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Main Roads Supplement to the Austroads Guide to Traffic Management

Part 10: Transport Control – Types of Devices

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1	April 2024	<p>Clause 10.2.1 reference and link provided to Vehicular Signals Guideline.</p> <p>Clause 10.3.6 – Signal face layout & Pedestrian countdown timers – Information removed & reference and link provided to Vehicular Signals Guideline.</p> <p>Clause 10.4.3 – Overhead signal warrants – Information removed & reference and link provided to Vehicular Signals Guideline.</p> <p>Clause 10.4.10 – Information removed & reference and link provided to Vehicular Signals Guideline.</p> <p>Clause 10.8.2 – Signs to control turning movements – Information removed & reference and link provided to Vehicular Signals Guideline.</p>	<p>Page 10</p> <p>Page 10</p> <p>Page 11</p> <p>Page 12</p> <p>Page 13</p>

PURPOSE

The purpose of this document is to detail Main Roads' approach to traffic control and communication devices so that they are designed and applied consistently and appropriately throughout Western Australia.

This Supplement has been developed to be read in conjunction with the Austroads Guide to Traffic Management (AGTM) Part 10: Transport Control – Types of Devices (2020), a copy of which can be obtained via the [Austroads](#) website.

In Western Australia, Main Roads' policies, guidelines and standards take precedence over Austroads Guides and Standards Australia Standards. National Guides and Standards take precedence over International Guides and Standards, unless specifically stated otherwise.

This Supplement has the same structure as the equivalent Austroads Guide and only additional requirements, clarifications, or practices different from Austroads appear. Where appropriate, this Supplement may also contain additional sections and figures not covered by Austroads, but the numbering sequence found in the Austroads Guide remains. Figures and tables in this Supplement replace those with the same figure or table number in the equivalent Austroads Guide.

Where a reference has been made to a particular Main Roads WA document or drawing within this supplement, the reference provided can be used in the search facility on the Main Roads WA website to locate the current version.

1 INTRODUCTION

Main Roads has no supplementary comments for this section.

2 TRAFFIC CONTROL AND COMMUNICATION DEVICES AND THE SAFE SYSTEM

Main Roads has no supplementary comments for this section.

3 STANDARDS AND ROAD RULES RELATING TO TRANSPORT CONTROL DEVICES

3.1 Australian / New Zealand Standards

Main Roads WA [Signs Index](#) provides a supplement to those signs contained in AS1742 - Manual of Uniform Traffic Control devices: Parts 1 to 15 (excluding Part 8). As a general rule, these Main Roads signs take precedence over similar Australian Standard signs and in addition should only be used where there is no suitable sign contained in AS 1742 for the particular circumstances to be signed, or where Main Roads practice differs from that contained in AS 1742.

3.2 Road Rules and Traffic Control Devices

In Western Australia, the applicable version of the Australian Road Rules is the Road Traffic Code 2000, which is part of the Road Traffic Act 1974.

4 PRINCIPLES AND APPLICATION

Main Roads has no supplementary comments for this section.

5 SIGNING AND MARKING SCHEMES

5.5 Route Plans for Direction Signs

The Main Roads WA "[Guideline for Direction Signs in the Perth Metropolitan Area](#)" provides supplementary information to AS 1742.15 by providing more detailed information on the types of direction signs and the selection of routes and destination names that are used by Main Roads in the Perth metropolitan area.

5.6 Route Planning and Directional Wayfinding Signage for Bicyclists

The Department of Transport is developing a suite of guidelines to assist practitioners to plan and design for bike riding in Western Australia. The [Department of Transport cycling page](#) should be referenced to access current guidance for the development of cycling infrastructure/facilities.

Bicycle directional signs will be provided along routes that have been identified in the Perth Bicycle Network Plan as Principal Shared Paths (PSP). Main Roads WA "[Bicycle Directional Signs](#)" policy and guideline, specifically Part B: Application and Approval Guideline, specify a series of principles on which the design and provision of bicycle directional signs are to be based.

Main Roads WA "[Bicycle Directional Signs](#)" policy and guideline, specifically Part C: Technical Guideline - Bicycle Directional Signs, details the type of information required on the sign face of bicycle directional signs and provides details of the sign face layout in order to accommodate all the information.

5.10 Signs and Markings for Local Area Traffic Management

Refer to the document Main Roads Supplement to the Austroads Guide to Traffic Management Part 8: Local Street Management for details on signs and pavement markings requirements for local area traffic management devices in WA.

5.11 Signs and Markings for Roadworks and Temporary Situations

Main Roads have developed the document "[Traffic Management for Works on Roads Code of Practice](#)" (herein after referred to as the 'Code'), which describes Main Roads requirements for managing traffic at work sites on roads, and the Austroads Guide to Temporary Traffic Management,.

6 TRAFFIC SIGNS

6.1 Development of New Signs

In terms of the Main Roads Delegation of Authority, the design of a traffic sign not currently listed in AS1742 or the Main Roads Signs Index shall be approved by the Manager Road and Traffic Engineering. In the first instance, the development of a new sign should be discussed with the Traffic Engineering Standards Manager in the Road & Traffic Engineering Branch.

6.3 Design of Sign Faces

The Main Roads WA "[Guideline for Direction Signs in the Perth Metropolitan Area](#)" and "[Directional Signs – Sign Face Layout Design Guidelines](#)", provides supplementary information to AS 1742.15 and Sections 5 to 8 of AS 1743 provide detailed design information that is applicable to direction signs in the West Australian context.

6.4 Sign Materials and Illumination

6.4.1 Retroreflective Materials

Main Roads WA Guideline “[Sign Standards](#)” describes standards for the colour and retro reflectivity materials to be used on the face of the sign, the size of the sign to be selected, and requirements with regards to the use of graffiti protection on sign faces.

6.5 Location and Placement of Signs

6.5.1 Lateral Placement and Height

Main Roads WA drawing [9548-0106](#) provides location details for one post signs.

Main Roads WA drawing [8720-0762](#) provides location details for two and three post signs.

Main Roads WA drawing [9648-0176](#) provides fixing and installation details for single hazard markers.

7 ELECTRONIC SIGNS

7.1 Variable Message Signs

VMS are a primary means of communication between the Main Roads Traffic Operation Centre (TOC) and the driver. They provide an effective tool to manage traffic in response to incident management, special events and construction and maintenance activities. Main Roads WA “[Guidelines for Variable Message Signs](#)” provides guidelines for the design and use of variable message signs for traveller information for safe and efficient travel for road users.

7.7 Electronic Speed Limit Signs

Main Roads WA “[Speed Zoning Policy and Application Guidelines](#)” provides guidance on the use of electronic speed limit signs in Western Australia.

7.7.1 Motorways

For Variable Speed Limit signs used on freeways, refer to the Main Roads WA “[Smart Freeways Supplement to Victoria’s Managed Freeways Handbook for Lane Use Management and Variable Speed Limits](#)”.

8 PAVEMENT MARKINGS

Main Roads has developed numerous pavement marking drawings, which are available on the website under the [Standard Contract Drawing](#) or [Guideline Drawings](#) categories.

8.2 Colour and Reflectorisation

8.2.1 Colour

Main Roads’ pavement markings on roads use predominantly white or yellow road marking materials, including the application of surface applied glass beads to provide retro reflectivity. Generally, the following are the permissible colours for pavement markings in Western Australia:

White Markings

White markings are used generally for all longitudinal lines, transverse lines and other markings (e.g. numerals, letters, arrows, chevrons etc.).

Yellow Markings

Yellow markings are used in the following applications:

- Longitudinal bus lanes.
- Bus embayments and on road bus stops - a broken yellow line is used to mark a bus zone (bus pick up and set down area).
- Railway level crossings – yellow cross hatch markings.
- 40 km/h school zone speed patches consisting of a yellow rectangular background with black numerals.
- “Keep Clear” diagonal markings on shared paths (red or black asphalt) to demark crossovers.
- Signalised intersection “Box Junction” markings.
- Taxi stands and Loading Zones.
- Indication of no stopping areas on local roads.

Green Markings

Green markings and coloured surfacing are used in the following applications:

- Advance stop line markings for bicycles, or head start markings (strictly speaking these are “coloured surfaces” rather than coloured pavement markings and are not reflectorized).
- On cycle lanes adjacent to left turn pockets on high speed and high volume roads.
- On concrete shared paths that would normally have white or yellow lines, but would not be easily visible if these colours were used.

Red Markings

Red markings are used in the following applications:

- All bus lanes (Strictly speaking these are “coloured surfaces” rather than coloured pavement markings and are not reflectorized).
- Corner treatments on heavy vehicle combination routes, or heavy vehicle aprons.

Blue Markings

Blue markings are used in the following application:

- To demarcate parking areas reserved for people with disabilities.
- To provide an entry statement to safe active streets.

8.3 Linemarking Materials

8.3.1 Types of Longitudinal Lines

Main Roads WA drawing [9931-0198](#) provides details for line types used in Western Australia, refer to Main Roads WA website.

Main Roads WA provides details for the use of audio-tactile centre line marking (ATCL), drawing numbers [202031-0100 to 202031-0108](#) and [202131-0001 to 202131-0006](#) for details, refer to Main Roads WA website.

Refer to Section 11.1.2 for the use of barrier lines and dividing lines in Wide Centre Line Treatments (WCLT).

8.3.3 Barrier Lines

Main Roads has developed a Guideline "[Barrier Line Marking Assessment](#)" to assist with line marking design.

8.3.7 Edge Lines

Audio-tactile line marking

Main Roads WA drawing [201131-0039](#) provides details for an edge line with white audio-tactile ribs where the sealed shoulder is less than 1.0m wide.

Main Roads WA drawing [201131-0040](#) provides details for an edge line with white audio-tactile ribs where the sealed shoulder is greater than or equal to 1.0m wide.

8.5 Other Markings

Bicycle pavement symbols shall be installed in accordance with the Main Roads WA [Policy for the Installation of Bicycle Pavement Symbols on Carriageways](#).

8.5.5 Messages on Pavements

The Main Roads "[Policy and Guidelines for KEEP CLEAR Pavement Marking](#)" indicates that Main Roads will install and maintain KEEP CLEAR pavement marking where traffic blocking intersections significantly impedes traffic flow and safety along distributor routes.

8.7 Raised Pavement Markers

Main Roads WA drawing [201031-0026](#) provides details of types and spacing to be used for various Retroreflective Raised Pavement Marker applications in urban areas.

Main Roads WA drawing [201031-0027](#) provides details of types and spacing to be used for various Retroreflective Raised Pavement Marker applications in rural and outer Metropolitan areas.

8.8 Rumble Strips

8.8.2 Use of Rumble Strips

In Western Australia, rumble strips may be used on the secondary road approach to rural intersections and on the approaches to railway crossings and shall be installed in accordance with Main Roads WA "[Policy Application Approval & Technical Guidelines – Rumble Strips](#)".

8.8.3 Tactile Ground Surface Indicators

Layouts for Tactile Ground Surface Indicators (TGSI's) used by Main Roads for pedestrian ramps and gaps are shown in Main Roads WA Standard drawings [200931-0089](#), [200931-0090](#) and [200931-0091](#).

9 GUIDE POSTS AND DELINEATORS

Guide posts and delineators shall be placed in accordance with Australian Standard AS 1742.2 Manual of Uniform Traffic Control Devices, Part 2: Traffic Control Devices for General Use. Departures from the above reference documents are described in Main Roads WA document "[Design of Guide Posts](#)". For technical specifications on types and installation requirements of guide posts and delineators refer, to Main Roads WA "[Specification 602 – Guide Posts](#)".

10 TRAFFIC SIGNALS

Main Roads document "[Vehicular Signals](#)" covers the design of traffic signals within Western Australia including intersections generally affected by traffic signal operation. It outlines the relevant standards and procedures to be followed when producing a traffic signal design. It provides guidance on components of traffic signal equipment and intersection arrangement, and details design output requirements and their presentation.

10.2 Signal Face Layouts

10.2.1 Vehicle Signal Face Layouts

Main Roads WA "[Vehicular Signals](#)" guideline, section 2.5.7.1 provides guidance on signal display layouts and requirements for deviation from the standard.

10.3 Display Sequences

10.3.6 Pedestrian Signals

Main Roads WA "[Vehicular Signals](#)" guideline provides guidance for the provision of pedestrian crossing facilities at traffic control signals.

10.4 Location of Signal Faces

10.4.3 Signal Face Site Requirements

Overhead signal warrants

Main Roads WA "[Vehicular Signals](#)" provides guidance for the use of overhead signal faces (mast arms).

10.4.4 Positioning of Signal Equipment

Main Roads WA "[Vehicular Signals](#)" guideline, section 2.5 provides guidance.

10.4.6 Lantern Mounting Heights

Main Roads WA "[Vehicular Signals](#)" guideline, section 2.5.7.5 provides guidance.

10.4.8 Lantern Aiming

Main Roads WA "[Vehicular Signals](#)" guideline, section 2.5.7.8 provides guidance.

10.4.10 Other Street Furniture

Refer Main Roads WA "[Vehicular Signals](#)" guideline, for guidance on "Joint Use" Arrangements.

10.4.11 Visors

Main Roads WA "[Vehicular Signals](#)" guideline, section 2.5.7.6 provides guidance.

10.4.12 Louvres

Main Roads WA "[Vehicular Signals](#)" guideline, section 2.5.7.6 provides guidance.

10.5 Special Uses

10.5.1 Advance Warning Signals

Advance Warning Flashing Signals are used in various situations to attract attention to a specific hazard, which may be unexpected, or of higher than normal potential risk. The intention is to provide drivers with additional information to enable them to react more readily and thereby avoid or reduce the risks. The signals can take the form of a single flashing display or, more conventionally, twin alternating displays. They may be installed by themselves, in conjunction with a traffic sign, or as an integral part of a warning sign and shall be installed in accordance with Main Roads document "[Advance Warning Flashing Signals](#)", refer to Main Roads WA website.

10.5.2 Railway Level Crossings

Warrants for Advance Warning Flashing Signals at railway level crossings are provided in the Main Roads WA document "[Railway Crossing Control in Western Australia Policy and Guidelines](#)". The document also includes information on sign location, sign size selection and operational timing.

For additional information on connections to railway crossing equipment as well as pit and conduit details, refer to the document "[Advance Warning Flashing Signals](#)".

10.5.6 Roundabout Metering Signals

A drawing showing a layout for roundabout metering is shown in Main Roads WA drawing [201131-0048](#) for Traffic Signals, ITS, Lighting and Electrical Roundabout Metering and [201031-0171](#) for Signs and Pavement Marking.

10.6 Ramp Metering Signals

Main Roads WA Ramp Signals guidelines can be found within Main Roads WA "[Smart Freeways Supplement to Victoria's Managed Motorway Design Guide, Volume 2: Design Practice, Parts 2 and 3](#)". This Supplement follows the same structure as the Department of Transport Victoria (previously VicRoads) 'Managed Motorway Design Guide' (MMDG).

Figures 10.43 to 10.45 are not to be used in WA. These are replaced by the respective figures in the Main Roads' supplement referred to above.

10.7 Pavement Marking at Signals

Refer to Main Roads [Pavement Marking](#) drawings under the Standard Contract Drawings on the website for details of Main Roads' pavement markings at signalised intersections.

10.8 Signs Used with Traffic Signals

10.8.2 Signs at Signal Installations

Give-way to pedestrians sign

The Western Australia version of the R2-10 Give-way to pedestrians sign is the "[MR-RP-11](#)" sign. This sign may be used as described in GTM Part 10, but is a smaller version. The sign is located on the primary pole on the left or right hand side, nearest to where the turn movement commences.

Pedestrian scramble-crossing sign

The Western Australia version of the R3-5 Pedestrian Scramble Crossing sign is the “[MR-RP-7](#)” Pedestrian Crossing Diagonally decal. This sign consists of a vinyl decal sticker and is applied to the traffic signal pole above the pedestrian push button. The use of pedestrian diagonal crossings shall be in accordance with the Main Roads document “[Guidelines for Pedestrian Crossing Facilities at Traffic Signals](#)”.

Signs to control turning movements

Main Roads WA “[Vehicular Signals](#)” guideline provides the requirements for the use of illuminated prohibition signs.

U-turn permitted signs

Main Roads may install U-turn Permitted signs on an approach to intersection traffic control signals where U-turning will not compromise safety or interfere with the efficiency of the traffic signal operations, and where the destination for which the manoeuvre is required cannot reasonably be accommodated by other means. Refer to Main Roads WA “[Policy and Application for 'U-turn Permitted' Signs at Traffic Signal Controlled Intersections](#)” for requirements.

Warning Signs

In WA, a W3-3 Signals Ahead warning sign is generally used in conjunction with either a “[MR-GS-3A](#) / [MR-GS-3B](#)” or “[MR-GS-4A](#) / [MR-GS-4B](#)” Street name Tag as an Advance Street name Sign. The exception would be when a large white on green Advance Direction Sign is used or there is insufficient distance to install the signs between successive intersections.

10.9 Red Light Infringement Cameras

Main Roads WA “[Vehicular Signals](#)” guideline, section 2.4.7 provides guidance.

11 TRAFFIC ISLANDS

11.1 Flush Medians and Islands

11.1.2 Wide Centre Line Treatments

Wide Centre Line Treatments (WCLT) shall be provided on roads managed by Main Roads WA to reduce the potential for head-on and run-off road crashes. Refer to Main Roads “[Wide Centre Line Treatment \(WCLT\) drawings](#)” under the Standard Contract Drawings on the website for details of Main Roads WA current practice.

12 COMMUNICATION DEVICES

Main Roads has no supplementary comments for this section.

APPENDIX A ROUTE PLANNING AND DIRECTIONAL AND WAYFINDING SIGNAGE FOR BICYCLISTS

Bicycle pavement symbols shall be installed within sealed shoulders or bicycle lanes on highways or roads where the various requirements are met in accordance with Main Roads WA “[On-Road Cycling Signs and Road Markings Guidelines – Midblock and Unsignalised Intersections](#)”.

Refer to Section 5.6 for additional information related to Bicycle Direction Signs.

APPENDIX B OPERATIONAL GUIDELINE FOR THE DETERMINATION OF SIGHT DISTANCE TO DIRECTION SIGNS

Main Roads has no supplementary comments for this section.

APPENDIX C ABBREVIATIONS FOR USE ON VMS

Main Roads WA "[Guidelines for Variable Message Signs](#)" provides a standard list of abbreviations to ensure messages can be understood independently of their context, or when they are used combined with certain prompt words.

APPENDIX D VMS MESSAGE STATEMENTS

Main Roads WA "[Guidelines for Variable Message Signs](#)" provides guidance for VMS messaging.

APPENDIX E GENERIC MESSAGE SET

Main Roads WA "[Guidelines for Variable Message Signs](#)" provides guidance for VMS messaging.

COMMENTARY 1 – 3

Main Roads has no supplementary comments for this section.