway crossings. A white T-signal aspect may be displayed to drivers of cane trains where cane railway flashing signals are used (see AS 1742.14).

7.2.4 Cane railway level crossing pavement marking (barrier lines and RAIL X)

New

On undivided two-way roads, which have separation line markings, barrier lines shall be provided on the approaches to, and, where necessary, across passive control cane railway level crossings. The need for barrier lines at active control crossings should be determined in accordance with the requirements of Part 2 of this *Manual*, excepting that they shall be provided where the flashing signals are not readily visible by overtaking motorists.

As cane railway crossings are used on a seasonal basis, pavement messages are not normally installed in advance of these crossings unless treating an existing safety issue.

The CANE RAILWAY (W8-Q01) supplementary plate should be used in conjunction with the W7-7 sign.



W8-Q01

7.2.5 Combined railway and cane railway crossings

New

Combined crossings are where a railway level crossing and a cane railway level crossing are adjacent to each other.

The signs and devices used at combined crossings are those used for railway level crossings.

7.2.6 Cane railway crossings near intersections

New

GIVE WAY – CANE TRAMS ONLY (R1-2-Q01) may be used at cane railway crossings near intersections where the railway crossing approach would normally have priority.

Example usage is shown in Figure 7.2.6.



R1-2-Q01

Figure 7.2.6 – Cane railway crossing on major leg near minor intersection

