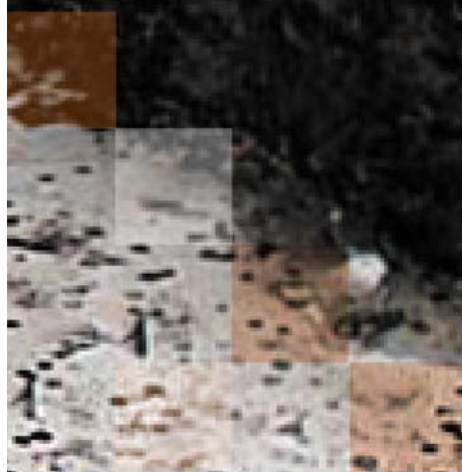


# Delineation

Section 8 - Diagonal and chevron markings



The delineation guidelines have been developed to assist in designing and maintaining a quality delineation system.

The guidelines are to comprise 19 sections and an appendix. These are initially being released individually and in no specific order. The sections which are to be released are as follows:

<b>Part</b>	<b>Title</b>
Section 1	Introduction
Section 2	Delineation principles
Section 3	Pavement markings
Section 4	Longitudinal markings
Section 5	Enhanced longitudinal markings
Section 6	Transverse markings
Section 7	Transverse markings - Pedestrian facilities
Section 8	Diagonal and chevron markings
Section 9	Messages on pavements
Section 10	Pavement arrows
Section 11	Pavement markings at roundabouts
Section 12	Pavement markings for bicycle facilities
Section 13	Pavement markings for kerbside parking restrictions
Section 14	Maintenance of pavement markings
Section 15	Raised pavement markers
Section 16	Guide posts and delineation of safety barriers
Section 17	Alignment signs and markers
Section 18	Delineation systems
Section 19	Delineation management and audit
Appendix A	Locating and setting out of dividing (barrier) lines

To determine which sections are currently available go to:

[www.rta.nsw.gov.au/doingbusinesswithus/downloads/technicalmanuals/delineation\\_dll.html](http://www.rta.nsw.gov.au/doingbusinesswithus/downloads/technicalmanuals/delineation_dll.html)

The information contained in the various parts is intended to be used as a guide to good practice. Discretion and judgement should be exercised in the light of the many factors that may influence the choice of delineation devices in any situation. The guidelines make reference, where relevant, to current Australian Standards and are intended to supplement and otherwise assist in their interpretation and application.

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# Delineation

## Section 8

# DIAGONAL AND CHEVRON MARKINGS

Special Note:

As of 1 January 2011, the RTA is adopting the Austroads Guides (Guide to Traffic Management) and Australian Standards (AS 1742, 1743 & 2890) as its primary technical references.

An RTA Supplement has been developed for each Part of the Guide to Traffic Management and relevant Australian Standard. The Supplements document any **mandatory** RTA practice and any complementary guidelines which need to be considered.

The RTA Supplements **must** be referred to prior to using any reference material.

This RTA document is a complementary guideline. Therefore if any conflict arises, the RTA Supplements, the Austroads Guides and the Australian Standards are to prevail.

The RTA Supplements are located on the RTA website at [www.rta.nsw.gov.au](http://www.rta.nsw.gov.au)





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### Amendment record

Please note that the following updates have been made to this document.

Amendment No	Page	Description	Issued	Approved By

## 8.1 Introduction

This Section should be read in conjunction with Australian Standard AS 1742.

Diagonal and Chevron markings are used to mark painted traffic islands and medians. They are also used on the approaches to raised islands and other obstructions.

## 8.2 Uses for diagonal and chevron markings

- (a) They are applied to areas of pavement, which are not generally intended for use by moving vehicles. They provide prohibitory guidance, that is, for informing the driver where it is NOT safe (or generally permitted) to travel.
- (b) Diagonal markings are used where all the traffic must pass to one side (normally the left) of the marking, whereas chevron markings are used where traffic may pass to either side of the marking when travelling in the same direction.
- (c) They define splayed island approaches to obstructions, sealed shoulders, painted islands and medians and areas separating exit ramps from the freeway carriageway.



Figure 8.1: Splayed approach with chevron markings



Figure 8.2: Painted Median with diagonal markings

(d) The spacing between diagonal bars or chevrons and their sizes are specified in Section 8.3. Under no circumstances should more than 25% of the pavement area, within the marked median or island, be painted.

## 8.3 Specifications

### 8.3.1 Markings on splayed approaches

The markings on splayed approaches to islands or obstructions shall be generally in accordance with AS1742.2.

The chevron markings shall have outline edge marking (E4 or E5, see Section 4.7.3 for details) and shall be supplemented by raised pavement markers (see Section 15 for marker patterns).

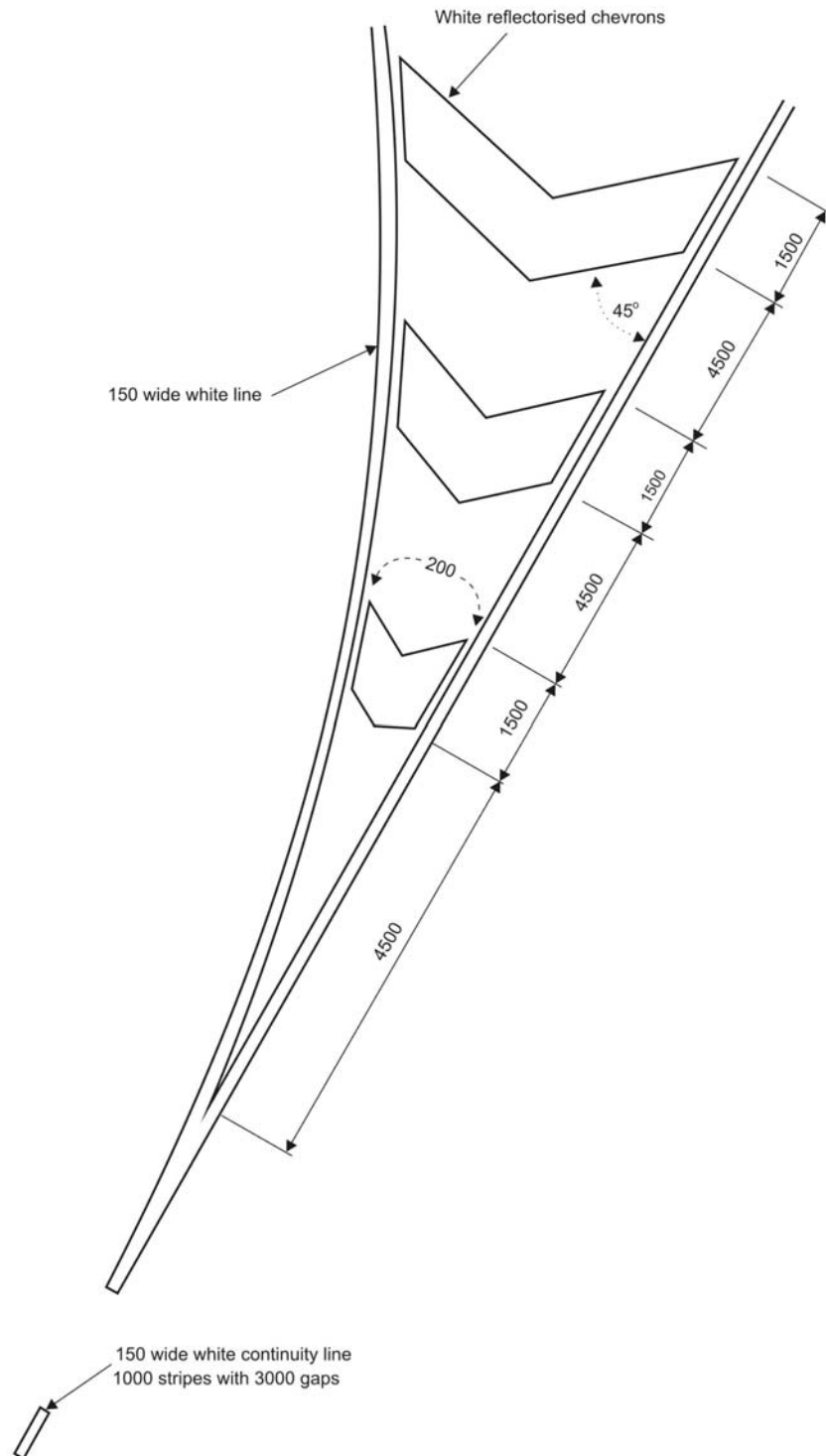
The chevrons shall be 1.5 m wide at 4.5 m spacing. The angle of the markings shall be 45° for approach speeds of less than 90 km/h and 30° for approach speeds of 90 km/h or more (see Figure 8.3).

### 8.3.2 Markings on sealed shoulders

The sections of sealed shoulder, on which it is undesirable for vehicles to encroach, should be marked with diagonal markings. The markings shall be generally in accordance with AS1742.2.

The markings shall be 1.5 m wide at 7.5 m spacing (marked parallel to the road centreline). The angle of the markings shall be 45° for approach speeds of less than 90 km/h and 30° for approach speeds of 90 km/h or more (see Figure 8.4).





**Figure 8.3:** Markings for splayed approach (speed less than 90 km/h)  
(Dimensions are in mm unless otherwise stated)



**Figure 8.4:** Example of diagonal marking on shoulders

### 8.3.3 Painted islands and medians

Painted islands and medians should be generally in accordance with ASI742.2.

Painted islands and medians should be defined by outlining areas of pavement with edge lines. The interior of painted islands and medians consists of diagonal or chevron markings (see Figure 8.5 and Figure 8.6).

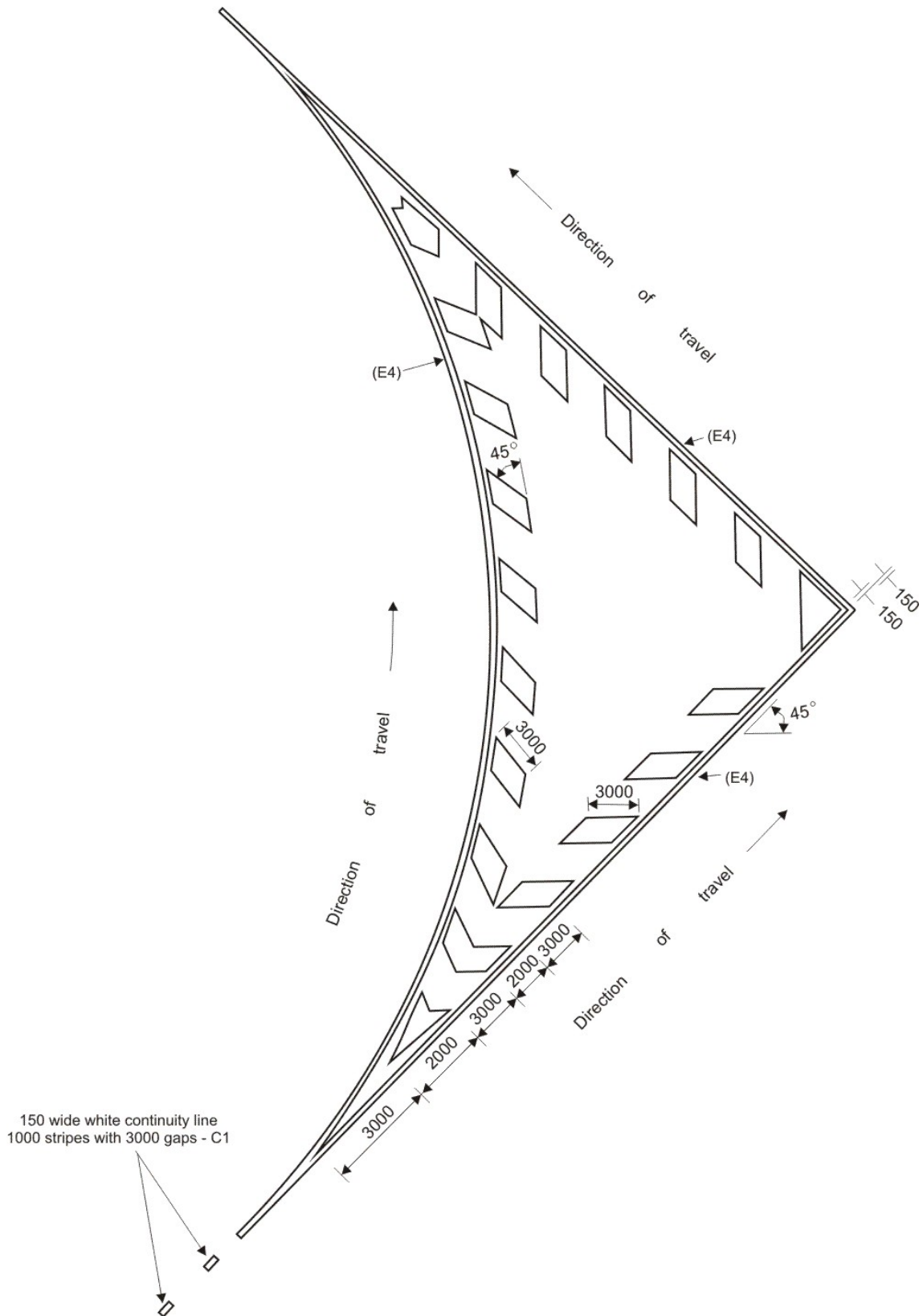
The outline of painted medians and islands should be marked with edge lines (see Section 4.7.3 for details) and shall normally be supplemented with raised pavement markers (see Section 15 for marker patterns).

The diagonal or chevron markings shall be as follows:

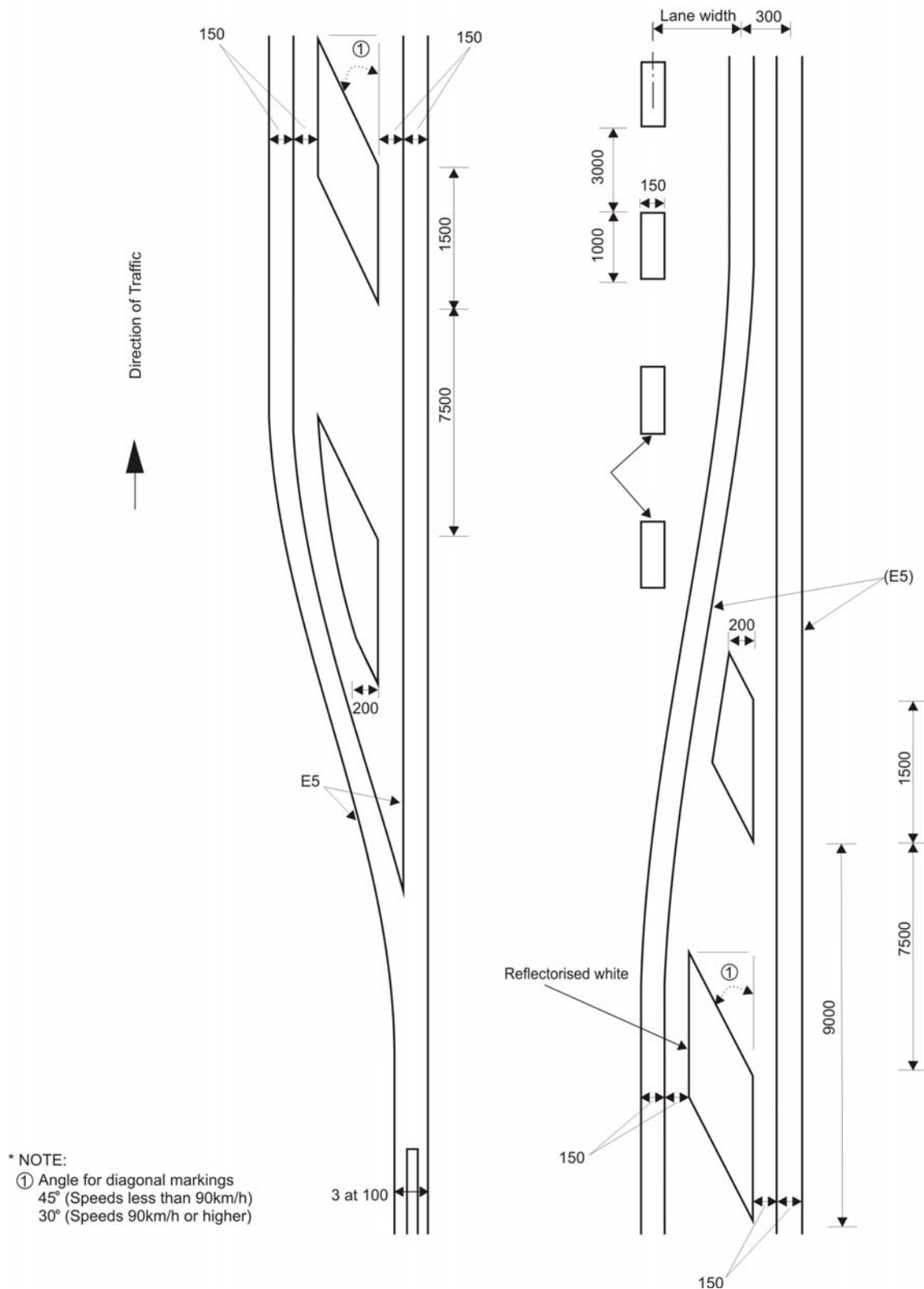
- (a) Channelising islands: 2.0 m wide at 3.0 m spacing.
- (b) Median islands: 1.5 m wide at 4.5 m spacing.
- (c) Diagonal medians: 1.5 m wide at 7.5 m spacing.

The angle of the markings shall be 45° for approach speeds of less than 90 km/h and 30° for approach speeds of 90 km/h or more.

A lead in barrier line marking of minimum length, as given in Table 8.1 should be installed at each painted island and obstruction approach marking. The barrier line may need to be extended or converted to a one-way or two way barrier line, if the warrants for a 'no-overtaking zone' are met on that section of the road.



**Figure 8.5:** Painted Island (speed less than 90 km/h)  
(Dimensions are in mm unless otherwise stated)



**Figure 8.6:** Painted Median  
 (Dimensions are in mm unless otherwise stated)

85 <sup>th</sup> percentile speed (km/h)	Length of Lead-in Dividing (Barrier) Line (m)
<75	30
75 – 90	60
>90	100

**Table 8.1:** Guide to the length of lead in dividing (barrier) lines

- (a) Typical uses of painted islands include:
  - (i) Islands of substandard size in urban areas
  - (ii) Channelising islands at rural intersections where operating speeds are high, or road lighting is absent or inadequate
- (b) Double barrier lines (BB lines) should be marked outside a painted median where it is required to prohibit vehicles from entering a right or left turn bay by driving on the painted median or to prohibit vehicles from crossing the painted median to enter or leave the road.

These restrictions would generally be implemented where –

- (i) Sight distance to approaching vehicles is limited
- (ii) The painted island is being installed as an interim measure before a concrete median is installed (i.e. only left in / left out access is required)
- (iii) There is demonstrated evidence that such a restriction will improve road safety, traffic flow or network efficiency.

Installing these lines for any other reason requires approval from the General Manager, Traffic Management.

Where a single line surrounds an existing painted island and it is intended to prohibit vehicles from driving on or crossing the island, install an additional line around the painted island (see Figure 8.7). This can be achieved by marking a 100 mm line, 140 mm inside the island edge line.



**Figure 8.7:** Example of painted median where driving on or crossing is prohibited

### 8.3.4 Median Turning Lanes or Two Way Right Turn Lanes (TWRTL)

#### (a) General

Median turning lanes, or two way right turn lanes (TWRTL), can be used to maintain capacity and level of service for the through lanes by removing the obstruction caused by a right turning vehicle. It also has the advantage of providing shelter for vehicles exiting from an access.

This treatment is particularly applicable in commercial and residential areas with closely spaced access points. It has been used successfully where arterial roads pass through country town business and industrial areas and access is required for motels, service centres and adjoining low traffic volume side streets.

TWRTLs should not be introduced without consideration to existing and future land use. They can reduce the level of service and safety on an arterial road by allowing unrestricted access, which can also encourage piecemeal land development. On new heavily trafficked arterial road, and commercial and industrial areas with widely spaced access points, a raised median, with openings at appropriate locations is preferred.

TWRTLs should be restricted to the urban environment with travel speeds of 70 km/h or less. They should not be used in high-density residential areas, due to the potential conflict with uncontrolled pedestrian movements.

The through road should have no more than two lanes in each direction; resulting in a total of 5 lanes with the introduction of a TWRTL.

### **(b) Geometric Considerations**

The TWRTL is to be paved flush with the adjacent lanes. The pavement markings and signs shown in Figure 8.9, together with raised reflective pavement markers, should generally provide adequate delineation of the turn lane. However, it may be desirable to improve delineation of the lane by using a contrasting surface such as a light coloured aggregate surface. The surface of the TWRTL should not be coloured red or green as these colours are used to define bus and bicycle lanes respectively.

TWRTLs and normal right turn auxiliary lanes within the same length of median should preferably be separated by a raised island and adequately sign posted.

Only vehicles entering or leaving the road may legally use a TWRTL. If operational problems occur because drivers use the lane for considerable distances, islands can be used to discourage this behaviour and to accommodate Median Turning Lane signs, resulting in better delineation during inclement weather, and refuge for pedestrians crossing the road.

TWRTL's should be installed in accordance with the following guidelines (see Figure 8.9):

- They shall be a minimum of 3.0 m wide.
- They shall be defined by an L4 line.
- The L4 line should be replaced with a CI line across intersections (using the prolongation of the side street kerbs). N.B. The L4 line should not be broken across driveways.
- Head to head arrows are to be painted at a nominal spacing of 150 m. This is to be adjusted for curves and crests to ensure that at least one set of arrows can be seen by a driver at all times. The initial set of arrows is to be 30 m after the first median island of the TWRTL and no arrows should be located closer than 30 m from an intersection.
- The islands are to have SM type kerb and painted chevrons 1.5 m wide at 4.5 m spacing and angled at 45°.

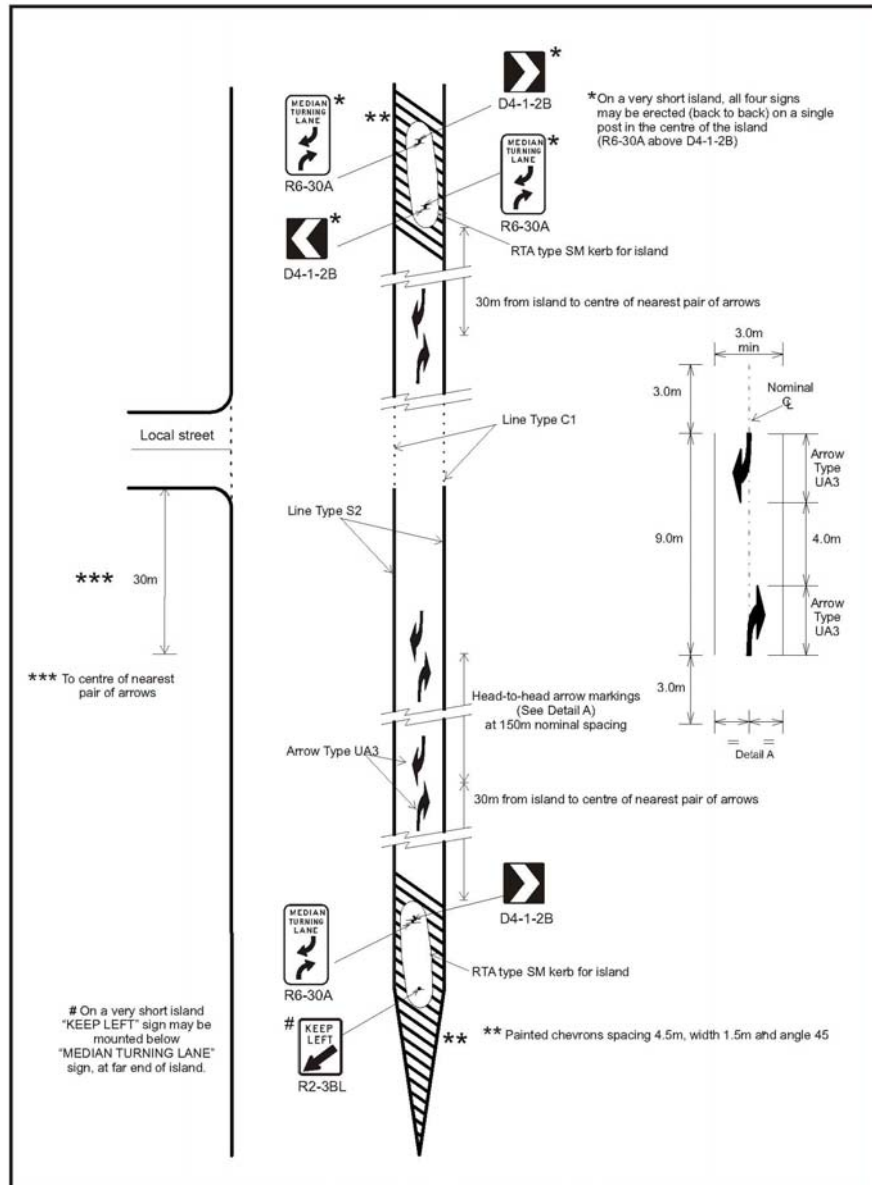


Figure 8.9: Two Way Right Turn Lanes



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